

# Annual Congress gynécologie suisse

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**Cancelled Congress due to COVID-19**

## **Abstracts**

- Free Communications
- Posters
- Videos



# Authors

FM = Free Communications

P I - P III = Poster Presentation and Exhibition

P = Poster Exhibition

V = Video Presentation

Subject to change

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# Free Communications

FM = Free Communications





FM I / 10

## TVT-O FOR TREATMENT OF PURE URODYNAMIC STRESS URINARY INCONTINENCE: EFFICACY AND ADVERSE EFFECTS AT 13-YEARS FOLLOW-UP

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**Introduction:** To assess the efficacy and safety of the tension-free vaginal tape obturator (TVT-O) 13 years after implantation for the treatment of female pure stress urinary incontinence (SUI).

**Materials and Methods:** A multicenter, prospective study was conducted in five tertiary referral centers in three countries. All consecutive women with urodynamically proven pure SUI treated by TVT-O were included. Patients with mixed incontinence and/or anatomic evidence of pelvic organ prolapse were excluded. Data regarding subjective outcomes (International Consultation on Incontinence Questionnaire-Short Form, Patient Global Impression of Improvement, and patient satisfaction scores), objective cure (stress test) rates, and adverse events were collected during follow-up. Univariable and multivariate analyses was performed to investigate outcomes.

**Results:** One hundred sixty-eight women had TVT-O implantation. At 13 years after surgery, 150 of 157 patients (95%) declared themselves cured ( $p=0.8$ ). Similarly, 141 of 157 women (90%) were objectively cured. No significant deterioration of subjective and objective cure rates was observed over time ( $p=0.78$ ;  $p = 0.1$ ). The multivariate analysis showed that previous anti-incontinence procedures and obesity independently predicted the subjective (OR=6.2 [95%CI:1.8-13.6];  $p=0.02$  and OR 1.8 [95%CI:1.3-3.0];  $p=0.03$ , respectively) and objective failure of TVT-O (OR=5.8 [95%CI:1.6-13.2];  $p=0.02$  and OR=1.6 [95%CI:1.2-3.2];  $p=0.03$ , respectively). Subjective and objective cure rates are summarized in table 1 and 2. We found 4 cases of sling exposure (2.5%); with a border-line significant increase ( $p=0.05$ ) of the incidence of sling exposure over ten years after the sling.

**Conclusion:** This report is so far the longest follow-up study available in literature, on the evaluation of subjective and objective outcomes of the TVT-O for treatment of female SUI. We found that TVT-O is a highly effective and safe procedure. The risk of short-, medium- and long-term complications, and of tape exposure, in particular, is low, but there is relevant increase of this complication over ten years after the procedure. However, this percentage is not too different than the rate of exposure reported in literature (1). It may be interesting to highlight that, also 13 years after the surgical intervention, the history of previous failed anti-incontinence procedures and obesity remain independent risk factors associated with a higher recurrence rate (2).



	1 yr	5 yr	10 yr	13 yr	p value
<b>Objective outcomes</b>					
Women objectively cured with data available at 1,5,10 and 13 yr	157/165	149/161	148/160	141/157	0.34 <sup>a</sup>
	95%	91%	92%	90%	0.10 <sup>b</sup>
Assuming all missing data (withdrawals and lost to follow up) are failures	157/168			141/168	0.31 <sup>a</sup>
	93%			84%	
Assuming all missing data (withdrawals and lost to follow up) are cured	160/168			158/168	0.80 <sup>a</sup>
	95%			94%	
<b>Subjective outcomes</b>					
Women subjectively cured with data available at 1,5,10 and 13 yr	157/165	155/161	155/160	150/157	0.86 <sup>a</sup>
	95%	95%	97%	95%	0.78 <sup>b</sup>
Assuming all missing data (withdrawals and lost to follow up) are failures	157/168			150/168	0.24 <sup>a</sup>
	93%			89%	
Assuming all missing data (withdrawals and lost to follow up) are cured	160/168			158/168	0.80 <sup>a</sup>
	95%			94%	
<sup>a</sup> X <sup>2</sup> test.					
<sup>b</sup> X <sup>2</sup> test for trend.					

Table 1. Cure rates at 1-yr, 5-yr, 10-yr, and 13-yr follow-up visit

	baseline	5 yr	10 yr	13 yr	p value
ICIQ-sf, median (IQR)	17 (16-17)	0 (0-2)	0 (0-2)	0(0-2)	<0.0001*
“Very much better” or “much better” on PGI-I, no./total no. (%)		155/168	155/168	150/168	0.53 <sup>a</sup>
		92%	92%	89%	0.33 <sup>b</sup>
Patient Satisfaction Scale, median (IQR)		10 (8-10)	10 (8-10)	10 (8-10)	
<sup>a</sup> X <sup>2</sup> test.					
<sup>b</sup> X <sup>2</sup> test for trend.					
ICIQ-SF = International Consultation on Incontinence Questionnaire–Short Form;					
IQR = interquartile range;					
PGI-I = Patient Global Impression of Improvement;					
* One-way Analysis of Variance (ANOVA)					
<b>Table 2. Subjective outcomes scores over time after Tension free vaginal tape-obturator</b>					



FM I / 11

## Sonographic assessment of features suspicious of uterine sarcoma: Evaluation of their use in preoperative prediction of malignancy

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**Introduction:** Uterine fibroid is a very common feature, with 70% occurrence at age 50. Despite new conservative options, hysterectomy remains the main therapy. The development of fibroid morcellation has enabled the removal of large uteri via minimal invasive surgery, but many cases describing dissemination of unsuspected uterine sarcomas have been reported (~1/352 hysterectomies for presumed leiomyomas). This has led the FDA to no longer recommend morcellation, leading to more invasive procedures with higher morbidity and costs. In the urgent need of better preoperative triage, we assessed six sonographic criteria (Leuven Score, LS) in the risk for uterine sarcoma. This study aims to analyze whether the LS permits a classification in high- and low risk clusters and helps the best surgical procedure.

**Material and Methods:** We prospectively evaluated all consecutive patients planned for surgery between 2015-2019 for uterine lesions with a standardized ultrasound examination. For triage the following criteria were investigated: rapid growth in past 3 months, high blood flow, atypical growth (postmenopause), irregular lining, central necrosis and oval solitary lesion). The evaluation of the criteria was binary, i.e. the score can range from 0 to 6.

**Results:** We included 394 patients (25 uterine sarcoma, 369 myomas). In the sarcoma group, 19 patients were postmenopausal (76%) and 6 premenopausal (24%), while in the myoma group, 279 patient were premenopausal (75%). The LS was negative in 83.2% of patients with myomas (NPV 98.1%, PPV 25.3%, sensitivity 76%, specificity 84.4%). For postmenopausal women only, a positive score led to a PPV of 41.6% (NPV 94.52%). The NPV for premenopausal women was 99.2% with a PPV of 8.6% (sensitivity 66.6%, specificity 85.9%). The median LS for sarcoma was 1 (range: 0-5, mean 1.65) vs 0 for myomas (range: 0-3, mean 0.19). The most common sonographic criteria leading to a false positive score was a rapid growth in past 3 months.

**Conclusion:** The use of the LS could help to distinguish between benign uterus myomatosis and sarcoma, with a high probability of a benign histology if the score is negative. Caution is required when  $\geq 1$  criteria is present in postmenopausal women. In those cases, we do not recommend morcellation. For premenopausal women, the rapid growth may lead to a false positive score; a score  $\geq 3$  increases accuracy. We suggest the use of the LS routinely in preoperative patient triage.



FM I / 12

## Studying unicorns: long-term survival in women with high-grade serous ovarian cancer

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**Introduction:** Few women with high-grade serous ovarian cancer (HGSC) survive >10 years after diagnosis. Understanding biological determinants of exceptional response and long-term survival may help improve treatment options for patients with an otherwise less favourable outcome. Here, we investigated genomic and immunologic determinants of exceptional survival in women with HGSC.

**Patients and Methods:** In a unique cohort of 60 women with >10-year survival following a diagnosis of advanced stage (Stage IIIC/IV) HGSC, whole genome sequencing (WGS) was performed on primary tumour and germline samples. Tumours were further characterized by RNA sequencing and immunohistochemistry (IHC). An in vitro model was established, using CRISPR-Cas9 to knockout (KO) the tumour suppressor gene RB1 in several HGSC cell lines. The impact of RB1 loss was analysed in assays of chemosensitivity, clonogenicity, immunogenicity and transcriptomics.

**Results:** WGS revealed that loss of RB1 is significantly enriched in HGSC long-term survivors and co-occurs with mutations in homologous recombination repair genes ( $p=0.014$ ), most commonly BRCA1/2. This finding was validated in an independent cohort ( $n=847$ ); RB1 loss combined with a germline BRCA1/2 mutation was associated with a significantly longer OS (HR: 0.44;  $p=0.0004$ ). IHC revealed that RB1 loss was associated with an increased number of PD-1+ tumour-infiltrating lymphocytes ( $P=0.015$ ) and MHC class I on tumour cells ( $P=0.002$ ). RNA sequencing identified E2F targets and interferon gamma response genes as highly up-regulated pathways in RB1 negative tumours. BRCA1 mutant HGSC cell lines showed an increased sensitivity to both Cisplatin and Paclitaxel after RB1 KO. There was no alteration of chemosensitivity after RB1 depletion in cell lines with intact BRCA1/2.

**Conclusion:** Studies on long-term survivors and patients with exceptional response to cancer treatment are emerging globally. In women with HGSC, concurrent loss of RB1 and BRCA1/2 mutation is associated with significantly longer overall survival. Sensitivity to Cisplatin and Paclitaxel is enhanced by RB1 knockout in BRCA1 mutant HGSC cell lines. Further, RB1 loss appears to result in enhanced host immune response. The ultimate goal of this research is to use insights gained from long-term survivors to improve outcome for patients with an otherwise more typical disease trajectory.



FM I / 13

## Fibrin sealants and axillary lymphatic morbidity: a meta-analysis of 23 clinical randomized trials

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**Introduction:** Several studies suggest that fibrin sealants may reduce lymphatic morbidity following pelvic, para-aortic and inguinal lymphadenectomy. The aim of this meta-analysis is to evaluate if this finding applies to the axillary lymphadenectomy as well.

**Material and Methods:** The electronic databases Pubmed, MEDLINE and Scopus were searched using the terms "axillary lymphadenectomy" and "seroma" or "fibrin sealant" in January 2020. Series evaluating the efficacy of fibrin sealants in reducing lymphatic complications were included in the meta-analysis. Only randomized trials were considered. Fibrin sealants were included both in glue and in-patch forms. The occurrence of axillary seroma, the axillary drainage output, the surgical-site complications, and the hospital stay were considered as outcomes. Surgical-site complications included infections, cellulitis, fever, wound dehiscence, local inflammation, and skin necrosis.

**Results:** Twenty-three clinical randomized studies met the inclusion criteria, including patients undergoing axillary lymphadenectomy for breast cancer, melanoma, and Hodgkin's disease. The use of fibrin sealants did not affect axillary seroma incidence (OR: -0.02 [95%CI: -0.07; 0.02];  $p=0.28$ , random-effect model). The axillary drainage output was significantly reduced after fibrin sealant application (OR: -55.1 [95%CI: -80.4; -29.8];  $p<0.0001$ , random-effect model) as well as the days before the axillary drainage was removed (OR: -0.8 [95%CI: -1.3; -0.2];  $p<0.005$ , random-effect model) and the hospital stay (OR: -1.3 [95%CI: -2.2; 0.3];  $p=0.008$ , random-effect model); however, no significant effects on surgical site complications' rate have been found (Odds Ratio: 0.99 [95%CI: 0.69; 1.41];  $p=0.9$ , fixed-effect model).

**Conclusion:** This meta-analysis shows that the use of fibrin sealants after axillary dissection reduces the total axillary drainage output, the days before the axillary drainage is removed and the hospital stay. No effects on the incidence of postoperative seroma and surgical site complications rate are found. Further studies are needed to demonstrate if the use of fibrin sealant after ALND with the sole intent of reducing lymphatic morbidity is worth the cost of it.



FM I / 14

## Immediate breast reconstruction following mastectomy (IRMA Study) – a prospective multicenter observational study in Switzerland

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**Introduction:** The best strategy for immediate breast reconstruction is a matter of debate. In a prospective US study (MROC Study\*), the rate of complication-related reoperations associated with immediate breast reconstruction following mastectomy (IRMA) was 23.2%. This study showed less complications with delayed reconstruction.

**Material and Methods:** This multicenter observational study has up to 6 participating sites enrolling patients in Switzerland. The study's aim is to track complications and medical outcomes for 5 years postoperatively. A total sample size of 360 patients is planned; an interim analysis will be conducted with the first 100 patients. The purpose of this pilot analysis, which includes the first patients who had  $\geq 6$  months follow-up, is to ensure our assumptions about the complication rates are realistic.

**Results:** As of January 2020, 35 women were enrolled. Of these, 25 had a median follow-up of 12 months (IQR 6-24). The median age at surgery was 56 years (IQR 41-63). Four women underwent bilateral surgery (2 bilateral therapeutic, 1 therapeutic/1 prophylactic, and 1 bilateral prophylactic). Therefore, of the 29 breasts surgically treated, 26 were therapeutic. Of the 25 patients, 64% (16/25) experienced complications, of which 11 (44%) required a reoperation to treat the complication. Table 1 presents the distribution of patients who underwent complication-related reoperations according to treatment type. Rates by treatment group were 67% (6/9) for immediate reconstruction vs. 31% (5/16) for the expander group. Radiotherapy seems to have a minor impact (47% (7/15) radiotherapy vs. 40% (4/10) no radiotherapy). Of the 9 women with immediate reconstruction, 7 had silicone prosthesis (4 with complications) and 2 had autologous tissue reconstruction (1 with complications).

**Table 1. Distribution of patients with complication-related reoperations by treatment type**

Treatment type	Patients with complications requiring reoperation (n=11)	Total patients (n=25)
Immediate reconstruction (one step) with radiotherapy	5	7
Immediate reconstruction (one step) no radiotherapy	1	2
Expander (2-step) with radiotherapy	2	8
Expander (2-step) no radiotherapy	3	8

**Conclusions:** Our assumption of a major complication rate higher than 20% is realistic and a basis for future statistical comparisons of the different treatment strategies.

\*Yoon AP et al. The Breast 2018;37:72-79



FM II/ 20

## BRCA mutation carriers and Ovarian Reserve

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**Introduction:** Despite preclinical evidence suggests a potential detrimental effect of BRCA mutation on fertility outcome, clinical findings are conflicting. A few studies reported a poorer response in BRCA mutation (BRCAm) carriers undergoing ovarian stimulation during assisted reproductive technology (ART) programs, as compared to not mutated women. Other studies documented an earlier onset of menopause in BRCAm carriers as compared to not mutated women. Several hypotheses have been speculated to justify this potential association, such as a reduced ovarian reserve in BRCAm carriers. AMH is an indicator of ovarian reserve and its level can be used as predictive marker of premature ovarian failure and menopause. The aim of this study is to evaluate if BRCAm carriers have a decreased level of AMH as compared to wild type women.

**Material and Methods:** On January 2020, a systematic literature search was performed. All series comparing AMH level in healthy fertile women with and without BRCA mutations have been considered. When standard deviations and/or means were not available in the published papers, these data were confidentially questioned to authors and included in the analysis. A meta-analysis was carried out in accordance with the PRISMA statement. Pooled odds ratio (OR) or risk ratio (RR) were calculated using fixed- or random-effects models and displayed as forest plots. The variability degree of variability secondary to study heterogeneity rather than sampling error was estimated.

**Results:** Data from eight series fulfilled inclusion criteria and were included in the analysis. The meta-analysis revealed that BRCA mutation does not affect AMH level significantly, despite the difference is close to achieve statistical significance (OR: -0.32 [95%CI -1.15; 0.5];  $p=0.44$ ). However, when BRCAm1 and 2 are considered separately, BRCAm1, but not BRCAm2, is associated with decreased AMH levels (OR: -0.2 [95%CI -0.4; -0.05];  $p=0.01$ ; OR: 0.02 [95%CI -0.21; 0.25];  $p=0.86$ ).

**Conclusion:** Female reproductive performance may be affected by BRCA mutation. In particular, BRCA1 mutation is associated with a decreased ovarian reserve. BRCAm1 carriers are usually invited by physicians in completing their childbearing before 40y; however, based on these results, BRCA1m carriers should be counselled also about their potential impaired fertility and managed accordingly. Therefore, an anticipated and/or tailored ART program might be considered in this setting.



FM II/ 21

## Motives for and against having children in different sexual and romantic orientations

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**Introduction:** Various motives for and against having children and their gender-specific variations have been described: Internal and external aspects as tradition, religion, personal history, compatibility of family and career and economic security. However, most studies focus on a heteronormative population. But recent data show that approximately 10% of the population are not heterosexual. There are few studies on motives for or against having a child in non-heterosexual individuals. The aim of this study was to determine the incidence of a desire for children in different sexual-romantic orientations, to explore motives for parenthood and to analyse preferred ways to fulfil reproduction needs.

**Material and Methods:** We performed a monocentre cross-sectional non-interventional cohort survey. An online questionnaire based on the "Leipziger Kinderwunschfragebogen" extended with input from LGBT+ friends and authors themselves was distributed to persons >18y without children in July and August 2018.

**Results:** 641 out of 837 participants fulfilled the inclusion criteria: 27.7% were of male and 67.1% of female sex, 3.9% trans-masculine 1.1% trans-feminine and 0.2% intersexual. Heterosexual-heteroromantic individuals had significantly more often a desire to have children (84.6%) than the other sexual and romantic orientations (pansexual-panromantic 67.3%, bisexual-biromantic 57.9% and homosexual-homoromantic 53.5%). The most important motive to have children was "search for emotional stability and meaning of life" whereas the main argument against children was "inadequate material and social support" in all orientations. Heterosexuals/Heteroromantic participants would prefer to have a biological child with their partner (93.6%), whereas Homosexuals/Homoromantics consider insemination or egg cell donation (32.3%), adoption (31.2%) or a surrogate mother (8.6%). As alternative methods to fulfil a desire for children 9.1% of bisexual/biromantic individuals would foster a child. The different strategies varied most widely in Pansexual/Panromantic persons who also considered co-parenting in 18.9%.

**Conclusion:** The rate of individuals with a desire to have children is high and motives for and against were similar in all sexual and romantic orientations. Gynecologists should be aware that 5% of their patients may not be able to fulfill their reproductive needs due to biological, medical and legal reasons.





FM II/ 22

## Association of stress with ovulation timing and menstrual cycle disorders

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**Objective:** Stress is a factor commonly associated with menstrual dysfunction, either as factor influencing cycle length or as inducing disturbances of hormonal regulatory patterns during the different cycle phases. Using the data of a longitudinal study, we assess the association of both psychological and physiological stress with cycle length.

**Methods:** We included 261 women, comprising 1127 menstrual cycles with lengths of 21 to 50 days. Every participant had to wear the Ava bracelet at night measuring physiological parameters, and to sync the data using a mobile application. One of the parameters measured by the wearable device is heart rate variability, which is an indicator of physiological stress. Perceived stress levels were measured by a daily survey. Follicular and luteal lengths were determined by home-based LH urine tests. We included all cycles for which data was available at least 80% of the cycle days. We investigated differences in cycle length across groups using the Mann-Whitney test and evaluated associations between both stress and cycle length using Pearson correlation. Further a multivariable mixed effect model analysis was used to determine ovulation probability in relation to stress.

**Results:** Psychological and physiological stress were correlated. Psychological as well as physiological stress were correlated with the length of the follicular phase (0.091;  $p=0.0023$  and 0.084;  $p=0.0047$ ). Increasing age increased the probability of experiencing ovulation (1.146 (0.041 to 0.231);  $p=0.0052$ ). Increased levels of physiological stress one day ago led to a lower ovulation probability (0.969 (-0.053 to -0.01);  $p=0.0044$ ) whereas high physiological stress levels today increased the chances of ovulation (1.027 (0.005 to 0.048);  $p=0.015$ ).

**Conclusion:** A wearable health device may help to archive a more exact prediction of individual ovulation timing and a more precise determination of the fertile window in the scope of family planning. The objectification of stressors may lead to a more profound understanding of cycle irregularities and probability of ovulation timing.



FM II/ 23

## Risk factors for non-response and intolerance of Dienogest in endometriosis patients: a cohort study

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**Introduction:** Progestins, synthetic progesterone derivatives, are commonly prescribed as first-line drugs for endometriosis. However, about one third of patients do not respond to this therapy and many do not tolerate its side effects. The identification of which patients will respond successfully to which drugs, before starting treatment, is currently impossible. The objective of our study therefore was to characterize in detail these patients to identify possible risk factors for non-response or intolerance to Dienogest treatment.

**Materials and Methods:** Symptoms and co-morbidities as well as Dienogest treatment effectiveness and side effect profile of all patients presenting in the Endometriosis Clinic of the University Hospital of Bern in 2017 were documented. Exclusion criteria were a duration of treatment less than four weeks and initiation of treatment directly after a surgery for endometriosis. Treatment effectiveness was classified as sufficient or insufficient. Possible risk factors for DNG non-response and discontinuation were determined with univariate binary logistic regression analysis. Multivariable binary logistic regression models were carried out for variables reporting a p-value  $\leq 0.2$  in univariate analysis.

**Results:** Sufficient or excellent treatment response was reported by 85/125 (68%) patients. Genital bleeding during the DNG treatment was negatively [OR (95% CI): 0.179 (0.045, 0.714), p= .015] and rASRM endometriosis stages III and IV positively [OR (95%CI): 4.992 (1.190, 20.941), p=.028] correlated with DNG response in the multivariable binary logistic regression model. Only treatment duration correlated with discontinuation [OR (95%CI): 0.973 (0.954, 0.993), p= .008]. After assessment of exclusively pre-treatment factors, primary dysmenorrhea [OR (95%CI): 0.236 (0.090, 0.615), p= .003] and the suspicion of adenomyosis [OR (95%CI): 0.347 (0.135, 0.894), p= .028] inversely correlated with DNG response while the latter also correlated with treatment discontinuation [OR (95%CI): 3.189 (1.247, 8.153), p= .015].

**Conclusion:** Genital bleeding during the DNG treatment and rASRM stage I and II are the only independent risk factors for DNG non-response when all possible pre-treatment, intra-treatment and surgical factors are evaluated. Prior to treatment initiation, primary dysmenorrhea and suspicion of adenomyosis independently correlate with DNG non-response.



FM II/ 24

## Bone health awareness and risk factors for osteoporosis in the female Swiss population

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**Introduction:** Osteoporosis is the leading metabolic bone disease worldwide associated with fractures that strongly impact the quality of life and cause a substantial economic burden. Since bone health is influenced by various lifestyle factors, adequate awareness of osteoporosis is imperative for the prevention and successful management of the disease. This awareness was the topic of our nationwide survey in Switzerland.

**Material and Methods:** We designed a physician and a patient questionnaire covering relevant aspects of prevention, diagnosis and treatment of osteoporosis, and distributed them to physicians across Switzerland, translated in the language of the given region (German, French or Italian). The questionnaires were collected over the period of one week and mailed to an external biometric institute for analysis.

**Results:** 262 physician and 9065 patient questionnaires were deemed eligible for analysis. Participating physicians were predominantly GPs (65%), followed by rheumatologists (17%), gynecologists (12%) and endocrinologists (6%). Patient population was predominantly female (70.5%), with a mean age of 51.9 years and a fracture prevalence of 8.2%. 9.1% of all (14.7% of menopausal) women indicated treatment for osteoporosis. Approximately 2/5 of the women were menopausal (38.6%), out of which 11.6% were treated by gynecologists. About 1/5 had treatments that could impact their bone health. Nevertheless, 40.5% of women were aware of osteoporosis as a chronic disease. Minority reported risk factors such as smoking or high alcohol intake. However, 39.6% only engaged in physical activity 1-2x / week, whereas 17.5% did not exercise at all. Majority did not consume more than 7 portions of major sources of calcium (milk, cheese and yogurt) per week, and around half of all (and 29.4% of menopausal) women did not use calcium or vitamin D supplements.

**Conclusions:** Our results indicate significant fracture prevalence and low awareness of osteoporosis among women in Switzerland. Due to the presence of risk factors and expected future rise of fracture incidence, promoting awareness would contribute to improved bone health care.



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## The Bernese Gestational Diabetes (GDM) Project: Third trimester fasting glucose or first trimester HbA1c to reduce oral glucose tolerance tests?

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**Introduction:** After the HAPO study the IADPSG proposed a universal screening for GDM using a 75g oral glucose tolerance test (oGTT) between 24 and 28 weeks of gestation. According to the national guidelines using a fasting glucose (FG) value of  $<4.4$  mmol/l as lowest threshold we could “safely” withhold an oGTT. Aim of this study was to investigate the negative predictive value (NPV) of a third trimester FG  $<4.4$ mmol/l to exclude a GDM.

**Material and Methods:** We performed a prospective cohort study on low and high risk women for GDM. All women had an oGTT performed between 24 and 28 weeks of gestation and an HbA1c value in the first trimester. Women with an HbA1c value  $\geq 6.5\%$  were excluded. The performance of a FG cut-off of 4.4mmol/l was calculated. ROC curve analysis was used to explore the screening capability of a FG of in GDM diagnosis. Statistical significance was considered when p-value  $<0.05$ .

**Results:** We included 735 women who met our inclusion criteria. The incidence of GDM was 14.8% (115/735). Based on the FG  $< 4.4$ mmol/l, we would have missed 16 (5%) GDM cases. Of interest, 3/16 (18%) needed an insulin therapy during pregnancy and showed a polyhydramnios. One women had even a pathological postpartum oGTT. The AUC for FG was 0.82. A value below  $< 4.40$  mmol/l as proposed to exclude GDM showed a likelihood ratio of 4, a sensitivity of 47%, specificity of 89%, and a NPV of 0.64. In comparison the NPV of HbA1c  $< 4.5\%$  in the first trimester is 0.99.

**Conclusion:** We showed that a first trimester HbA1c  $<4.5\%$  performs better than a third trimester FG  $<4.4$ mmol/l in excluding GDM. Using FG  $< 4.4$ mmol/l, we would have missed a small percentage of GDM women, however including women with metabolic disorder diagnosed after birth or needing insulin therapy in pregnancy.



FM III/ 31

## Microarray analysis in invasive prenatal diagnosis – not as useful as expected

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**Introduction:** Historically karyotyping was considered the gold standard for prenatal genetic analysis until in the last decade chromosomal microarray demonstrated an additional benefit in 6-6.5% of fetuses with structural abnormalities and even 1.7% of pathological results in fetuses without pathological findings. Microarray analysis is nowadays offered routinely to patients with a NT>95%ile or a structural abnormality in Switzerland. The aim of this study was to examine the performance of chromosomal microarray in our population.

**Material and Methods:** We included all pregnancies that underwent invasive procedures and genetic analysis due to fetal indications from January 2014 to December 2019. Mono-chorionic pregnancies with placental complications as well as multiple pregnancies with request for reduction were excluded. Statistical analyses were performed with GraphPad Prism 8.0 for Windows.

**Results:** During the study period, 864 pregnancies underwent invasive testing with an overall prevalence of aneuploidy of 41.3%. In 76.2% a karyotype only was performed, half or which had a pathological result; gene panel analysis diagnosed pathology in 1.5% and in 21.4% a microarray was performed, of which one tenth revealed an abnormal result. 11/450 (2.4%) of the CVS-results was inconclusive due to mosaicism (2%) or maternal contamination (0.4%) and required an additional amniocentesis. Since 2018 300 genetic tests were performed with 111/300 (37.0%) test done by microarray. A significant increase in the uptake of this method over the study period was noted ( $p<0.0001$ ). 9/111 (8.1%) microarray-results were abnormal; in 5/9 cases (55.6%) a variant of unknown significance (VOUS) was found, in 4/111 (3.6%) a diagnosis could be made. In detailed analysis, however, we found that 2/4 cases had a deletion large enough to be diagnosed also at karyotyping, resulting in only 1.8% of additional diagnosis with microarray.

**Conclusion:** Our results of over 40% pathological results demonstrate that the indication for invasive procedures today are restricted to cases with a high suspicion of a genetic abnormality. However, the performance of microarray seems to be lower than previously described. An explanation might be, that VOUS are interpreted differently in studies or that in our population different fetal anomalies lead to the indication of invasive testing.



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## Clinical and Economical Performance of Rhesus Genotypes during Pregnancy

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The consensus is, until now, to administer to all Rh- mother whose partner is Rh +, around the 28th week of pregnancy, after an alloimmune event and after the birth of a Rh+ newborn, an anti-D prophylaxis. For medical and ethical reasons this recommendation could be adjusted and anti-D administered only to Rh- mothers whose fetus is Rh+.

Since 2015, the Hematology Department of the Lausanne University Hospital (CHUV) in collaboration with the Transfusion Interrégionale CRS has developed a technology that detects RHD fetal gene through exons 5, 7 and 10. Cell-free plasma DNA was extracted from 147 Rh- women between the 12th and 33rd week of gestation, from December 2014 to June 2018. When the results show a Rh-, a second security control is performed to minimize false negative results.

Among the 147 Rh- women, 105 fetuses were detected Rh+ and 42 were detected Rh-. There were 4 false positive results, leading to a sensitivity of 100% and a specificity of 90.5%. The positive predictive value is 96.3% and the negative predictive value is 100%. Regarding the economical aspect, we obtained an average cost of 759 CHF per pregnancy with the prophylaxis anti-D method compared to 827 CHF per pregnancy with the fetal RHD genotyping method. An equalization of the costs would be reached with a decrease of 23 CHF per genotyping test.

Besides the intrinsic ethical advantage of the non-invasive method, we demonstrate its high sensitivity in our laboratory. Despite a slight cost disadvantage of the RHD genotyping method, the gap of 68 CHF would be overcome by both the decrease of the genotyping price and the fact that we did not evaluate extra costs of situations with alloimmunization. This could be proven by a further prospective analysis.



FM III/ 33

## Fetal whole exome sequencing in routine prenatal diagnostic: pitfall, success and good practices

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**Introduction:** Fetal anomalies affect 2-3% of pregnancies and lead to a high perinatal morbimortality. Their aetiological diagnosis is essential for the fetal prognosis and the genetic counselling of the couples. It has been shown that fetal whole exome sequencing (WES) increases the diagnosis rate in affected cases without chromosomal anomalies. However, and despite recent position statement on its use in prenatal diagnosis (PND), the variable diagnosis rate (6-80% depending on the studies) reflect the lack of consensus about its implementation in PND. We evaluated the efficiency of fetal WES in our routine PND process and discuss the diagnostical and ethical issues.

**Methods:** Between November 2018 and October 2019, pregnant women were screened for inclusion. Inclusion criteria were the occurrence of a fetal anomaly (increased NT, isolated or associated with other anomalies, one or more anomalies without increased NT), normal conventional karyotype and array CGH and possible trio analysis. A genetic counselling was recommended before and after the test. The analysis of the WES (parents-fetus trios) was performed independently by two geneticists and results were discussed in clinical-biological board before validation. Reporting of actionable secondary findings and carrier screening in both parents were proposed to the couples.

**Result:** The analysis of the WES was proposed in 95 cases and realized for 20 trios between 15 and 24 GA. The pre-test counselling occurred for 18 trios. The median time from recruitment to final report (secondary findings not included) was 14.5 days [7 – 33]. 4 couples accepted the post-test consultation. 7 pathogenic or likely pathogenic variants (ACMG classes 4 or 5) were identified in as many trios (35%) in the following genes: POMT1, RAPSN, KRAS, ACTG2, COL2A1, COL1A1 and CPLANE1. 3 additional fetuses had a variant of uncertain significance (VUS) that had potential clinical relevance (PRRX1, PHF8, MMP13). The reporting of secondary findings and/or heterozygous carrier was requested in 10 trios (50%).

**Discussion:** Fetal WES significantly improves PND as far as it takes place in a multidisciplinary approach. The main pitfalls in interpreting the results were due to unspecific phenotypes, where the criterions of the ACMG are unsuitable, and the lack of knowledge about prenatal phenotypes of yet postnatal well-known genetic conditions. We propose an algorithm to integrate the fetal WES in the routine PND while avoiding these pitfalls.



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## Prevalence of hypertensive complications during pregnancy in Switzerland from 2005 to 2017

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**Introduction:** Hypertensive complications (HC) during pregnancy are among the leading causes of maternal mortality and morbidity. Pre-eclampsia (PE) in particular plays a crucial role. Its incidence varies between 2.2% and 9.4%. In Switzerland, reliable data concerning the incidence of pre-eclampsia are scarce. The Swiss Federal Office for Statistics (Bundesamt für Statistik) reported an incidence of 1.97% during 2012 – 2017. Two prospective studies from 2015 and 2017, which have recently been published, found an incidence of 2.3% and 1.68%. However, the investigated study populations were small. The purpose of our study is therefore, to investigate the incidence of HC during pregnancy in a much larger population, using the database of the Arbeitsgemeinschaft Schweizerischer Frauenkliniken (ASF).

**Materials and Methods:** The cumulative ASF database from 2005 to 2017 was investigated according to the codes for the respective HC. Moderate and severe PE, eclampsia and HELLP syndrome were subsumed under the term “primary PE”. The codes for secondary PE as well as cases of gestational (GH) and chronic hypertension (CH) were analysed as a separate group. The incidence of these HC was also calculated for the age classes 18-22, 23-27, 28-32, 33-35, and >35 years.

**Results:** Within the investigated timeframe, 429'863 births were recorded in the ASF, which is equal to 41% of all births in Switzerland during that interval. 11'984 (2.79%) pregnancies were complicated by HC, among them 6'146 (1.43%) had PE and 5'838 (1.36%) had hypertension. Thus, the incidence of HC was found to be  $92.2 \pm 0.03$  per 1'000 births. The incidence of CH, GH, primary and secondary PE was  $0.22 \pm 0.03\%$ ,  $1.15 \pm 0.2\%$ ,  $1.39 \pm 0.1\%$  and  $0.04 \pm 0.01\%$ , respectively. A linear regression demonstrated a significant increase in primary PE and a decrease in cases with CH in the investigated interval. The incidences of other HC, however, remained stable within the investigated period. Furthermore, a significant correlation was found between increasing maternal age and the incidence of CH as well as secondary PE. All other HC remained stable within the age classes.

**Conclusion:** Our investigation demonstrates a lower incidence of PE in Switzerland compared to the international level. Moreover, the incidence of PE seems to be lower than previously reported in prospective Swiss studies. As in other populations of industrialized countries an increasing incidence of pre-existing hypertensive morbidity and therefore more secondary PE with increasing age was noted.





# Poster Presentation and Exhibition

P I – P III = Poster Presentation and Exhibition



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## An extended Menopause Rating Scale II: A Retrospective Data Analysis

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**Introduction:** To discuss a statistically reasonable inclusion of additional questions in the Menopause Rating Scale II (MRS II) for daily use in clinical practice.

**Material and Methods:** Retrospective data analysis (cantonal ethics committee No 2016-01179). The MRS II was extended with the parameters 'changes in weight', 'headaches', 'skin changes', 'changes in hair growth', 'hair loss' and if therapy was desired. Data from 419 women seeking medical advice in our specialized consultation for menopausal complaints were collected between April 2009 and April 2017. Cronbach's alpha was used to measure internal consistency of the extended questionnaire.

**Results:** For the conventional MRS II (N = 340) the internal consistency measured with Cronbach's alpha raised from 0.805 to 0.820 considering 'changes in weight' (N = 237), to 0.815 considering 'headaches' (N = 247) and to 0.815 considering 'skin changes' (N = 236) if these additional parameters were added separately. Cronbach's alpha raised from 0.805 to 0.835 (N = 224) if these parameters were added at once. Desire for therapy varied between 42.1 % ('changes in hair growth') and 60.6 % ('hair loss').

**Conclusion:** We suggest including the items 'changes in weight', 'headaches' and 'skin changes' in the MRS II as our results show even higher internal consistency with these symptoms and as wish for therapy was high.



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## A comprehensive analysis of matched ovarian cancer tissue samples using MALDI-Mass spectrometry imaging (MALDI-MSI)

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**Introduction:** Glycans on proteins and lipids play an important role in protein folding and membrane stability which contribute to a variety of biological processes including cell-cell communication, signal transduction and cell differentiation [1,2]. Aberrant glycosylation on proteins (N-glycans) has been associated with various human diseases including ovarian cancer [3,4,5]. However, analysis of the glycan's spatial distribution in human tissue samples has been restrained due to technical limitations and glycome complexity so far.

**Material and Methods:** In this study, we analyzed formalin-fixed paraffin-embedded (FFPE) tissue sections from primary and matched samples of high-grade serous ovarian cancer patients. We enzymatically released tissue-specific N-linked glycans using peptide-N-glycosidase F (PNGase F) and visualized the spatial distribution (50um) using a novel matrix-assisted laser desorption/ionization (MALDI) mass spectrometry imaging (MSI) setup [6].

**Results:** Here, we present the first data demonstrating spatially distribution of N-glycans released from proteins in tissue-specific regions. We observed that cancer tissue section contain more oligomannose structures in the tumor compartment whereas highly branched glycans are restricted to the stroma section. Moreover, the N-glycans observed from primary and metastatic tumor site from the same patient exhibit unique glycans with varied abundances.

Together, these data demonstrate that tissue-based MALDI-MSI of N-glycans is able to discriminate different tissue regions and show N-glycans as a potential tool for the development of diagnosis and personalized treatment.

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## Peritoneal fluid biomarkers in patients with endometriosis: a cross-sectional study

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**Background:** Elevated concentrations of numerous molecules have been reported in the peritoneal cavity of women with endometriosis. Until now, no factor proved sufficiently specific to endometriosis. We aimed to investigate several biomarkers in endometriosis and report their association with the menstrual cycle in a large sample size study.

**Materials and Methods:** Patients of reproductive age undergoing laparoscopic procedures for benign pathology in the Department of Obstetrics and Gynaecology, University of Berne between 2007 and 2018 were included. Exclusion criteria were the use of hormonal treatment in the 3 months prior to surgery, patients suffering from other inflammatory diseases, pregnancy, malignancy and surgery performed in an emergency. The concentrations of 13 different biomarkers in the peritoneal fluid (PF) were compared between patients with and without endometriosis both in the proliferative and the secretory cycle phase.

**Results:** Out of 1256 patients in the database, 521 met the inclusion and exclusion criteria. Glycodelin and Midkine concentrations were significantly higher in patients with endometriosis compared to controls irrespective of the cycle phase in which the PF was collected. IL-8, RANTES and OPG concentrations were higher in patients with endometriosis only in the proliferative cycle phase. MCP-1 and Defensin concentrations were higher in patients with endometriosis only in the secretory cycle phase.

**Conclusion:** Certain pathophysiological processes may take place only in the one cycle phase leading to a temporary increase of specific PF biomarkers. Correlation with clinical outcomes is mandatory to establish their potential as prognostic or therapeutic tools in endometriosis.

Keywords: Endometriosis, cytokines, chemokines, biomarkers, peritoneal fluid

Abbreviations:

IL-8: interleukin-8

MCP-1: monocyte chemoattractant protein 1, CCL2

OPG: Osteoprotegerin

PAPP-A : pregnancy-associated plasma protein A

PF: peritoneal fluid

PP14: glycodelin

RANTES: regulated on activation normal T cell expressed and secreted

rASRM: American Society for Reproductive Medicine Revised Classification of Endometriosis

TNF-a: tumour necrosis factor-a

VEGF: Vascular Endothelial Growth Factor



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## Accuracy of intraoperative frozen section analyses in adnexal tumors

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**Introduction:** Adnexal neoplasms are a heterogeneous group of tumors and an important cause of morbidity and mortality in women. Their surgical management and prognosis depends on their correct categorization as benign, borderline, malignant or metastasis. Since preoperative radiological and serological work up neither is completely sensitive nor specific, mostly surgery is needed to confirm diagnosis. If this diagnosis can be made intraoperatively, a second surgery can be avoided. In this study we analyze the role of intraoperative frozen section.

**Material and Methods:** In a retrospective cohort study, we examined all frozen section results of patients with adnexal masses to determine the diagnostic accuracy in comparison to the standard paraffin section technique. Data on patient characteristics, perioperative data and data on histological examinations were collected between 2010 and 2019 and factors that influence the accuracy were analyzed.

**Results:** Data covering 302 frozen section analyses were examined. Of these, 141 (46.7%) had benign histology, 21 (7%) had a borderline tumor, 129 (42.7%) had ovarian cancer and 11 (3.6%) had a metastatic origin. Histologic type was serous in 49.7%, mucinous in 15.6%, endometrioid in 2.3%, clearcell in 1.7% and other in 28.5%. Over all diagnostic accuracy to determine the status of malignancy was 93.4% (100% for benign, 61.9% for borderline, 92.2% for malignant and 81.8% for metastatic tumors). Sensitivity and specificity were 100% and 93.8% for benign, 61.9% and 97.5% for borderline, 91.5% and 97.7% for malignant and 72.7% and 99.7% for metastatic ovarian neoplasms, respectively. Positive predictive value was lowest in the borderline group with 65%. In patients with ovarian cancer, diagnostic accuracy was significantly higher in serous disease ( $\chi^2$ -Test,  $p=0.007$ ) and in patients with ascites ( $\chi^2$ -Test,  $p=0.027$ ). We further observed a statistically significant correlation between diagnostic accuracy and smaller tumor size in this group ( $\chi^2$ -Test,  $p=0.016$ ).

**Conclusion:** In our cohort, we found a high diagnostic accuracy of intraoperative frozen section analysis for the diagnosis of adnexal tumors. It appears to be a useful technique for the intraoperative management of adnexal masses in gynecological cancer centers to avoid a second surgical intervention. We observed some limitations in its diagnostic accuracy among borderline, non-serous and large tumors.



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## SENTINEL LYMPH NODE IN ENDOMETRIAL CANCER: IS FROZEN SECTION ALWAYS PERFORMING?

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**Introduction:** Surgical staging in endometrial cancer (EC) has evolved and sentinel lymph node (SLN) mapping has vastly replaced a full pelvic and paraortic lymphadenectomy (LND). It is unclear whether patients with metastatic disease to the SLN might benefit from a full LND. Particularly, patients with macrometastatic lymph nodes (LN) disease have additional LN metastasis in 60% of the cases. An intraoperative evaluation of the SLNs might identify the patients with LN disease who could benefit from a full LND. Aim of the study is to evaluate the performance of the frozen section (FS) in detecting LN disease.

**Material and Methods:** A retrospective analysis of EC patients treated between 01.2015 and 12.2019 was performed. Patients underwent a laparoscopic Indocyanine Green (ICG) SLN mapping, a total hysterectomy and bilateral salpingo-oophorectomy. An intraoperative evaluation of the SLNs with FS was performed. In case of metastatic involvement a full pelvic and paraortic LND was performed. Sensitivity, specificity, accuracy, positive predictive value (PPV) and negative predictive value (NPV) of the FS in detecting metastatic disease was analyzed. Identification and discrepancy of empty nodes (EN), defined as a SLN specimen without evidence of lymph nodal tissue at FS and PS were analysed.

**Results:** Fifty-eight patients met the inclusion criteria. Overall, bilateral and unilateral detection rates (DR) of ICG SLN mapping were 100% (58/58), 89.7% (52/58) and 10.3% (6/58) respectively. At PS 8 patients had stage IIIC disease due to LN involvement. FS detected SLN metastasis in 4 of 8 patients. Of these, 2 were micrometastasis (microMTs) and 2 were macrometastasis (macroMTs). Of the 4 FN cases at FS, ITCs and microMTs were misdiagnosed. No macroMTs were misdiagnosed. Calculated sensitivity, specificity, accuracy, PPV and NPV of the FS in detecting LN metastases was 50%, 100%, 93%, 100% and 92.6% respectively. In 11 (19%) and 8 (13.8%) cases, no LN tissue (empty nodes, EN) was identified at FS and PS.

**Conclusion:** Although FS had a low sensitivity in detecting LN metastases, it accurately identified all the patients with macroMTs disease. These patients are at the highest risk of harboring additional LN metastases and represent the cohort who might benefit the most of a complete LND. Additional studies addressing the cost effectiveness of this approach and the oncologic benefit of performing a complete LND in this setting are needed.



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## Recovery of menses after functional hypothalamic amenorrhea – if, when and why

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**Background:** Prolonged amenorrhea occurs as a consequence of functional hypothalamic amenorrhea (FHA) which is most often induced by weight loss, vigorous exercise or emotional stress. Unfortunately, removal of these triggers does not always result in return of menses. Prevalence, conditions and timing, of return of menses vary strongly and some women still report amenorrhea several years after having achieved and maintained normal weight and/or energy balance. Such knowledge would allow better counseling also in the context of infertility. Although body mass index (BMI), percentage body fat, hormonal parameters and neurotransmitters are known to be involved in the initiation of the menstrual cycle, their role in the physiology of return of menses is currently poorly understood. We therefore summarize current knowledge on the epidemiology and physiology of return of menses.

**Objective and Rationale:** To provide an overview on (i) which factors determine the recovery of menses and its timing, (ii) how these factors exert their physiological effect, and (iii) whether there are any therapeutic options to induce recovery.

**Search Methods:** We searched articles published in English, French or German language containing keywords related to return of menses after FHA published in PubMed between 1966 and December 2019. Manuscripts reporting data either on the epidemiology or on the physiology of recovery of menses were included and bibliographies were reviewed for further relevant literature. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) criteria served to assess quality of observational studies.

**Outcomes:** Few studies investigate return of menses and most of them have serious qualitative and methodological limitations. Further, comparison of studies is hampered by very inhomogeneous study designs. Consequently, the exact prevalence of resumption of menses after FHA is unknown. Also, the timepoint of return of menses varies strongly and reliable prediction models are lacking. Weight, body fat and energy availability are associated with return of menses. The physiology of return of menses, especially its chronological sequence related to different peripheral and central regulatory molecules as well as the role of genetic factors needs further research. Drug therapies with metreleptin, or naltrexone might represent further opportunities to increase chances for the return of menses, but also need further evaluation.



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## Sexual Function After Resection of Urethral Diverticulum

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**Introduction:** A retrospective evaluation of sexual function and urodynamic changes before and after resection of urethral diverticula in a single surgical centre. Urethral diverticula (UD) have a prevalence of 1% to 6% in women. 56% of them are experiencing dyspareunia. Surgical resection of symptomatic UD should be advised. 15-33% of the patients undergoing surgery are developing de novo stress urinary incontinence (SUI).

**Materials and Methods:** We evaluated 40 female patients retrospectively who presented with symptomatic UD and were operated between 2008-2018. Primary outcome was sexual function and secondary outcome urodynamic changes and complications after resection of UD. Sexual function was determined by the female sexual function index (FSFI) before and twelve months after surgery. Every patient undergoing surgery had a pre- and postoperative multichannel urodynamic assessment. The follow-up period lasted for 12 months. For statistical power significance was considered a parametric two-tailed paired t-test with confidence level of 95%.

**Results:** AS for the FSFI results we were able to show an improvement for the domains satisfaction ( $p < 0.0001$ ) and pain ( $p < 0.0001$ ). No significant difference in desire, arousal, lubrication and orgasm could be determined. Maximum urethral closure pressure (MUCP) ( $p < 0.0008$ ) deteriorated from 39 to 36 cmH<sub>2</sub>O and residual ( $p = 0.0019$ ) increased from 10ml to 20 ml significantly after surgery. No statistical significance in bladder capacity and free urinary flow had been found.

**Conclusions:** Resection of a UD leads to a highly significant improvement of sexual function i.e. satisfaction and pain. Urodynamic assessment shows a significant impairment of MUCP and a significant increased residual but without clinical implication.





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## Response of peritumoral DCIS to neoadjuvant systemic treatment in HER2-positive breast cancer patients

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**Introduction:** Neoadjuvant systemic treatment (NST) is regarded as the standard of care for stage II-III HER2-positive breast cancer (BC). Achieving a pathological complete remission (pCR) in the neoadjuvant setting has shown to be associated with a higher event-free survival (EFS) and overall survival (OS) in the HER2-positive or triple-negative BC molecular subtypes. The effectiveness of NST for peritumoral ductal carcinoma in situ (DCIS) is still unclear. Our aim was to assess pCR of our collective with focus on the DCIS component.

**Material:** We conducted a retrospective single cohort study to assess HER2-positive BC patients who received NST from 2017 to 2019 at the University Hospital Zurich. The neoadjuvant chemotherapy regime contained taxan and/or anthracyclin or another compound in combination with trastuzumab with or without pertuzumab. The endpoint was the pCR in breast tissue with focus on peritumoral DCIS in these patients. Breast imaging and core biopsy before NST was correlated with breast imaging and postoperative histology after NST.

**Results:** 25 HER2-positive BC patients underwent NST. In 80% DCIS was detected at the time of the BC diagnosis (20/25) by imaging and / or core biopsy. We observed a pCR for the invasive component (ypT0/is) in 18 patients (66%). Residual DCIS after NST (ypTis) was found in 18 patient (90%) of all patients and in 14 patient (77.8%) among those with pCR. Out of the 2 cases without residual DCIS one was in the pCR group and one was in the non-pCR Group.

**Conclusion:** Currently, several trials are assessing the safety of avoiding breast surgery after NST in cases with radiological complete response. Although high complete remission was achieved after NST for invasive cancers in our cohort, it failed to eradicate the DCIS component in most of the cases. The high rates of ypTis despite ypT0 in the HER2-positive subgroup should be considered in trials assessing the role of avoiding surgery after NST.



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## Structured manual for MRI assessment of deep infiltrating endometriosis using the ENZIAN classification

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**Introduction:** Deep infiltrating endometriosis (DIE) is a chronic inflammatory disease that often requires surgical removal. MRI is gaining importance as a non-invasive diagnostic tool for classification and treatment planning and has shown good agreement with intraoperative results based on the Enzian classification. Nevertheless, the use of MRI still differs considerably in terms of performance and assessment, which limits reproducibility. Aim of this study was to evaluate a systematic approach to assess DIE through MRI using the Enzian classification.

**Methods:** Three radiologists reviewed retrospectively and independently 23 MRI of patients with pelvic DIE. Sequences included in the protocol were: T1-weighted 3D DIXON Gradient-Echo Sequence large FoV (Field of View) axial (T1w), T2-weighted 2D Fast Spin-Echo Sequence small FoV (axial (T2w ax), sagittal (T2w sag), coronal (T2w cor), T2\*-weighted 2D/3D Gradient-Echo Sequence large FoV axial (T2\* ax), and post-contrast 3D Gradient-Echo Sequence large FoV axial (pcT1w ax). Assessment was performed using a manual based on the Enzian classification with step-by-step instructions:

1. T2w ax: overview, localisation of uterus, ovaries, cervix, fluid collections
2. T2w sag: rectovaginal septum, vagina (A), rectum (C), uterus (FA), bladder (FB)
3. T2w ax: sacrotuberine ligament, cardinal ligament, pelvic wall, external masses compressing ureter (B), intrinsic ureteral lesion (FU)
4. T2w cor: assessment of detected lesions in coronal plane
5. pcT1w ax: screening, infiltrating component, differential diagnosis
6. T2\*ax/T1w ax: blood degradation products (T2\*: hemosiderin dark, methemoglobin bright)
7. T2w sag/T2w ax: douglas, ovaries, lig. rotundum (FO)
8. T1w: lymph nodes, subcutaneous lesions, inguinal area, bones (FO), intestine (FI)

Enzian class. (scale 0 to 3) was dichotomised to simplify (0, no lesion; 1, lesion present). Interrater agreement was calculated using kappa-statistic.

**Results:** Agreement was best for the compartments A (Kappa 0.452), FB (0.642), and FI (0.204), while poor agreement was found for B (0.098), C (-0.38), FA (-0.022), and FO (-0.023), resp. As for FU, no uretral infiltration was described.

**Conclusion:** MRI shows great potential as a diagnostic tool, which allows improved planning of the surgically demanding treatment of DIE. Since MRI diagnostics of DIE is still in its infancy, we are aiming for a more systematic approach, for which we propose our manual based on the Enzian classification. Prospective studies are needed.



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## The Bernese gestational diabetes (GDM) project: First trimester glycosylated hemoglobin A1c (HbA1c) combined with maternal characteristics as a predictor of GDM

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**Introduction:** Despite research, there is still no global consensus on GDM diagnosis. There is also no consensus on the diagnostic for metabolic disorders in early pregnancy. In our retrospective study assessing first trimester HbA1c in a high risk population, we showed that all pregnant women with HbA1c  $\geq 6.0\%$  developed GDM, whereas those  $< 4.5\%$  did not. Aim of our prospective study was to prove our results in a wider low risk population and establish an early risk stratification, which would reduce the need for universal screening in the 3rd trimester.

**Methods:** We included prospectively all women with a first trimester HbA1c value. Exclusion criteria were a type 1 or type 2 diabetes or HbA1c  $\geq 6.5\%$ . The primary outcome was the association of first trimester HbA1c with GDM. Categorical variables of mothers with GDM were compared to a control group without GDM. Correlations between potential risk variables of the mothers and a pathological 75g oGTT between 24 and 28 weeks of gestation were analyzed. We performed ROC curve analysis to assess the prognostic accuracy of first-trimester HbA1c and random Glucose (rGlu) in predicting GDM. A p-value  $< 0.05$  was statistical significant.

**Results:** 735 women were included. The median GA (range) was 9+4 (7-13+4) weeks. The incidence of GDM was 14.8% (119/735). Logistic regression analysis showed that maternal age, BMI, previous history of GDM and family history contribute in GDM prediction. Mean HbA1c and rGlu were significantly higher in the GDM group compared to the nGDM group ( $5.26 \pm 0.35\%$  vs  $5.10 \pm 0.27\%$ ,  $p < 0.0001$  and  $4.63 \pm 0.94$  mmol/l vs  $4.20 \pm 0.76$  mmol/l,  $p = 0.0002$  respectively). The AUC combining the first trimester biochemical variables and adding the maternal characteristics is 0.76 [95% confidence interval (CI) 0.70–0.81]. Moreover, we stratified this low risk population based on the prediabetes HbA1c cutoff of 5.7%. The prediabetes group had a significant higher GDM incidence, 46% versus 13% in the group of HbA1c  $< 5.7\%$ ,  $p < 0.0001$  odds ratio 5.5. All women with a first-trimester HbA1c  $\geq 6.0\%$  developed GDM.

**Conclusion:** Our study show that, similar to the multimodal, first trimester screening for preeclampsia, a first trimester screening for this important metabolic disorder could also be implemented. Adequate, randomized interventional studies should show whether such an early screening with can actually influence the pregnancy outcome in the short and long term.



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## Neuroprotection in preterm birth by modification of astrocyte polarization

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**Introduction:** White matter injury (WMI) is the most common form of brain injury in preterm infants and a major cause of long-term neurological morbidity. WMI is characterized by reactive microgliosis and astrocytosis, delayed oligodendrocyte differentiation, and in severe cases, neuronal death. Two different types of reactive astrocytes are recognized in brain injury, A1 astrocytes (A1s), which promote neurodegeneration and A2 astrocytes (A2s), which support neuronal survival and tissue repair. At present, the specific nature of astrocyte reactivity after WMI (A1s, A2s, or other) remains obscure. Given recent findings that A1 formation is induced by reactive microglia and that these astrocytes delay oligodendrocyte differentiation and promote neuronal death, we hypothesize that A1s play a central role in WMI and may be an exciting therapeutic target for this disease. We report progress on a basic research project aimed to investigate the formation of A1 astrocytes in WMI.

**Materials and Methods:** We tested the formation of A1 astrocytes across multiple rodent WMI models. MBP immunostaining was used to confirm WMI. In situ hybridization with probes for A1-specific mRNA transcripts was performed on brain tissue from injured and control neonatal rat brains at multiple post-injury timepoints. We used immunopanning to purify astrocytes from brains of injured and control rats. mRNA isolated from these cells was used for qRT-PCR analysis. C1q/II1-a/TNF triple mutant mice unable to form A1 astrocytes were used to investigate the role of A1 astrocytes in WMI outcomes.

**Results:** In situ hybridization experiments demonstrate a significant increase in the prevalence of A1 astrocytes in subcortical white matter tracts after WMI in all of the rodent models studied. qRT-PCR using mRNA from astrocytes acutely purified from these cells reveals regulation of A1- and A2-specific transcripts over time after injury. Ongoing experiments in mutant mice test whether A1 formation is a central driver in the pathogenesis of WMI.

**Conclusion:** We demonstrate the formation of A1 reactive astrocytes across multiple rodent models of WMI and make steps towards understanding astrocyte polarity in the neonatal brain over the course of the disease. Should our ongoing experiments in mutant mice demonstrate a causal role for A1 astrocytes in WMI outcomes, our work will open the door to novel treatments for improving outcomes after neonatal brain damage in preterm birth.



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## Long-term outcome of monochorionic twins after fetoscopic laser therapy compared to matched dichorionic twins

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**Introduction:** The only causal therapy is fetoscopic laser ablation (FLA) of the placental anastomoses. The aims of this study were to analyze the long-term outcome of monochorionic twins treated by FLA including their school career, need for therapy and special aid equipment and free-time activities and compare their outcome to matched dichorionic twins.

**Material and Methods:** Among the 57 women treated at a single fetal treatment center between 2008 and 2017 with FLA because of TTTS, 25 women with 42 children were included in the FLA group. The control group consisted of 16 dichorionic twin pairs matched for birth year, gestational age, birth weight and sex. The long-term outcome was assessed by a parental questionnaire and a standardized neurodevelopmental examination for the children born before 32 gestational weeks or a birth weight lower than 1500g. They were also registered into the Swiss Neonatal Network database. The primary outcome was the event-free survival defined as normal neurology, behavior, vision and hearing. Secondary outcome were school career, need for therapy and special aid equipment and free-time activities.

**Results:** An event-free survival was found in 32 children (76%) in the laser and in 24 children (75%) in the control group ( $p = 0.91$ ). Neurological anomalies were found in 5 children (12%) in the laser group and 3 children (9%) in the control group ( $p = 1.00$ ). Multiple logistic regression analysis showed that gestational age at delivery was the only predictive factor for event-free survival. There were no significant differences regarding school career, therapies or special aid equipment between the two groups. We found that children without FLA were involved in more free-time activities and needed fewer breaks during physical activity than children with FLA during pregnancy.

**Conclusion:** The outcome of monochorionic twins treated with FLA is comparable to the outcome of dichorionic twins. Long-term neurodevelopment in the cohort was mainly dependent on gestational age at birth.



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## When to deliver “idiopathic” SGA infants between 37 to 42 weeks of gestation? The impact of the week of gestation on adverse perinatal outcome

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**Introduction:** Small for gestation age (SGA) is a recognized risk factor associated with higher perinatal, neonatal and even adult complications. Improved identification accompanied by increased surveillance and timely delivery is associated with a reduction of perinatal morbidity. However, in SGA infants at term not fulfilling classical criteria or stigmata for placental triggered growth disorder timing of delivery remains still a matter of debate. The aim of our study was to evaluate the outcome of SGA infants at term (37 to 42 weeks of gestation) according to the week at delivery in otherwise uncomplicated pregnancies.

**Material and Methods:** We analyzed anonymized data from women in Switzerland who delivered from 2005 to 2017. Inclusion criteria were singleton pregnancy in cephalic presentation, birthweight <10th and >5th percentile, and gestational age at delivery between 37 0/7 and 42 0/7 weeks of gestation. We excluded pregnancies complicated by hypertensive pregnancy complications, abnormal Doppler findings, and metabolic problems such as pregestational or gestational diabetes. Moreover, we excluded also cases with structural or chromosomal anomalies. Adverse perinatal outcome was defined as either umbilical cord arterial pH <7.15, 5'Apgar score <7, admission to the NICU, and/or perinatal mortality. Contingency tests, and Spearman rank correlation were used for statistical analyses. A  $p < 0.05$  was considered significant.

**Results:** Out of 429.863 deliveries we were able to isolate 1796 cases fulfilling our criteria. Of those, 1352 (75%) were delivered vaginally, and 473 (25%) by cesarean section (CS) (14% by secondary CS, and 11% by elective CS). As expected, the rate of secondary CS ( $r=0.828$ ;  $p=0.03$ ) and vaginal deliveries ( $r=0.965$ ;  $p=0.01$ ) increased with advancing gestation. Induction of labour occurred in 308 (16.8%) patients and increased in particular between the 40 and 41 weeks of gestation ( $r=0.967$ ;  $p=0.002$ ). Of them, 77.9% delivered vaginally and 22.1% with a secondary CS. The percentage of adverse outcome was 16.9%, 11.3%, 8.6%, 18.8%, and 21.7% for gestational week 37, 38, 39, 41 and 42, respectively. Importantly, only three cases (0.17%) of intrauterine death occurred (one < 39 0/7 and two > 40 0/7 week of gestation).

**Conclusion:** “Idiopathic” SGA infants are best delivered between 39 0/7 and 40 0/7 weeks of gestation.



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## The use of epidural analgesia during trial of labor after cesarean section (TOLAC)

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**Introduction:** Epidural analgesia is nowadays considered as an extremely effective and popular treatment for pain relief during labor characterized by low side effects. However, in patients with a prior cesarean section (CS) who wish a TOLAC, the use of epidural analgesia still remains a matter of debate in particular due to the fear of masking a uterine rupture (UR). The aim of this study was first to evaluate if the use of epidural analgesia in patients with a TOLAC increases the risk of UR and secondary to investigate differences in maternal and fetal outcome.

**Material and Methods:** We analyzed anonymized database of women in Switzerland who gave birth from 2005 to 2017. Inclusion criteria were singleton fetus, age  $\geq 18$  years, gravity 2, history of a previous CS, no history of other uterine incision such as myomectomy, scheduled for vaginal birth and uncomplicated pregnancy. The sample comprised all modes of delivery (vaginal delivery, instrumental vaginal delivery and emergency CS). Adverse perinatal outcome was defined as either umbilical cord arterial pH  $< 7.15$ , 5'Apgar score  $< 7$ , admission to the NICU, and/or perinatal mortality. The cohort was dichotomized between those with and without epidural analgesia during delivery. Contingency tests, and Spearman rank correlation were used for statistical analyses. A  $p < 0.05$  was considered significant.

**Results:** Out of 429'863 deliveries, 4401 cases fulfilled our entry criteria. Of those 1736 (39.4%) patients delivered with epidural analgesia (group 1) and 2665 (60,6%) patients without (group 2). Overall, 56.1% of the women included in this study delivered vaginally. A higher vaginal operative delivery birth rate was found in group 1 compared to group 2 (63.16% vs 36.84%,  $p < 0.0001$ ). Noteworthy, in group 2 the rate of emergency CS was higher than in group 1 (68.5% vs. 31.50%;  $p < 0.0001$ ). Similarly, parameters of fetal outcome such as birth weight, Apgar and umbilical cord pH were also significantly different between the groups. The overall prevalence of UR was 20/4401 (0.45%) cases with TOLAC. There was no difference between the groups comparing cases with UR.

**Conclusion:** Epidural analgesia during TOLAC is safe and is not associated with a significant increased risk of UR. In addition, it seems that in selected cases epidural analgesia may even improve vaginal delivery without influencing maternal and fetal morbidity.



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## Targeted antenatal screening for haemoglobinopathies in Basel

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**Introduction:** Haemoglobinopathies are among the most common inherited disorders worldwide. As a result of the migration of people from countries with a high prevalence of haemoglobin disorders, laboratory diagnosis is of growing importance in North-West Europe.

**Methods:** Family origin questionnaires were used to screen pregnant women for the risk for haemoglobinopathies in the first trimester. According to this questionnaire pregnant women were divided into two groups: women with a high risk and women with a low risk for haemoglobinopathies. In women with a high risk red blood cell indices, iron status and chromatography were conducted. For women identified as carriers, their partner was tested for haemoglobinopathy irrespective of family origin. In the case of suspected alpha thalassaemia based on haematological parameters, the molecular analysis was performed.

**Results:** There were 1785 pregnant women on recruitment. Out of 1785 women, 929 were identified as the high risk group. Due to missing data in 74 pregnant women with a high risk, further analysis was conducted in 855 women. The mean of haemoglobin was  $121 \pm 13$  g/l and the median of ferritin  $40 \mu\text{g/l}$  ( $4\text{-}5607 \mu\text{g/l}$ ). The prevalence of haemoglobinopathies in high risk group was 14.5% (124/855). There were 139 anaemic women (139/855; 16.3%); namely iron deficiency anaemia was identified in 75 women (75/855; 8.8%) and anaemia of other aetiologies in 64 women (64/855; 7.5%). There were 242 women with iron deficiency (242/855; 28.3%).

**Conclusion:** The prevalence of 14.5% in the high risk group of pregnant women confirms an increasing significance of screening for haemoglobinopathies in this group of patients.





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## Fractions from *Bryophyllum pinnatum* synergistically inhibit the oxytocin-induced rise of intracellular calcium concentration in human myometrial cells

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*Bryophyllum pinnatum* (Lamarck) Oken (Crassulaceae) is a succulent perennial plant traditionally used in the treatment of premature labour, first in anthroposophic hospitals and, recently, in conventional settings as an add-on medication. Experimental evidence obtained with uterus strips supports this use and suggests that bufadienolides might be responsible for the tocolytic effect. Previous work showed that *B. pinnatum* leaf press juice (BPJ) inhibits the increase of intracellular free calcium concentration ( $[Ca^{2+}]_i$ ) induced by oxytocin (OT), a hormone known to trigger myometrium contractions. Our aims were to identify fractions/compounds in BPJ that contribute to this inhibition, and to characterise their mode of action.

Human myometrial hTERT-C3 and PHM1-41 cells that had been loaded with a calcium specific fluorescent probe (Fura-2-AM) were pre-incubated with test substances or vehicle controls. Then, cells were stimulated with OT to induce a rapid and transient increase in  $[Ca^{2+}]_i$ .  $[Ca^{2+}]_i$  was measured by real-time fluorescence spectrophotometry. To characterise combined effects, the median-effect method (CompuSyn software) was used.

BPJ led to a concentration-dependent decrease of the OT-induced increase of  $[Ca^{2+}]_i$  in both cell lines ( $p < 0.0001$ ), achieving ca. 70% inhibition at a 20  $\mu\text{g}/\text{mL}$  concentration. The OT-receptor antagonist atosiban was used as a positive control and also promoted a concentration-dependent effect on  $[Ca^{2+}]_i$  (in both cell lines,  $p < 0.0001$ ). Further work with hTERT-C3 cells showed that at comparable concentrations, none of the fraction/compounds was as strong as BPJ alone. However, the combination of a bufadienolide (BEF) and a flavonoid-enriched fraction (FEF) led to a decrease of 55.3% while BEF plus an aglycon-mixture (A-Mix) promoted a decrease of 38.0%. Both combinations resulted in synergistic effects (combination indices ranging from 0.08 to 0.6).

We have confirmed previous observations showing that BPJ promotes a specific and concentration-dependent inhibition of the OT signalling pathway. Different BPJ fractions/compounds have weaker effects than BPJ, the combined treatment BEF plus FEF has an effect comparable to that of BPJ. Results show that a synergistic interaction between two different fractions is required for a strong effect on  $[Ca^{2+}]_i$ .



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## Synthetic Preimplantation Factor (sPIF) prevents preterm birth and preserves fetal brain development

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**Introduction:** Inflammation is a major cause of preterm birth (PTB). PTB is a major cause of neurodevelopmental disorders in infants. Successful therapeutics are lacking. We investigated Preimplantation Factor (PIF), a pregnancy derived immune-modulatory and neuroprotective peptide, as therapeutic option in a lipopolysaccharides (LPS)-induced murine model of PTB. We evaluated the effect on fetal brain development as well.

**Methods:** We treated pregnant mice with synthetic PIF (sPIF) (n=28) or phosphate buffered solution (PBS; n=27). On day 14 of gestation, we injected LPS or PBS. On day 16 we calculated the incidence of PTB and evaluated fetal brains using immunohistochemistry (IHC; microglia - anti-Iba-1 and neuronal cells - anti-Cux2) in cortex (CC) and dentate gyrus germinal matrix (DGm). We used ELISA to test the inflammatory response in fetal brain lysates. We calculated the PTB significance using Chi-square test. The ELISA and IHC data were analyzed using one-way analysis of variance followed by a post-hoc test (Bonferroni test). Statistical significance was determined at  $p < 0.05$ .

**Results:** sPIF reduced the rate of PTB significantly and abolished the LPS-induced expression of IL-6 and INF-gamma in fetal brains, which is in line with reduced activation of fetal microglia (Iba1). Iba1 positive cells shifted from predominantly amoeboid (inflammatory) to ramified (regenerative) state. sPIF prevented the LPS-induced loss of Cux2 neurons.

**Conclusion:** sPIF protects against LPS-induced PTB and preserves neuronal development. Therapeutic approach during pregnancy can be envisioned.



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## Preterm prelabor rupture of membranes management in Switzerland: a national survey

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**Objective:** to get an overview of preterm prelabour rupture of membranes' (PPROM) management in Swiss maternities.

**Study design:** We conducted a survey with an 11-item questionnaire, developed to retrieve information about different domains of PPRM management. The form was sent to all maternities associated with the "Conference of Chefs de Service" independently from their annual birth rate and the level of complexity they were taking care of.

**Results:** We sent the questionnaires to 64 maternity centers, from which, 36 (56.3%) answered. We found that regarding the tools used to diagnosed PPRM: 11.1% only used the clinical exam (including compatible anamnesis, genital exam with visualization of amniotic fluid leakage and tests based on the properties of amniotic fluid, such as the Fern and pH or Bromothymol tests), 30.6% used only biochemical tests (IGFBP1 or PAMG-1), whereas 58.3% used clinical exam plus biochemical tests. Regarding antibiotics used: 12 different regimens were used, among which 91.7% included a betalactam, with Amoxicillin being the preferred drug (55.6%). Combined antibiotic schemes were used in 30.6% of the hospitals, and amoxi-clavulanic was still used in 13.9% of the maternities. All centres proposed corticosteroids for foetal lung maturity before 34 weeks, and 36.1% also considered its use until 36 weeks, in cases at high risk of neonatal respiratory distress syndrome. Two of the hospitals delivering babies <32 weeks only used magnesium sulphate for neonatal neuroprotection if preeclampsia was present, while the other always recommended it. Concerning the indicated gestational age for delivering, 58.3% of the centres attempted to wait until 37 weeks, while the rest did not go further than 34 weeks. The methods for inducing labour were Misoprostol in 77.8% hospitals, Dinoprostone vaginal inserts (Propess®) in 69.4% and vaginal gel (Prostin®) in 13.9%. The Foley catheter or double balloon was used in 36.1% centres.

**Conclusion:** Practices in Switzerland in the event of PPRM seem to be mostly in line with international current guidelines. However, there is a lack of standardization of protocols, introducing several sources of heterogeneity in management (especially about antibiotics regimens and recommended gestational age for delivering).



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## Incidence of neonatal respiratory morbidity after vaginal delivery and caesarean section in the late-preterm and term period.

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**Introduction:** One of the main reasons for admitting late-preterm (34-36 weeks) or term infants (37-41 weeks) to neonatal intensive care units (NICU) is respiratory distress syndrome (RDS) due to delayed pulmonary fluid reabsorption. Higher risk is presumably associated with caesarean section without prior labour (eCS). Antenatal steroids in the late-preterm period and prior eCS are debated. Before considering antenatal steroids after 34 weeks, the RDS incidence should be well evaluated.

**Material and Methods:** In a cohort study, all live births from 34+0 weeks of gestation in the university hospitals of Zurich and Basel between 2009 and 2016 were evaluated. The RDS incidence was calculated according to delivery modes: Spontaneous delivery (VD), vaginal-operative delivery (vag-op), c-section without prior labour (eCS), secondary c-section (sCS) and emergency c-section (emCS).

**Results:** After exclusion of all malformations (N=889) and incomplete data (N=383), the data of 37110 infants out of 38382 infants could be evaluated. Of these, 5.34% (1980) had to be admitted to a NICU because of RDS. In the whole dataset the incidence of RDS after VD was 2.92%, after vag-op 4.02%, after eCS 8.98%, after sCS 8.45% and after emCS 13.3%. The comparison of late-preterm infants after VD with those after eCS showed a relative risk (RR) of 1.33 (1.12-1.60, 95% CI) at 34 weeks, 2.41 (1.81-3.19, 95% CI) at 35 weeks and 1.69 (1.24-2.30, 95% CI) at 36 weeks. In the term period the RR was 3.07 (2.11-4.46) at 37 weeks and 1.98 (1.44-2.71) at 38 weeks. No significant difference was noted at 39 weeks between eCS vs. VD. Median gestational age at eCS did not change between 2009 and 2016 ( $39.3 \pm 1.65$  weeks).

**Conclusion:** The RDS incidence in newborn infants is significantly higher in all weeks of gestation below 39 weeks after eCS compared to VD. Thus, whenever possible, an eCS should be planned around 39 completed weeks.



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## Ten years of intrauterine Spina bifida repair in Zurich - what are the maternal and fetal outcomes?

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**Introduction:** Since the MOMS trial showed a clear benefit of fetal myelomeningocele (fMMC) repair compared to postnatal surgery, it became an option in selected cases. We present the maternal and fetal outcome of our 125 prenatally operated cases.

**Materials and Methods:** All 125 cases with fMMC repair between 2010-2019 were included. Inclusion and exclusion criteria for fMMC repair were adopted from the MOMS trial. Exactly the same maternal and fetal outcome parameters as in the MOMS trial were evaluated.

**Results:** Maternal age at OP was 31.5 $\pm$ 5 years and their BMI 26 $\pm$ 4.9 kg/m<sup>2</sup>. Gestational age (GA) at fMMC repair was 25 $\pm$ 0.8 weeks. Postoperatively, an abdominal wall seroma/uterine hematoma was detected in 38%. A lung embolism was diagnosed in 2.4%. An amniotic fluid leakage through the hysterotomy was seen in 8% causing oligohydramnios. Chorioamniotic membrane separation was found in 15%, PPROM occurred in 34%. Spontaneous labor started in 67%. Placental abruption did occur in 9%. Intermittent fetal bradycardia was noted in 4 fetuses requiring intraoperative pharmacological and/or mechanical resuscitation. One postoperative fetal and perinatal death occurred due to fetal liver rupture and severe lung hypoplasia. GA at birth was 35.4 $\pm$ 2 weeks, the birthweight 2597 $\pm$ 478 g, 5 min APGAR 8.3 $\pm$ 0.6 with normal umbilical artery-pH.

**Conclusion:** Our cases showed comparable outcomes to the MOMS trial. Prenatal counseling must include the option of fMMC repair when a fetus is diagnosed with this malformation and the criteria for fMMC repair are met. Because of the mentioned complications an experienced team is necessary to optimize the outcome for the mother and the fetus.



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## Vaginal birth rates after Caesarean Section in a second level hospital of Ticino region

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**Introduction:** Caesarean section (CS) rates in Switzerland are among the highest in Europe with values above 30%. A recent study from Christmann-Schmid showed that vaginal birth after CS (VBAC) decreased and primary repeated CS increased in Switzerland in the last years. Primary repeated CS is one of the most important influencing factor on overall CS rate in Ticino region. Promoting VBAC and increasing its success rate could be the optimal strategy in order to reduce the number of repeated CSs. Grobman et al. developed a prediction model composed of six variables (age, BMI, ethnicity, any prior vaginal delivery, prior VBAC and indication for previous CS), which allows the determination of a women-specific chance for successful VBAC. The aim of our work was to evaluate the current trends and the percentages of VBAC in a second level hospital of the Ticino region.

**Methods:** We performed a retrospective cohort study to analyse the proportion of VBAC among all pregnant women with previous CS which gave birth between 2013 and 2019 in our secondary care referral hospital (ORBV). In our analysis we included all woman who had a history of no more than one previous CS with low transverse uterine incision, single foetus cephalic presentation, more than 34 weeks of gestation, no contraindications to vaginal birth, no previous additional intervention to the uterus. We divided the women in two groups: those who attempted vaginal birth after CS (TOLAC group) and those who had elective CS (ECS group). We calculated for every woman a predicted chance of VBAC (PC) according to Grobman's model and divided them into two subgroups: PC >70% and PC <70% (Fagerberg 2019). We compared VBAC attempt rate, VBAC rate and VBAC success rate in each of groups.

**Results:** We included 411 women who underwent ECS or TOLAC during the study period (between 2013 and 2019). In our sample, a total of 90 women chose TOLAC, and VBAC rate is increasing (15.0% in 2013 vs. 31.5% in 2019). The demographic characteristics and predicted chance was similar in both groups (Table 1). The overall rate of successful VBAC was above 90% in the group with PC >70%, and above 50% in the group with PC < 70%.

**Conclusions:** The high success rate of VBAC and the low number of complications are encouraging. Although the proportion of women with VBAC is considerably high and similar to other hospitals in Europe, we believe there might still be room for increasing the percentage of VBAC and thus decreasing overall CS rate.



Variable	TOLAC group, 2013-2019			Elective CS group, 2016-2019		
	(Mean $\pm$ SD)			(Mean $\pm$ SD)		
	Total	PC>70%	PC<70%	Total	PC>70%	PC<70%
Number of patients	<b>90</b>	62 (68.9%)	28 (31.1%)	<b>144</b>	66 (45.8%)	78 (54.2%)
Maternal age (years)	<b>32.8<math>\pm</math>4.7</b>	31.9 $\pm$ 4.4	34.9 $\pm$ 4.7	<b>33.2<math>\pm</math>4.6</b>	31.8 $\pm$ 4.0	34.4 $\pm$ 4.8
Infant weight (g)	<b>3371<math>\pm</math>435</b>	3420 $\pm$ 450	3265 $\pm$ 386	<b>3181<math>\pm</math>435</b>	3067 $\pm$ 469	3278 $\pm$ 382
BMI (kg/m <sup>2</sup> )	<b>26.3<math>\pm</math>4.7</b>	25.1 $\pm$ 4.4	29.0 $\pm$ 4.4	<b>28.5<math>\pm</math>5.5</b>	25.8 $\pm$ 4.4	30.8 $\pm$ 5.3
Months since previous CB	<b>45.9<math>\pm</math>28.6</b>	47.5 $\pm$ 29.8	42.5 $\pm$ 25.8	<b>49.6<math>\pm</math>31.7</b>	49.2 $\pm$ 30.0	50.0 $\pm$ 33.3
Women with previous VB	<b>19 (21.1%)</b>	19	0	<b>15 (10.4%)</b>	14	1
<b>Pre-existing medical conditions: N (%)</b>						
Diabetes	<b>5 (5.6)</b>	2 (2.2)	3 (3.3)	<b>10 (6.9)</b>	4 (2.8)	6 (4.2)
Hypertensive disorders	<b>0 (0)</b>	0 (0)	0 (0)	<b>3 (2.1)</b>	0 (0)	3 (2.1)
other	<b>4 (4.4)</b>	3 (3.3)	1 (1.1)	<b>34 (23.6)</b>	14 (9.7)	20 (13.9)
<b>Indications for previous CS: N (%)</b>						
Breech presentation	<b>33 (36.7)</b>	27 (30.0)	6 (6.7)	<b>27 (18.8)</b>	17 (11.8)	10 (6.9)
Uterine dysfunction	<b>21 (23.3)</b>	8 (8.9)	13 (14.4)	<b>42 (29.2)</b>	3 (2.1)	39 (27.1)
Foetal distress, altered CTG	<b>22 (24.4)</b>	17 (18.9)	5 (5.6)	<b>27 (18.8)</b>	17 (11.8)	10 (6.9)
Maternal extra-genital pathology	<b>8 (8.9)</b>	7 (7.8)	1 (1.1)	<b>13 (9.0)</b>	9 (6.3)	4 (2.8)
Maternal request	<b>4 (4.4)</b>	2 (2.2)	2 (2.2)	<b>18 (12.5)</b>	10 (6.9)	8 (5.6)
Other	<b>2 (2.2)</b>	1 (1.1)	1 (1.1)	<b>11 (7.6)</b>	5 (3.5)	6 (4.2)

**Table 1:** Descriptive characteristics of population.

Patients were divided in TOLAC and Elective CS groups.

Each group is further divided in two subgroups, according to the predicted chance (PC) of vaginal birth after CS using a threshold of 70%.



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## Multimodal strategy to reduce surgical site infection after cesarean section in obese women: a systematic-review and meta-analysis of Randomized Controlled Trials

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**Background:** Obese parturients undergoing cesarean section (CS) are at increased risk of surgical site infections (SSI), counting wound infections, endometritis, pelvic abscess, and sepsis. Impact of SSI on maternal health and care costs due to the prolonged hospital stay, readmissions and revision procedures have required clinical interventions to reduce their incidence.

**Objective:** To explore the successful approach in preventing SSI in obese patients requiring CS.

**Material and Methods:** Randomized clinical trials (RCTs) reporting interventions to reduce SSI risk in obese delivering women undergoing to CS were included. Medline and Embase databases were searched. The primary outcome was SSI in agreement with the CDC definition; secondary outcomes included seroma, hematoma, wound dehiscence and postoperative fever of unknown etiology, skin closure time, post-operative pain, cosmetic outcomes. Interventions proposed were the following: negative pressure wound therapy (NPWT), delayed (day10) skin staple removal, stainless steel staples, silver nylon, barrier retractor, subcuticular suture with Vicryl, additional antibiotics prophylaxis post CS. Random-effect meta-analyses of proportions were used to analyze the data.

**Results:** Ten RCTs (5,022 patients) were eligible for inclusion. Meta-analysis results indicated that the occurrence of SSI was significantly decreased with NPWT (OR = 0.29 [95% CI, 0.14-0.61]), as well as with additional antibiotics prophylaxis post CS (OR = 0.3 [95% CI, 0.18-0.50]). No significant differences by using the other interventions were found. Secondary outcomes seem to benefit only by NPWT (OR = 0.2 [95% CI, 0.22-0.79]).

**Conclusions:** Occurrence of SSIs could significantly decrease in obese delivering women undergoing to CS by including additional interventions to the standard of care, such as NPWT and antibiotics. However, RCTs of high quality are required to confirm the findings of this investigation.





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## Effect of the new definition of preeclampsia (PE) on the performance of first trimester combined screening

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**Introduction:** Historically preeclampsia (PE) has been defined as hypertension with a blood pressure of  $>140/90$ mmHg and proteinuria with  $>300$ mg/24hours urine sample. This classical form of PE affects 2-3% of all pregnancies according to most publications. In 2014 the International Society for the study of Hypertension in Pregnancy (ISSHP) extended the definition to hypertension occurring together with either proteinuria and/or other signs of maternal endothelial dysfunction and/or utero-placental dysfunction. The aim of this study is to analyze the effect of PE-definition on the performance of combined first trimester screening for PE in Bern.

**Material and Methods:** All women with singleton pregnancies who opted for PE-screening at their 11 to 14 weeks scan between January 2014 and December 2018 were included. The PE risk was calculated with the algorithm provided by the Fetal Medicine Foundation (FMF) London. Up to June 2017 we considered women at risk for PE if the cut-off for PE before 34 weeks was  $>1:200$  and prescribed 100mg of aspirin daily; after July 2017 we adopted the policy described in the ASPRE trial and prescribed 150mg aspirin to women with a risk  $>1:100$  for preterm PE. The pregnancy outcomes were obtained from our clinical data system or from external birth reports. Statistical analyses were performed with GraphPad 8.0 for Windows.

**Results:** 3192 pregnancies were screened for PE, outcomes were available for 3025 (94.8%) pregnancies. Up to June 2017 170/1903 (8.9%) were considered at risk, in the later study period the screen positive rate increased to 219/1289 (17.0%) ( $p<0.0001$ ). Classical PE was diagnosed in 28/1768 (1.58%) and 18/1204 (1,5%) pregnancies respectively ( $p=ns$ ). PE according to ISSHP 2014 was diagnosed in 37/1768 (2.09%) and 21/1204 (1.74%) pregnancies ( $p=ns$ ). Using the ASPRE cut-off the screen negative PE cases dropped insignificantly from 19/46 (41.3%) to 23/58 (39.7%) with the new ISSHP definition; the same applies to the false positive rate which decreased insignificantly from 461/488 (94.5%) to 453/488 (92.8%).

**Discussion:** Our results demonstrate that in our population the incidence of classical PE is lower than historically stated in non-screened populations. The new definition of PE does not change the performance of first trimester combined screening for PE. Secondly, our results demonstrate that adopting the cut-off proposed in the ASPRE-trial nearly doubled the screen-positive rate without the effect of a further reduction in PE.



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## Integration of the combined first trimester screening for preeclampsia into the routine examination

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**Introduction:** The Fetal medicine foundation (FMF) London developed a first trimester screening algorithm for preeclampsia (PE), based on maternal characteristics and anamnestic risk factors, maternal blood pressure (MAP), uterine artery PI (UTPI) and the biochemical PIGF (placental growth factor). At the university hospital in Bern we offer PE-screening to women with singleton pregnancies attending first trimester screening since 2014. The aim of this study was to investigate the integration of PE-screening into the routine practice.

**Material and Methods:** Between January 2014 and December 2019 all pregnancies between 11-14 weeks with a fetal crown-crown-length between 45-84mm and a detailed ultrasound scan were included in this retrospective analysis. With the use of our electronic clinical database the number of first trimester screenings for aneuploidies was compared to the number of PE-screenings in respect of the total number of scans. In cases with missing PE-screening we searched the record for explanations as to why no screening was performed. The statistical analysis was performed using SPSS Statistics 25.

**Results:** 6621 pregnancies with 6977 fetuses have been examined with a median [range] of 1121 [1053-1358] fetuses examined per year. A screening for trisomies has been performed in 959 [899-1226] or 85.5% [83.2%-90.3%] fetuses and there was no significant change over the years. A screening for preeclampsia has been performed in 615 [498-959] or 60.9% [50.8%-84.1%] of all singleton pregnancies. A significant increase in PE-screenings during the study years from 50.8% in 2014 to 84.1% in 2019 ( $p=0.006$ ) was noted. In 5.4% of all pregnancies, no PE-screening was performed due to multiple pregnancies. Only 0.2% of our patients refused a screening for preeclampsia. In the remaining cases, a PE-screening was not offered to the patient, mainly for logistical reasons.

**Conclusion:** The continuous increase in PE-screenings shows, that the integration of the PE-screening into the routine first trimester scan is practically feasible and widely accepted as is the screening for aneuploidies.



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## Qualitative Doppler studies in TTTS before and immediately after laser therapy

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**Introduction:** Twin-to-twin transfusion syndrome (TTTS) is a known complication in mono-chorionic twin pregnancies, characterized by an imbalance in intrafetal transfusion across placental anastomoses. In the 1990s, a TTTS staging system was introduced by Quintero, classifying the severity of TTTS into five stages. Starting at stage III, pathological changes in fetal Doppler flow is observed, including absent or reversed enddiastolic flow in the umbilical artery (AREDF) as well as absent or reversed a-wave in the ductus venosus (DV). Umbilical vein pulsations have also been observed. Treatment of TTTS includes fetoscopic laser therapy. The aim of our study was to examine what qualitative Doppler changes occur peri-operatively in twins treated with laser therapy.

**Material and Methods:** Since 2013, the Department of Obstetrics at CHUV in Lausanne and at Inselspital in Bern are collaborating on fetoscopic interventions, with a focus on laser therapy in TTTS. In both facilities, laser therapy is performed by Prof. Raio and Prof. Baud, respectively. In our study, we included cases from 2013 – 2019, excluding TAPS (twin anemia polycythemia sequence), TRAP (twin reversed arterial perfusion) or any fetal malformations. We only evaluated twins where arterial and venous Doppler studies were complete before as well as within 24 hours after laser therapy.

**Results:** We included 35 cases and 70 fetuses, respectively. Laser therapy was performed at a mean gestational age of  $20.49 \pm 2.9$  weeks. 9/70 (12.9%) fetuses died within 24 hours after the procedure. In most cases, the donor twin died (6/9 cases). Only in one case (2.9%) did both twins die. The chance of both or at least one twin surviving was 68.8% and 80%, respectively. In the recipient twin, qualitative Doppler changes were found in 88.6% of cases before and in 78.1% following laser therapy ( $p < 0.0001$ ). In the donor twin, these changes increased from 25.7% before to 69% after laser therapy ( $p < 0.001$ ).

**Conclusion:** Fetoscopic laser coagulation of anastomotic vessels results in Doppler changes which can be particularly observed on the venous side of the fetal circulation. While these changes improve in the recipient twin after laser therapy, there is a significant increase in venous pulsations and in reversed a-wave in the DV in the recipient twin. These conflictive changes can be explained by the complex pathophysiology in TTTS: While the afterload increases in the donor twin after laser therapy, cardiac load decreases in the recipient twin.



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## Transplacental transfer of nalbuphine, a mixed agonist/antagonist opiate

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In rare occasions, women are steamrolled with sudden labour pain, especially in the context of ultra-rapid first and second stage of labour. In such a situation, they flail and reject any help from health professionals. The consequences are serious pelvic floor damage for the mother and foetal hypoxia in case of prolonged pushing. In case of such an event, it would be helpful to have drugs for immediate maternal analgesia, such as nalbuphine. Nalbuphine - a mixed opioid agonist/antagonist - acts quickly and its side effects for the mother are minor. To better estimate possible complications for the foetus, it is important to find out how quickly intravenously administered nalbuphine reaches the foetal circulation. Therefore, we have characterised the transplacental transfer of nalbuphine at a clinically relevant concentration using an ex vivo model.

Placentas were obtained from caesarean sections after informed consent of the mothers. After successful cannulation of one cotyledon, nalbuphine was added to the maternal circuit and the ex vivo placenta perfusions were performed. After addition, the concentration of nalbuphine in the maternal circuit (100 ng/mL) resembled those previously shown to be obtained in the maternal plasma after intravenous administration. To determine nalbuphine transfer from the maternal to the foetal circuit, samples were collected at different time points during the first 30 min, as well as after 2 h of perfusion. Nalbuphine concentrations were determined using liquid chromatography-tandem mass spectrometry (LC-MS/MS).

Nalbuphine available at the maternal circuit is transferred to the foetal circuit. After 5 min of placenta perfusion, approximately 3% of the initially added nalbuphine is detected in the foetal circuit, after 10 min approximately 7%. At 30 and 120 minutes after perfusion begin, the foetal concentration corresponds to 17 and 22% of initial.

Nalbuphine transfer across the placental barrier is rapid. However, only a small amount of nalbuphine is likely to reach the foetus during the first minutes after intravenous maternal administration. In this time window, the achieved plasma concentrations in the foetus are likely to be markedly lower than the ones used in infant anaesthesia. Nalbuphine might therefore be a good option for intravenous analgesia of women steamrolled with sudden labour pain in the context of ultra-rapid first and second stage of labour.



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## Physical activity behavior in a diverse Swiss cohort of pregnant women

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**Introduction:** The objective of this cross-sectional study was to evaluate the range of physical activity in pregnant women in an ethnically diverse cohort. Physical activity can improve maternal and fetal outcome like sleeping problems during pregnancy and reduce delivery complications. We used data from the PEBS program, which is a nutrition and physical activity intervention in the Department of Obstetrics at University Hospital Zurich. The aim of the program is to answer nutrition questions and improve physical activity of pregnant women early in pregnancy to support normal weight gain.

**Methods:** Between 2009 and 2018 we collected information on physical activity levels in structured interviews via the validated IPAQ (international physical activity questionnaire) at the time of nutrition counselling. The questionnaire assessed the duration and frequency of vigorous, moderate and normal activities within the last seven days. The duration and frequency of physical activity were transformed with an algorithm in MET (standard metabolic equivalent) minutes and could be compared between participants. We analyzed the association of maternal age, parity, BMI before pregnancy and origin with the physical activity level.

**Results:** Of 1'969 pregnant women, 1'161 women (59%) had a complete data set. The maternal age ranged from 16 to 46 years and 55% had a normal BMI before pregnancy. 61% of mothers had their first child and 50% of all mothers came from a northern European country. We found that 60% of all women did not reach the recommended weekly activity level of 2.5 hour of moderate activity. The multiple regression analysis showed that mothers from northern European countries were significantly more active than mothers from all other regions (OR 2.3 95%CI 1.8-2.9). Other factors had no significant association with physical activity.

**Conclusion:** More than half of all pregnant women were not able to reach the recommended weekly physical activity recommendations. The origin of the mothers seems to influence the physical activity level in pregnancy. Pregnancy counselling should include regular citation of the benefits of physical activity to improve maternal activity levels, specifically in women from non-northern European countries.



# Video Presentation

V = Video Presentation



## V 100

## Laparoscopic paravaginal mesh fixation during laparoscopic sacrocolpopexy – an important step to avoid anterior recurrence. A surgical Video

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**Introduction:** Laparoscopic sacrocolpopexy has been demonstrated to be the gold standard of prolapse surgery in cases with apical defect. Isolated anterior compartment failure can occur especially if paravaginal defect has initially been present. According to our and other results anterior recurrence can occur in up to 10% of cases and additional surgery is needed in about 5-6%. In the last 2 years we adapted our technique of lateral fixation of the anterior mesh during laparoscopic sacrocolpopexy to reduce the risk of anterior recurrences and the first results are very encouraging.

**Material and Methods:** The Video demonstrates the cases of a 67 years old patient undergoing laparoscopic sacrocolpopexy because of combined prolapse. After accomplishing supracervical hysterectomy and posterior dissection, the anterior dissection is started by opening the vesico-vaginal space and separating the bladder from the vagina till the level of the bladder trigone. Lateral dissection is performed by opening the paravaginal space and exposing the lateral edge of the vagina. The distal part of the ureters is dissected from the anterior parametrium to the bladder to avoid ureteral damage. The anterior mesh is then sutured to the distal vaginal in the midline and laterally to the edge of the vagina. Posterior mesh is sutured on the levator ani muscle and the cervix. Both meshes are fixed at the longitudinal ligament of the promontory to guarantee a tension free suspension. At the end a fully peritonealization is performed.

**Results:** Perioperative results of laparoscopic sacrocolpopexy with deep and lateral mesh fixation are excellent. As we are following all our patients after laparoscopic sacrocolpopexy we can report on a significant improvement of anatomical outcome in the anterior compartment at least in the short term follow up.

**Conclusion:** Lateral dissection and mesh fixation in the anterior compartment during laparoscopic sacrocolpopexy seem to be feasible and safe and could help to significantly reduce the risk of anterior recurrences. Prospective anatomical evaluation must be performed to scientifically verify these promising initial results. This video demonstrates the surgical technique which has become standard in our institution.



V 101

## Native tissue repair for pelvic organ prolapse by vaginal approach: A systematical teaching video

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**Introduction:** Restricted working hours of trainees and decreasing rate of vaginal operations call for teaching videos as a helpful way to learn. Structured illustration of the operation is pivotal because of limited visualization during vaginal procedures for assistants. Apical vaginal support is crucial for pelvic organ support. In patients with pelvic organ prolapse hysterectomy alone is not a reliable therapy and increases the risk of recurrent prolapse.

**Material and Methods:** The video shows all important steps of the procedure. Each step is explained and illustrated using real operation videos from different patients and drawings. Vaginal hysterectomy, modified McCall culdoplasty, cystocele and rectocele repair are explained.

**Results:** After circumferential incision of the vaginal mucosa the vagina is mobilized anteriorly and posteriorly until the cul-de-sac can be entered sharply. Both uterosacral ligaments are clamped and the pedicles are ligated by absorbable sutures. By sharp dissection the bladder is mobilized until the vesicouterine space is entered. Afterwards the cardinal ligaments and the uterine vessels are clamped, cut and sutured. Finally utero-ovarian ligaments are clamped, cut and sutured. For the internal McCall sutures two absorbable sutures are placed through both uterosacral ligaments, including the peritoneum over the rectumserosa. The external McCall suture incorporates the posterior vaginal wall, the uterosacral ligament, the peritoneum over rectumserosa with the posterior vaginal wall at the midline and finally the uterosacral ligament and the posterior vaginal wall on the other side. The peritoneum is closed by purse string suture. To control the risk of uretral kinking cystoscopy is crucial. Anterior repair starts with extended bilateral dissection of the cystocele of the vaginal wall. The layers of the pubocervical fascia overlying the bladder are plicated. Repair of rectocele and peritoneal defect begins by detaching vaginal wall off the underlying anterior rectal wall, followed by repair of rectovaginal fascial defects. At the end the vaginal wall is closed.

**Conclusion:** It is important to explain the vaginal operation procedures to the trainees by visualized teaching methods. Real operation sequences combined with drawings seem to be a successful way to learn the vaginal procedures. Vaginal repair of pelvic organ prolapse by native tissue repair is becoming more and more important in the time of increasing mesh discussion.





V 102

## Cornual Ectopic Pregnancy: Laparoscopic treatment - a surgical video

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**Introduction:** Cornual (Interstitial) Ectopic Pregnancy (IEP) occurs in about 2-4% of all ectopic pregnancies. It can lead to excessive hemorrhage because of risk of rupture. Early diagnosis is important as systemic treatment with methotrexate has been shown to be ineffective in advanced cases with high  $\beta$ -hCG levels. There have been proposed different treatment options like systemic methotrexate, direct methotrexate injection or surgical approach. Laparoscopic cornual resection seems to be the gold standard in advanced cases or in cases non responding to systemic treatment.

**Material and Methods:** This video shows the case of a 32 years old patient presenting with a symptomatic cornual pregnancy. Her initial serum  $\beta$ -hCG was more than 8000 U/l and the transvaginal ultrasound showed an irregular mass of 20 x16 mm in the right uterine cornuum. Under initial treatment with methotrexate the patient showed increasing levels of serum  $\beta$ -hCG with a peak at 11'851 U/l within few days indicating treatment failure. A laparoscopic resection of the right uterus horn has been successfully performed and histopathologically trophoblastic tissue was confirmed. Postoperatively the patient did not have any complications and the  $\beta$ -hCG decreased to normal levels within few weeks. No additional medical treatment was necessary.

**Results:** This video shows a step by step procedure how to perform laparoscopic cornualectomy in these cases. The intervention starts by identification of the cornual pregnancy. Then a temporary clipping of the right uterine and ovarian arteries is performed before the excision to avoid excessive bleeding. The right uterine horn is then completely removed using monopolar cutting current and the uterine wall is closed by laparoscopic double layer suturing. A hemostatic patch is finally placed on the uterine scar to avoid adhesions.

**Conclusion:** The incidence of IEP has increased in the last 10 years. Early diagnosis is not always possible and medical treatment often shows failure in cases with high  $\beta$ -hCG levels. Gynecologic surgeons should be familiar with the laparoscopic management of IEP as it seems to be the method of choice in advanced cases. This video demonstrates how laparoscopic cornualectomy can successfully be performed.



## V 103

## An awesome Technique even made better: Introduction of 4K in ICG Laparoscopy

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**Introduction:** ICG (Indocyanine Green) dye is drained via lymphatic vessels towards the closest lymph nodes. This allows for use in sentinel lymph node detection. ICG emits near-infrared light which can be visualized with optics suitable for this purpose. This concept has been shown to be most convenient: In endometrial cancer the extent of lymphadenectomy remains controversial and the sentinel concept might offer oncologic safety with limited morbidity (Imboden S, Eur J Surg Oncol 2019; Papadia A, Ann Surg Oncol 2016). ICG has a favourable toxicity profile, higher overall and bilateral sentinel detection rates than blue dye or Technetium and is easy to use (Papadia A, J Cancer Res Clin Oncol 2017). Likewise, in cervical cancer ICG sentinel lymph node mapping yields a high overall and bilateral detection rate superior to the current standard of care (Imboden S, Ann Surg Oncol 2015). Improved sentinel detection, reduction of surgical time and avoidance of radioactivity argue for widespread use of ICG in laparoscopy (Ferreira H, Surg Technol Int 2019). Consequently, the technical equipment for laparoscopic ICG procedures is evolving rapidly.

**Material and Methods:** Our ICG Full-HD equipment for ICG laparoscopic surgeries was replaced with the new 4K IMAGE1 S Rubina (TM) system by Storz. In 4K, the resulting number of pixels is four times higher than in Full-HD resolution delivering a very sharp image. Moreover, this new system delivers a higher light spectrum and uses LED technology only. Additionally, this new equipment allows for surgery in overlay mode meaning the white light and ICG mode work simultaneously. This enables operating in the normal white light laparoscopic mode seeing the glowing fluorescence of ICG at the same time. With the added function of the intensity map the ICG concentration can be visualized.

**Results:** Even when you already are convinced of the usefulness and advantages of ICG in gynecologic procedures the new technical equipment has what it takes to produce a “wow-effect”. The stunning pictures, high resolution and possibility to view the ICG fluorescence without having to switch off the white light source make this new technical equipment a great experience to use. The video demonstrates the use of this equipment during laparoscopic procedures and compares the standard full HD sequences with the new 4K pictures.

**Conclusion:** The use of ICG in gynecologic procedures is on the rise and the development of new technical improvements makes it even more beneficial and convincing.



V 104

## Laparoscopic Transvesical Resection of a Benign Leiomyoma of the Bladder Trigone – a Surgical Case Video

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**Introduction:** Leiomyomas are benign tumors of smooth muscle origin occurring throughout the genitourinary system. While commonly occurring in the uterine wall, they can also be seen in the vaginal wall with a few cases reported in the literature. We present a case of a symptomatic leiomyoma in the vaginal wall located underneath the bladder trigone treated by laparoscopic transvesical approach.

**Material and Methods:** During ultrasound exam of a 35 year old G1 P0 which was 21 weeks pregnant a solid mass of 5cm was found underneath the bladder trigone. We interpreted it as a cervical myoma pushing the bladder cranioventrally. Ultrasound follow-up showed an increasing size of the tumor to 6cm. A second pregnancy was planned at that time. After the second delivery, the mass extended to a diameter of 7.5cm causing urgency symptoms. Cystoscopy confirmed a mass underneath the trigone with an intact bladder mucosa. To exclude malignancy and relieve symptoms, the patient agreed for total laparoscopic hysterectomy and resection of the presumed cervical myoma.

**Results:** Cystoscopic ureteral splinting by double-j-catheters was planned at the start of the case but impossible because of the distorted anatomy caused by the tumor. Laparoscopy: Since a cervical myoma was expected, the vesicovaginal space was first opened and evaluated. The myoma showed no contact to the cervix. Therefore, the total hysterectomy was performed. In order to keep away from the bladder plexus and the ureter, we decided against a further dissection of the vesicovaginal space and chose a transvesical approach. Opening the bladder dome revealed the protruding mass at the bladder base. Now the left ureter could be splinted by a double-J-catheter whereas the right orifice was still not visible. A mid-line sagittal incision of the bladder mucosa over the mass permitted a safe excision of the entire tumor which was removed through the vagina by an endobag. After splinting of the right ureter the bladder mucosa and the apical incision could be closed. Cystography ten days later showed no leakage and foley and double-j-catheter could be removed. The patient had an uncomplicated clinical course. Pathological features revealed the diagnosis of a benign leiomyoma.

**Conclusion:** This case shows a rare localization of a benign leiomyoma. Its removal asked for a double incision of the bladder wall, namely at the dome and the bladder base. Safety measures have been applied for the ureter and the innervation.



V 105

## Pregnancy after trachelectomy: Video and case study of a laparoscopic cerclage in the 2. Trimester

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**Introduction:** Current indications for transabdominal cerclage include an absent, short or amputated cervix (e.g. congenital anomalies, scarring due to cervical conization, trachelectomy or laceration at delivery) that would prevent a transvaginal approach and prior failed transvaginal cerclage. This procedure would usually be done before planning a pregnancy in high-risk patients. Our video demonstrates a case in the second trimester.

**Material and Methods:** A 32 year old G I P 0 was referred to our clinic at 14 1/7 weeks' gestation for the first trimester screening. The patient had undergone a radical trachelectomy for cervical cancer 6 years ago and the pregnancy was induced by intracytoplasmatic sperm injection and embryo transfer in an other center. Transvaginal ultrasound of the lower uterine segment showed a maximal thickness of 11 millimeters, in the gynecological examination no clear cervix could be identified. The obstetric scan showed no abnormal findings in the fetus and proper feto-placental circulation. We decided to perform a laparoscopic cerclage the following day.

**Results:** The procedure involved locating the crossing of uterine artery and ureter, fenestration of the posterior leaf of the broad ligament and cerclaging the uterine isthmus without the help of uterine manipulation. There were no intraoperative complications. The postoperative ultrasound showed stable cerclage positioning and confirmed the fetal cardiac activity. The patient was discharged after 48 hours. No tokolytic agents were needed during hospitalisation. Currently the patient is in her late third trimester, still stable. Subsequent delivery is planned by caesarean section.

**Conclusion:** Cervico-isthmic cerclage by laparoscopy in pregnancy can be challenging and is of rare occurrence but emerges as a possible approach. The enlarged pregnant uterus decreases visualization of the surgical field, and manipulation of the soft corpus may cause damage to the pregnancy. However, with the benefits of lower blood loss, reduced length of hospital stay and a fast recovery, a number of successful laparoscopic abdominal cerclages are reported.



V 106

## Vaginally assisted laparoscopic hysterectomy - a video and case study

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**Introduction:** Large cervical leiomyomas present a surgical challenge due to decreased accessibility and increased bleeding risk. We will show how a combined vaginal and laparoscopic approach can be a feasible option.

**Material and Methods:** A 29 year old patient with cervical leiomyoma and hypermenorrhoea was referred to our clinic for surgical assessment. After a course of Esmya(R) (Ulipristalacetat) the previous hypermenorrhoea resumed and has led to several emergency consultations. The patients family planning was complete and she wished to explore surgical options. Clinical examination and transvaginal ultrasound showed a large cervical leiomyoma with maximum width of 10 cm approximately 3 cm from the introitus and a right ovarian cyst of 5 cm. A follow-up pelvic MRI also showed the cervical leiomyoma, described as in status nascendi, increased in size, without any indicators of malignancy. We decided to perform a vaginally assisted laparoscopic hysterectomy.

**Results:** The intraoperative site showed the leiomyoma growing into the cervix, still covered with epithelium, not in status nascendi. We inserted a Hohl-manipulator into the myoma and coagulated the uterine vessels with the laparoscopic approach. Subsequently the myoma could be extracted vaginally with minimal bleeding and a colpotomiser could be set into the remaining cervix after resection of part of the excess dilated cervical tissue. The laparoscopic hysterectomy was then completed in the usual manor. Our video shows the two different perspectives separately. There were no intraoperative complications and the patient could be discharged after 2 days of hospitalisation.

**Conclusion:** Large cervical leiomyomas present a surgical challenge even when performing a hysterectomy. The dual approach could be a feasible option to prevent excess bleeding, gain suitable exposure and still offer the patient a minimally invasive surgery.



V 107

## The ESHRE/ESGE classification of female genital tract congenital anomalies – How to recognize them in ultrasound and laparoscopy

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**Introduction:** In 2013 the ESHRE classification was renewed to categorize female genital anomalies clear, simple and accurate. In everyday practice, clinical findings are sometimes not as simple and obviously to define, especially if the patient has a rare anomaly.

**Material and Methods:** Throughout our video, we demonstrate the new ESHRE classification system and how the different main and subclasses can be identified in ultrasound and MRI. Furthermore, the video explains the corresponding findings in laparoscopy and hysteroscopy and how the surgical treatment was performed.

**Results:** Our experience on genital anomalies lead to this didactic video that shows the common presentation of the ESHRE main classes in ultrasound and MRI. The intraoperative findings in laparoscopy and hysteroscopy are shown as well as the surgical treatment.

**Conclusion:** Congenital malformations of the female genital tract represent a rather common benign condition with a prevalence of 4–7%. Depending on the extent of the malformation, it can lead to physical complaints like pain, irregularities of the menstrual cycle and miscarriages. The purpose of the images and videos shown is to help to categorize the genital anomalies correctly according to the 2013 ESHRE classification.



V 108

## Laparoscopic resection of deep infiltrating endometriosis of the bowel (ENZIAN C compartment) without staplers

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**Clinic:** Cantonal Hospital Graubünden, Chur

**Introduction:** Endometriosis is a benign disease with a high prevalence and significant morbidity due to chronic pain, impaired bowel-, urinary-, sexual- and reproductive functions. Deep infiltrating endometriosis (DIE) involving the bowel may need surgical treatment when lesions are symptomatic. The recto-sigmoid is most commonly affected by DIE of the bowel (ENZIAN C compartment), additionally there may be involvement of other structures such as the sacro-uterine ligaments and the recto-vaginal septum (ENZIAN A and B compartment). Various surgical techniques have been described. Previously described methods such as disc excision and segmental resection often include the use of staplers.

**Methods:** In our video presentation we show sequences of three alternative surgical treatment methods of deep infiltrating endometriosis of the recto-sigmoid without the use of staplers. These include nodule shaving, disc excision and colorectal segmental resection. We aim to illustrate the operation techniques and challenges as well as the limitations of bowel resection without the use of staplers. The operations were all carried out by the senior gynaecological surgeon and in case of a segmental resection a visceral surgeon.

**Conclusion:** Surgical management of bowel endometriosis is challenging and carries significant risks and possible complications. The possible techniques are dependent on the size of the lesion and the infiltration into neighbouring structures and must therefore be chosen very specifically for each case. Although the use of staplers in surgery of bowel endometriosis is wide spread, stapler free alternative methods have been applied with satisfactory outcomes. Long term results have not yet been shown, further studies are needed to compare post-operative outcomes and complication rates comparing surgical techniques with and without the use of staplers.



V 109

## Hysteroscopic findings after adjuvant tamoxifen therapy for breast cancer: a retrospective study of a tertiary hospital in Switzerland

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**Introduction:** Tamoxifen is a selective estrogen receptor modulator with mixed estrogenic and antiestrogenic activity used in estrogen sensitive breast cancer. Although endometrial thickening are often observed, there is only a low risk of uterine malignancy of less than 1-2% according to the existing literature. Our aim is to demonstrate the overview of hysteroscopic findings during tamoxifen intake.

**Material and Methods:** This is a retrospective observational study with a video presentation of hysteroscopic patterns. Authors studied the medical records of hysteroscopies between January 2006 and December 2019 in a tertiary hospital in Switzerland. All women with tamoxifen intake as an adjuvant therapy for breast cancer who underwent a hysteroscopy are included. The authors reviewed all the available medical histories and the videos of hysteroscopies and extracted the data independently. Pearson's chi-square-test and t- were used in the statistical analysis.

**Results:** 43 patients with hysteroscopy after tamoxifen treatment are considered eligible. In 32 of these cases video documentation could be obtained. In 31 hysteroscopies benign histology have been found. In the above group we obtained 13 cases with endometrial hyperplasia, 19 patients with polyp, 18 cases with endometrial atrophy, 5 with cystic lesions and one case of leiomyoma. The most common hysteroscopic pattern in patient under tamoxifen with benign histology was co-existence of polyp with endometrium hypertrophy (n=8, 25.80%) and polyp with endometrial atrophy (n=5, 16.12%). The only case of malignancy was a metastasis of the breast cancer in the uterin cavity. No endometrial cancer was detected. Comparison of premenopausal group versus postmenopausal group as well as the group of women who were treated with tamoxifen more and less than 5 years at the time of hysteroscopy showed no statistical significant difference.

**Conclusion:** No endometrial cancer or atypical hyperplasia have been found in our study population. Hysteroscopy in women under tamoxifen treatment showed five different hysteroscopic patterns.





## V 110

## External cephalic version – an instructional video on a procedure to prevent unnecessary cesarian sections

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**Introduction:** External cephalic version (ECV) at a minimal gestational age of 37 weeks reduces significantly the number of cesarian sections while procedure-associated risks are very low (serious complications like stillbirth or placental abruption pooled at 0.23 percent with a procedure-related risk of fetal death at 1 per 5'000 ECV attempts) . The success rate of ECV is, depending on the level of expertise of the performing physician and the respective clinic, 50-60%. At Kantonsspital Aarau we offer ECV to all mothers not presenting with a clear contraindication to either ECV or vaginal delivery. In the past years, a new approach activating the walking reflex of the fetus in utero has been described. We have recently been applying this new method to enhance the chances of a successful ECV. Because of the small number of fetuses presenting in breech position at term and a relevant percentage of women opting for an elective cesarian, for the majority of the hospitals, ECV is an uncommon procedure. For a physician training in perinatal medicine doing shift work and working part time, it can therefore be difficult to learn this procedure first hand.

**Materials and Methods:** We present an instructional video filmed in our labour ward that illustrates the procedure of ECV done at our hospital. The position of both mother and performing physician as well as the interaction between the two of them and between the physician and the fetus is easily visible. The physician's hand movements, their speed and the application of pressure can be observed along with the intermittent sonographic verification of fetal position and heart rate.

**Results:** Our video demonstrates the procedure of ECV as if seen during the actual procedure.

**Conclusion:** We find that, besides direct one-to-one teaching, an instructional video can be a very helpful tool to familiarize oneself with this recently described procedure for a successful ECV.



V 111

## Arthrogryposis multiplex congenita: fetal sonographic, clinical and genetic findings in seven cases from a tertiary care center in Switzerland

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**Introduction:** Arthrogryposis multiplex congenita is a clinical finding, which describes the presence of at least two congenital joint contractures in more than one area of the body. It can be caused by over 400 conditions and its etiology lies mainly in the abnormal neurological development of the fetus. Phenotypic expression of congenital arthrogryposis (CA) can vary considerably. The objective of our study was to accurately describe and analyze the sonographic, clinical and genetic characteristics of skeletal alterations in fetuses and infants diagnosed with CA in our tertiary care center in the last 10 years.

**Material and Methods:** Seven patients were enrolled in our study. In five cases, CA was diagnosed prenatally whereas in the remaining two infants after delivery. Sonographic and clinical characteristics of skeletal alterations were accurately described in each case. Moreover, autopsy and genetic findings were assessed, where applicable. Possible correlations between the abnormal findings were searched for.

**Results:** In the prenatally diagnosed cases, most fetuses presented hyperflexion of the radiocarpal articulation and talipes equinovarus. Hyperflexion of the elbow articulation, micrognathia and hypocoiling of the umbilical cord were also common findings, whereas cystic hygroma, elevated nuchal translucency or hydronephrosis were isolated. In one fetus, congenital myopathy was present. All patients decided for genetic testing. In one case, both parents were heterozygous carrier of the TOR1A gene and conceived two children with CA, who both died after delivery. In another case, atypical 22q11.22 deletion was detected, but did not seem to correlate with clinical findings. In three cases, parents decided for termination of pregnancy. Autopsy could not group the findings in a specific syndromic context. Postnatally diagnosed cases were milder, clinical findings included talipes equinovarus, hyperflexion of the elbow articulation and hypospadias. One of these children presents light neurodevelopmental delay, whereas the other one has a short stature but normal neurological development. In both cases, the father also suffered from CA, but no specific genetic disorder could be detected.

**Conclusion:** The heterogeneity of clinical manifestations makes classification of CA difficult. Genetic annotation and categorization remain a challenge. Postnatally diagnosed cases were milder and had a considerably better prognosis in our series.



# Poster Exhibition

**P = Poster Exhibition**



P 100

## Association between levator ani avulsions and technique of vacuum extraction – a prospective observational study

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**Introduction:** Trauma of the pelvic floor in form of partial or complete avulsions of the levator ani muscle (LAM) is common after vaginal birth, especially after vacuum or forceps extractions. As there is no information available regarding the association between the technique of operative assisted vaginal births and LAM trauma, we aimed to evaluate the technique and process of vacuum extraction on the occurrence of LAM avulsions.

**Material and Methods:** As part of a prospective cohort study at the University Hospital of Zurich between 3/2017 and 4/2019, we sub-analyzed full age nulliparous women with singletons in vertex presentation  $\geq 36+0$  gestational weeks (gw), who gave birth vaginally with vacuum assistance. We evaluated their pelvic floor for partial and complete LAM avulsions by 3-dimensional translabial ultrasound 6-10 weeks postpartum and calculated the association of the vacuum procedure itself along with other fetal, maternal and obstetrical characteristics to LAM trauma.

**Results:** 49 women met the inclusion criteria and therefore remained for the final analysis. Levator ani trauma was present in 17 (34.7%) of these women. There was no association between the different evaluated factors and LAM trauma in vacuum-assisted births, except for insufficient uterine contractions in the LAM group.

**Conclusion:** So far, there are no fetal, maternal and obstetrical characteristics and parameters of vacuum technique that are directly associated to the occurrence of LAM trauma after vacuum extraction, except for insufficient uterine contractions. Nevertheless, there might be factors of influence that are not evaluated yet, or are not easily accessible for evaluation, like the adaptations of the fetus inside the birth canal and within the hiatus of the LAM, and the adaptations of the birth canal to the fetus passing through. This should be content of further research.



P 101

## Prediction of levator ani avulsions by genital tears after vaginal birth – a prospective observational cohort study

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**Introduction:** Visible birth tears and trauma of the levator ani muscle (LAM) are common injuries after vaginal birth. For the diagnosis of LAM trauma ultrasound evaluation is advisable. As ultrasound or trained staff are not everywhere available, it would be helpful to have indicators of LAM trauma by the evaluation of genital tears after birth. Therefore, we aimed to evaluate independent risk factors for LAM trauma within visible birth tears or other influencing factors.

**Material and Methods:** In a prospective cohort study at the University Hospital of Zurich between 3/2017 and 4/2019, we evaluated full age nulliparous women with singletons in vertex presentation  $\geq 36+0$  gestational weeks, who gave birth vaginally for partial and complete LAM trauma by 3-dimensional translabial ultrasound and for birth tears by inspection. We then calculated the association of birth tears and other factors to LAM trauma in an univariate analysis and calculated independent risk factors in a multivariate analysis.

**Results:** 213 women were included for final analysis. 23.9% had a LAM trauma, with 13.1% as partial avulsion (PAV) (10.8% unilateral, 2.3% bilateral) and 14.1% with complete avulsion (CAV) (7.5% unilateral with or without PAV on the contralateral side, 6.6% bilateral). Any form of bilateral LAM injury was found in 12.2%. The distribution of accompanying birth tears was comparable to other studies. In univariate analysis an episiotomy, high-grade perineal tears, labial tears and the quality of fetal heart rate tracing were significantly different between the three LAM groups. In multivariate analysis, abnormal fetal heart rate tracing and the need for an episiotomy remained as independent risk factors.

**Conclusions:** 24% of women after vaginal birth suffered from a LAM-PAV or LAM-CAV, accompanied by visible birth tears in most cases. Abnormal fetal heart rate tracing and the need of an episiotomy were the only independent risk factors for LAM trauma. These factors might be an expression for altered biomechanics between the fetus and the structures of the birth canal with a possible mismatch of these components leading to birth trauma. Checking for LAM trauma after birth by 3-dimensional translabial ultrasound, especially in those cases, might be worthwhile.



P 102

## A qualitative pilot study on attitudes of doctors in training in Obstetrics & Gynaecology in Switzerland towards working in ambulatory care

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**Introduction:** In obstetrics & gynecology (OBGYN) in Switzerland, 66% of doctors work in practices. Of these, 50% are over the age of 55 and will retire within the next 15 years, compared to 17% of doctors in hospital. Service gaps might develop in the ambulatory sector in OBGYN. The “feminisation of medicine” as well as the Generation Y are bringing demographic and mentality changes, both of which have a strong impact on the workforce. To predict future developments it is important to understand the situation of current trainees and their attitudes towards working in hospital or in practice.

**Methods:** A qualitative study with semi-structured interviews was conducted. Purposive sampling was used to select participants from varied backgrounds to yield a rich and varied dataset. Eligible were doctors in speciality training for OBGYN or within two years of completion of their specialisation. Thematic analysis was used.

**Results:** Six doctors at different points in training participated. Their current workplace ranged from practice over regional to university hospital. The interviews lasted 40 to 90 minutes, were recorded and transcribed verbatim. The transcripts were six to ten pages long. Working in hospital and in practice were generally seen as antithesis. Attractive about working in hospital were interesting cases and operations. #1: „ If somebody knows that he does not want to operate then practice is fine for him, but if [not] then he will work in hospital“. Several attractive factors about working in practice were named. #1: „[In practice] I’m not subject to anyone else“, contrasting this to „externally directed“ work in hospital. Working hours in hospital and practice were contrasted. The overall opinion of ambulatory care, however, was relatively low. The term „dead end“ was used several times. #3: „So usually you just do annuals – that’s not too exciting“. On the other hand working in practice is seen as a long-term perspective “...when the frustration of working in hospital piles up” (#3).

**Conclusion:** Participants suggested a speciality training more directed towards working in practice for those interested in this career path. Participants voiced a low opinion of ambulatory care as such. It therefore is important to improve the image to improve recruitment. This study may serve as pilot for a quantitative survey in trainees in OBGYN to inform decisionmaking on training curricula and policies.



P 103

## Assessment of feasibility and acceptability of an optimized birthing position: Swiss monocentric pilot study

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**Background:** Currently, in order to manage obstructed labor, midwives suggest adopting eminence-based positions for giving birth. There is a growing body of literature recognizing that such management of vaginal delivery can impact the arrangement of pelvic bones and lumbar spine, promoting the descent of a fetus through pelvic inlet. Although these observations are encouraging, there remains a paucity of research evidence from clinical practice. Moreover, much uncertainty still exists regarding the acceptability of optimized posture by women in labor.

**Objective:** This pilot study aimed to assess the acceptability of the optimized position for giving birth.

**Patients and Methods:** A monocentric non-randomized qualitative study design was adopted. Patients admitted to Lausanne University Hospital (Centre Hospitalier Universitaire Vaudois; CHUV) labor ward between August and October 2019, with mechanical dystocia of the fetus, who signed informed consent form, were included in the study. Women included in the study were asked to adopt the optimized position (supine position with hyperflexion of the hip joints and lumbar spine) for at least 20 minutes. Subsequently, they were asked to assess their satisfaction with the position, using the Visual Analogue Scale (VAS; range of scores from 0 to 10). Descriptive statistics are presented as median and interquartile range (IQR) for numeric variables, and numbers and percentages for categorical variables. Normality of continuous variables was assessed by Shapiro-Wilk's test.

**Results:** Ten patients were included in the study (7/10 [70%] fetuses in left and 3/10 [30%] in the right occipital designation). Of the ten women included, nine completed the study, i.e., stayed in the optimized position for a minimum of 20 minutes. One woman resigned 5 minutes after taking the optimized position due to pain connected with fetus engagement. Other women were satisfied with the optimized position. Seven out of nine women provided satisfaction assessment using VAS, and the median score was 7.5 (IQR 2.5). Neither dysfunction of peripheral nerves nor diastasis symphysis pubis was reported in any of the patients.

**Conclusions:** The majority of women were able to maintain the position during the requested time and did not report discomfort or side effects. In general, therefore, it seems that the optimized birthing position is feasible and acceptable. A natural progression of this work is to analyze if the optimized position is an efficient solution to obstructed labor.



P 104

## The Vaginal Microbiome in fMMC Repair Pregnancies

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**Clinic:** 1) Obstetrics, University Hospital Zurich,  
2) Pediatric Surgery, University Children's Hospital Zurich

**Introduction:** While there is growing evidence on the effect of the vaginal microbiome on pregnancy outcomes, the relevance of abnormal findings on pre/post-surgical vaginal culture in women undergoing fetal myelomeningocele repair (fMMC) is unknown.

**Objectives:** To describe the incidence of abnormal pre/post-surgical vaginal microorganisms and to investigate potential associations between vaginal flora and preterm premature rupture of membranes (PPROM) and preterm birth (PTB).

**Methods:** All women undergoing fMMC repair at our center were included (2010-2019). Pre-surgical vaginal culture was routinely taken before fMMC repair, while post-surgical cultures were taken on indication. Vaginal flora was categorized into four categories: healthy vaginal flora (HVF), bacterial vaginosis (BV), desquamative inflammatory vaginitis (DVI) and yeast infection.

**Results:** Results of routine pre-surgical vaginal cultures were available in 95 of 99 fMMC cases in our cohort. Abnormal microbiomes were encountered in 31 women (32.7%, consisting of BV 7.4%, DVI 22.1%, yeast 3.2%). Post-surgical cultures were taken in 56 cases (50.0% with abnormal microbiome), demonstrating a significant increase in yeast infections (19.1%,  $p=0.005$ ). Abnormal microbiomes in pre/post-surgical culture were not associated with PPRM (OR 0.58 [95% CI 0.25;1.35],  $p=0.201$  or PTB (OR 0.55 [0.23;1.30],  $p=0.175$ ).

**Conclusion:** In our cohort, abnormal vaginal microbiome was not associated with PPRM and PTB. We speculate that screening for and prompt treatment of vaginal infections may have reduced the risk for PPRM and PTB.





P 105

## Health status, use of medication and recreational drugs during pregnancy: a cross-sectional survey in the Canton of Zurich

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**Clinic:** Obstetrics, University Hospital Zurich

Use of medication and consumption of recreational drugs during pregnancy may have lasting effects on the development of the embryo/foetus. Therefore, pregnant women should be aware of those effects and receive adequate support from knowledgeable health professionals. We wanted to characterise current medication use and consumption of recreational drugs among pregnant women in the Canton of Zurich.

A questionnaire was created and distributed to participating obstetric clinics and birth centres in the Canton of Zurich. Data collection took place between August 2018 and March 2019. Thereafter, data sets were manually digitalised and the descriptive statistical analysis was performed using IBM® SPSS® Statistics.

In the analysis, 398 questionnaires were included (24.1% of distributed). The most common chronic diseases were allergies (7.8%), thyroid disease (5.6%) and headache/migraine (5.4%), whereas heartburn disease (18.6%), iron deficiency/anaemia (16.7%) and morning sickness (14.3%) were the most frequent acute diseases. Most women reported at least one typical pregnancy symptom (e.g. fatigue, nausea and gastroesophageal reflux). Almost half of the women took at least one medication during pregnancy. Painkillers (paracetamol, 37.5%; ibuprofen, 9.3%; diclofenac, 1.8%), anti-reflux medicines (aluminium hydroxide, 9.4%; pantoprazole, 7.1%), and antibiotics (co-amoxicillin/amoxicillin, 11.7%) were frequently consumed. More than 90% of the participants refrained from taking any recreational drug during pregnancy. Nevertheless, at least 1 in 27 pregnant women was smoking and 1 in 25 women was drinking alcohol during pregnancy (in most cases low amounts only).

In addition to typical pregnancy symptoms, chronic and acute diseases were frequent among the participating pregnant women, showing how important knowledge on the safety - for both mother and child - of the various effective treatments is. Most commonly used medications are known to be safe for mother and child and are therefore recommended for use during pregnancy. That not always the most adequate medications were chosen suggests that more should be done to increase the acquaintance level on the present recommendations. Most pregnant women were refraining from consuming alcohol, tobacco and illicit drugs, revealing a high health-awareness. However, since several women mentioned drinking alcohol and/or consuming tobacco, further preventive work is needed.



P 106

## How would you like your gynaecologist to be?

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**Introduction:** The aim of our study is to quantify women's criteria for selecting their obstetrician and gynaecologist.

**Materials and Methods:** We collected the data from 752 patients between July and November 2019. Attenders received a 13-item questionnaire before their appointment in our outpatient clinic. The patient data collected was: age, education, origin, the number of deliveries, marital status, gender of their general practitioner and last gynaecologist along with the number of gynaecological consultations in the last 3 years. Our goal was to obtain data on the most important determinants for our patients in selecting their gynaecologist in reference to the clinician's gender, age, skills as well as easy access to the doctor's office.

**Results:** Altogether 35.1% of our patients wanted exclusively/preferably a female practitioner for a gynaecological consultation, 31.4% for the pregnancy check-ups, and 14.4 % as primary surgeons in case of a gynaecological operation. The equivalent percentages for male practitioners were 6%, 3.7% and 4.5%. If the last gynaecologist was a woman the wish for female practitioner rose to 63.8 % for a gynaecological consultation, 56.6% for the pregnancy check-ups, and 27.9 % as primary surgeons. We also observed this tendency in the group of patients who have not visited a gynaecologist in the last 3 years (exclusively/preferably a female practitioner: 51.9% for a gynaecological consultation 43.9% for the pregnancy check-ups and 26% as primary surgeons), as well as in the group of patients without offspring (41.1%, 43.9% and 19.6% respectively). For all the groups, the crucial factor in choosing their gynaecologist are the doctor's skills (74.2%) followed by the easy access to the doctor's office (13.7%). The least important factor for our attenders is the age of the physician (1.3%), although the preferred age for all groups was between 35-50 years (68.2%) followed by an age below 35 years (11.8%). 4.4% of our patients wanted their doctor to be above 50 years of age. For 15.5 % of our collective the age of their gynaecologist was not important.

**Conclusions:** Nearly 1/3 of our patients prefer female providers. However, for the most of them, clinician's gender is not of primary importance in the selection of a gynaecologist. Only for 7.7% of patients the doctor's gender is the crucial factor when choosing a gynaecologist. When it comes to surgery the gender of a doctor with the same skills is irrelevant for most of our patients (81.9%).



P 107

## Association between the side of levator ani muscle trauma and fetal position at birth – a prospective observational study

**Author:** Birri J., Kreft M., Zimmermann R., Kimmich N.

**Clinic:** Obstetrics, University Hospital Zurich

**Introduction:** Trauma of the levator ani muscle (LAM) is common after vaginal birth and can most reliably be diagnosed by 3-dimensional (3D) translabial ultrasound (TLUS). Multiple risk factors are known in general, but not in association to a specific side of the body. Therefore, our aim was to evaluate different impact factors which cause LAM trauma on either side of the body or bilateral by focusing on the fetal position at birth.

**Material and Methods:** As part of a prospective cohort study between 3/2017 and 4/2019, we analyzed vaginal births of nulliparous women with singletons in vertex presentation  $\geq 36+0$  gestational weeks. We evaluated their pelvic floor for hematomas, partial and complete LAM avulsions by 3D TLUS 2-4 days postpartum and searched for an association between the affected body side and different fetal, maternal and obstetrical factors.

**Results:** 71 out of 213 women (33.3%) suffered from LAM trauma - 17 (23.9%) on the right side, 20 (28.2%) on the left side and 34 (47.9%) bilateral. No association between the different evaluated factors and the affected body side could be identified, except for the quality of fetal heart rate tracing.

**Conclusions:** No significant impact factors of LAM trauma could be associated with a specific side of the body. Other possible mechanisms need investigation in the future, such as the time of the birth canal and the fetus to adapt to each other, including adequate time for the tissue to stretch and the fetus to rotate into the ideal position within the LAM hiatus.



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## 3D pelvic scatter charts of nulliparous women: Pelvic landmark points in MRI subjected to pelvic organ prolapse later in life

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**Introduction:** The prevalence of at least 1 symptomatic pelvic floor disorder of women with age 20 or higher is 23.7%. The mean latency between vaginal delivery and presentation of symptoms is more than 30 years. As the world's population is ageing continuously, pelvic organ prolapse (POP) will affect even more women in future. MR-imaging of the female pelvis is not yet used to detect preclinical defects that could potentially lead to POP later in life. The 3D-pelvic inclination correction system (3D-PICS) is the most precise measurement system to quantify any organ location. The aim of this study was to apply the 3D-PICS system to MR-images of the female pelvis and show the distribution of pelvic organ localization in nulliparous females.

**Methods:** In a retrospective data analysis, we collected data of MRI's of the pelvis of female nulliparas between 18 and 40 years of age performed at the University Hospital of Zurich. The 3D-PICS was applied to mark organ points related with POP of the anterior (internal meatus of the bladder), apical (cervix) and posterior compartment (anorectal angle) as well as bony landmarks as non-descending fix points (ischial spines, symphysis, iliococcygeal joint).

**Results:** The MR-scans of 202 patients were included. The anorectum and the urinary bladder are found at a height in the y-axis of -8.30mm ( $\pm 8.74$ mm) and -25.93mm ( $\pm 4.02$ mm) respectively and showed the lowest standard deviation. The cervix with a mean in the y-axis of -50.64mm showed the widest standard deviation (between  $\pm 10.94$ mm in the z-axis and  $\pm 13.99$ mm in the y-axis). The widest standard deviation of the bony landmarks was observed in the z-axis of the right ischial spine ( $\pm 10.86$ mm). The POI's showed an excellent inter-rater reliability (ICC=0.998).

**Conclusion:** The anorectum and the urinary bladder are found at consistent locations in nulliparae. The different POI's showed a good interindividual correlation that would be expected to be even more similar when normed by height and ethnicity. The cervix' location showed the highest variability of the pelvic organs. Either be due to variation in the normal range, different filling of the urinary bladder or due to preclinical POP. The study showed how 3D-PICS can be used to precisely mark different POI's in the female pelvis and show their relation to each other. In further studies the positioning of pelvic organs will be prospectively measured by applying deep learning to be able to diagnose POP in preclinical stages.



P 109

## Prenatal Diagnosis of Abnormally Invasive Placentation by Ultrasound and Magnetic Resonance Imaging

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**Introduction:** Abnormally Invasive Placentation (AIP) is a significant cause of maternal morbidity and mortality. The spectrum of AIP includes the histological subtypes placenta accreta, increta and percreta. It is of great importance to diagnose severe forms of AIP (i.e. placenta increta and/or percreta) prenatally using ultrasound (US) and if required magnetic resonance imaging (MRI). The early diagnosis allows a planned delivery among a team of interdisciplinary experts. The objective of the study was to determine the sensitivity and specificity of diagnosing AIP by US in prenatal routine screening. The study aimed to assess the value of the existing US criteria of AIP as described in the literature and to find out whether the combined use of both US and MRI techniques can further improve the diagnostic accuracy.

**Material and Methods:** We retrospectively analysed 5219 patients with singleton pregnancies who were examined by US from 2014 to 2019 and delivered at the University Hospital Basel. The study includes all pregnant women with a clinical diagnosis of AIP or a prenatal suspicion of AIP in US diagnosis, as well as all patients screened by US before delivery without AIP. Data on prenatal risk factors, prenatal sonographic and radiological findings and postnatal clinical parameters were extracted from the hospital information systems Viewpoint and Ismed.

**Results:** Out of 5219 patients, 181 of the patients examined were either diagnosed or suspected with the diagnosis of an AIP. The negative predictive value for the diagnosis of an AIP is 97,64% (95% CI 97.19 to 98.04%,  $p < 0,001$ ). The accuracy of US in detecting placenta percreta or increta had a sensitivity of 93,33% (95% CI 68,05% to 99,83%,  $p < 0,001$ ) and specificity was 99,87% (95% CI 99,72% to 99,95%,  $p < 0,001$ ). In 34 cases with sonographic suspicion of a severe form of AIP, further diagnosis with MRI was performed. For 25 patients the diagnosis made by US could be confirmed, in six cases a more severe form of AIP was obtained and for three patients a less severe diagnosis was determined.

**Conclusion:** US diagnostics remains the gold standard in the diagnosing of AIP. US shows a high accuracy for the detection of severe forms of AIP. Standardized US criteria should be used for prenatal diagnosis of AIP. MRI is a complementary examination to US, especially for the severe forms of AIP and could provide additional information when planning the forthcoming surgical procedure.



P 110

## Rare Case of Intestinal Obstruction due to Enterocoele

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**Introduction:** Intestinal obstruction is a common surgical emergency. But symptomatic ileus due to vaginal enterocoele is very rare. Untreated intestinal obstruction leads to perforation, septic shock and death. It is crucial to think about the possibility of vaginal herniation of small bowel in patients with symptomatic ileus.

**Material and Methods:** A 90-year-old woman suffering from pneumonia reports increasing abdominal pain and nausea. An x-ray shows intestinal air-fluid-levels. Suspecting intestinal obstruction, a CT-scan confirms the diagnosis. Preparing surgery urinary catheterization was impossible for the emergency nurse because of pelvic organ prolapse. Therefore the gynecologist on call is consulted.

**Results:** Abdominal hysterectomy was done many years ago. The examination shows POP-Q stage III pelvic organ prolapse including enterocoele with small intestine inside, vaginal vault prolapse, rectocele and cystocele with urinary retention from about 1000ml. After careful reposition of the prolapse and urinary catheterization, the abdominal pain and nausea decrease rapidly. To prevent a recurrent prolapse a pessary is inserted. By gradual transition to normal diet peristalsis becomes normal. After removing the urinary catheter micturition with pessary inside is normal with complete emptying of the bladder.

**Conclusion:** An interdisciplinary approach even in a clear surgical case like intestinal obstruction is important if the patient suffers from pelvic organ prolapse. Because pelvic organ prolapse leads not only to the rare cause of symptomatic ileus, but frequently to acute abdomen by urinary retention. The goal of good practice in emergency units is a careful examination before each surgical intervention. In our case the gynecological examination prevented the old and frail patient from surgery.



P 111

## Neonatal outcome in patients with induced versus spontaneous labour-begin

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**Introduction:** Although induced labour has been described in ancient times (by Hippocrates), it first became widely available after the development of synthetic oxytocin (1954). Nowadays it is applied for various fetal and maternal indications. The aim of this study is to compare the outcome between newborns delivered via induced and spontaneous labour-begin.

**Materials and Methods:** We retrospectively collected data from newborns, born between January 2019 and December 2019 in our clinic (283 deliveries). Those with primary caesarean section were excluded (34). We then divided the rest (249) into two groups: those with induced labour-begin (group A - 78, 31%) and those with spontaneous labour-begin (group B - 171, 69%). We intentionally did not take into consideration the indication or the means of the labour-induction. The neonatal outcome was determined by clinical (minute-1, minute-5, minute-10 APGAR score) and laboratory parameters (arterial pH, venous pH and base excess in the umbilical cord blood gas analysis).

**Results:** The average APGAR scores for the labour induction-group are 8.35, 9.25, 9.70 compared to 8.12, 9.16, 9.65 for the control-group. The difference on the minute-1 APGAR and minute-5 APGAR is statistically significant ( $p: 0,001$  and  $p: 0,009$ ). No difference is found between the groups regarding the venous and arterial pH (7.32 and 7.22 for group A vs 7.35 and 7.24 for group B). The base excess is statistically worse on the labour induction-group (-6.16 vs -5.68,  $p: 0,002$ ). 8 patients (10%) of group A undertook an assisted vaginal delivery and another 14 (18%) a secondary caesarean section. The respective numbers for group B were 26 (15%), and 15 (9%).

**Conclusion:** Our retrospective study shows that induced labour-begin is not linked to a worse neonatal outcome. An analysis with a larger collective which would diversify the groups further according to the means and indications of the labour-induction as well as the maternal and fetal risk factors would be of great interest to strengthen our results.



P 112

## Pubic symphysis after delivery - A rare differential diagnosis in cause of a severe infection postpartum

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Osteitis pubis is a rare inflammatory disease of the pubic symphysis. At risk are women after urinary surgery, athletes competing in sports with forceful hip adduction, patients with pelvic malignancies and intravenous drug addicts. In literature, osteitis pubis in the postpartum period is documented only in very few cases. Diagnosis often is difficult because of the rarity of the disease and its atypical presentation. Risk factors to provoke osteitis pubis seem to be either trauma of the symphysis, pelvic widening during delivery process or abscesses in the prevesical or retropubic space caused by urinary incontinence.

A 30 year old gravida III para III presented at our emergency unit seven days after a normal vaginal delivery with first degree perineal tear and a small paraclitoral lesion. She complained increasing pain over the pubic symphysis and fever (max. 40.0°). In the clinical examination mons pubis as well as both labia majora were massively swollen, flushed and overheated. CRP was highly elevated to 412 mg/L as well as Procalcitonin (0.18 ng/ml). With suspected necrotizing fasciitis a CT scan was performed which showed an inflammatory process of the pubic symphysis. Emergency surgical fasciotomy and biopsy was performed and an antibiotic therapy with Clindamycin and Tazobactam was initiated. Due to vaginal colonisation with MRSA the treatment was expanded by Vancomycin and Privigen was given additionally.

After 2 days a follow up CT scan showed an abscess below the pubic symphysis connected to the subcutis of the vulva. On the same day a second look surgery was performed for debridement and drainage. Intraoperative tissue biopsy and bacterial culture were positive for Streptococcus Group B and antibiotic treatment was switched to Penicillin G. Our patient was dismissed eight days after in good health condition with oral Clindamycin.

Even if pubic symphysis after delivery is a very rare disease it should be considered as differential diagnosis when patients show massive signs of infection in the pubic area and impossibility to walk. Necrotizing fasciitis should be considered and surgical procedure and antibiotic therapy should be started as soon as possible.

In our case suspected entry for the infection might have been the small paraclitoral lesion acquired during delivery. This case should make aware, that even small tissue tears after delivery may cause severe, life threatening infections leading to extensive surgical exploration and ICU admission.





P 113

## Second systolic peak in middle cerebral artery Doppler: A sign of increased pulse wave reflection after intrauterine transfusion (IUT)

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**Objectives:** A transient 2nd systolic peak (P2) may appear in middle cerebral artery (MCA) Doppler after intrauterine transfusion (IUT). IUT results in transiently worsened fetal condition through very low PH and high hematocrit of the transfused blood. In animal models, all these conditions induce systemic fetal vasoconstriction. In physiology, the concept of pulse wave (PW) propagation and reflection is well established. A 2nd systolic MCA peak (MCA-P2) indicates increased PW reflection and transmission to cerebral circulation. We assume that MCA-P2 after IUT is a sign of fetal distress.

**Methods:** Reflected waves seem to return from a distance  $L$  corresponding to the pelvic region. A fraction continues to cerebral circulation and contributes a 2nd accelerative impulse to cerebral flow. In this model the time interval  $\Delta t$  between onset of MCA waveform and MCA-P2 corresponds to the 2-way travel time ( $2wTT$ ) the PW needs for a round-trip along distance  $L$  with velocity  $c$ :  $2wTT = 2L/c$ ,  $L = L(fAo+) = \text{length}(fAo + \text{com. iliac a.})$ , as anatomical surrogate. To test this model in IUT, we performed a preliminary search in our perinatal database for IUTs given for severe fetal anemia ( $fHb \leq 0.55$  MOM) with transfusion coefficient  $\geq 0.03$  and compared Doppler recorded  $\Delta t$  timing with model predicted  $2wTT$ , based on human fetal data on  $L(Ao+)$  and velocity  $c$ .

**Results:** We identified 18 fetuses with adequate Doppler quality for  $\Delta t$  evaluation. Mean GA ( $\pm$  SD) was  $28 \pm 1$  wks, IUT-Vol. =  $41 \pm 15$  ml and  $\Delta t = 80 \pm 8$  ms. GA-adjusted human fetal data yield:  $L(fAo+) = 9.7 \pm 0.7$  cm and velocity  $c: 255 \pm 6$  cm/s. Thus we obtain  $2wTT = 76 \pm 4$  ms, indicating good agreement between Doppler observation and model prediction.

**Conclusion:** The appearance of MCA-P2 after IUT seems to indicate fetal distress. Thus, MCA-P2, as a sign of fetal circulatory distress, may be observed in other fetal interventions.



P 114

## Only 17 years young and already a malignant phyllodes tumor, a case report

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**Introduction:** Phyllodes tumors are rare fibroepithelial neoplasms of the breast that comprise less than 1% of all breast tumors. 14-35% of all phyllodes tumors are malignant. At the time of diagnosis the mean age is around 45 years and the mean size ranges from 1.9 to 10.9cm. Malignant phyllodes tumors are characterized by invasive tumor growth, an unclear tumor boundary, excessive growth of interstitial cells, apparent atypia, a mitotic count >10 per high power fields, massive bleeding and visible necrosis. The five year survival rate ranges from 60 to 80%.

**Case report:** A healthy 17-year-old woman presented with an enlarged right breast, which had been growing for three months. There was no personal or family history of breast cancer. On physical examination, the patient's breast was enlarged and indicated a mass measuring 5cm. No palpable axillary lymphadenopathy was noted. The contra-lateral breast and axilla examination was normal. Breast ultrasound showed a mass with heterogeneous internal echotexture including inhomogenic areas suspicious for hamartoma. Core tissue biopsy revealed fibrosis and columnar metaplasia without atypia however the question was, if the sample is representative. She was taken for surgical excision because of fast increasing of the tumor. The histopathological findings were consistent with malignant phyllodes tumor. In the CT scan of the chest and abdomen was no evidence for any metastasis. Due to the tumorboard consensus we suggested either a mastectomy or a resection with margins more than 1cm. The patient underwent a breast conserving surgery however the resection margins were scarcely 3mm. Therefore she got through right breast mastectomy with direct silicon reconstruction. She did not undergo any chemotherapy and radiation therapy.

**Conclusion:** Because of the young age a malignant genesis was not expected. The preoperative diagnosis normally should involve clinical manifestation, imaging data like ultrasound or MRI and core tissue biopsy. Surgical resection with more than 1cm excision margin remains the gold standard. The most common path of spread is hematogenous. Adjuvant radiotherapy is still controversial. However it does not affect overall survival and disease free survival. In summary, if the histology proves a malignant phyllodes tumor the concept of treatment is based on wide local excision in healthy and regular controls with detection of local recurrence and pulmonary metastatic disease.



P 115

## Low-dose Aspirin for all? – A case report identifying potential maternal side effects

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**Introduction:** With an incidence of 2-8% preeclampsia (PE) is one of the main reasons for maternal and fetal morbidity and mortality. Up to now, there is no approved therapy to cure this disease except delivery. But recently numerous studies have shown a significant reduction of developing PE when low-dose aspirin is taken in pregnancies at risk starting before 16 weeks of gestation. Furthermore the FMF London has established a standardized screening algorithm to identify women at risk. Still the question remains whether low-dose aspirin should be given to pregnant women with defined risk factors, just to those screened positive or even to all pregnant women.

**Case report:** A 40-year-old IIIIG IP woman was admitted to our facility at 22+6 weeks of gestation with syncope and severe anemia (Hb 77 g/l) due to gastrointestinal bleeding. The patient suffered from ulcerative colitis diagnosed several years ago treated with Mesalazine in pregnancy. In her first pregnancy in 2016, she developed preeclampsia with HELLP syndrome and the child was delivered by c-section at 35 weeks of gestation due to partial placental abruption. In the current pregnancy low-dose aspirin (100mg) was prescribed at 13 weeks of gestation because of her personal history. Preeclampsia screening according to the FMF London was not performed. Aspirin was stopped immediately and the patient was given an infusion of red blood cell concentrate (RBC) and additional 2 RBCs because of persisting GI bleeding. Gastro- and Colonoscopy biopsies were performed and confirmed the diagnosis of Ulcerative colitis DD Crohn disease. Steroids were administered and the bleeding stopped 48 hours after the cessation of aspirin. The patient was discharged after 9 days. She is now pregnant at 36 weeks without any further complications up to today.

**Conclusion:** It has been shown that low-dose aspirin taken before 16 weeks of gestation is effective in preventing preeclampsia in a high-risk population. On the other hand exposure to low-dose aspirin in patients with a history of inflammatory bowel disease (like ulcerative colitis, M. Crohn) may result in life-threatening bleeding. Therefore the use of aspirin has to be discussed individually considering both the possible benefits and the adverse effect for mother and child.



P 116

## Singular brain metastasis from epithelial ovarian carcinoma -a case report

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**Background:** Epithelial ovarian carcinoma is the most common type of ovarian carcinoma, and the leading cause of female genital tract cancer-related deaths. However, brain metastasis of epithelial ovarian cancer is rare, with an incidence of only 1% to 2%.

**Case:** A 66-year old white patient presented herself with progressive episodes of aphasia for 3 months to her family doctor. She told her doctors that she knew that she understands everything and what to answer but she could not pronounce the words properly (Broca's Aphasia). In her medical history there was a diagnosis of an epithelial high grad ovarian cancer 22 months ago treated with neoadjuvant chemotherapy including carboplatin/paclitaxel and a complete surgical resection. A cat scan of head to abdomen showed no evidence of systemic recurrence but with a parietotemporal tumour of 3cm on the left side matching her clinical symptoms. The patient was transferred to neurosurgical ward and the tumour was resected completely 4 days afterwards. The tumour was classified morphologically and immunohistochemically as a metastasis of the known epithelial ovarian carcinoma. The tumour cells were positive for MNF 116, WT1 and estrogenic receptors. Following surgical resection she received stereotactic radiotherapy with  $5 \times 6 \text{ Gy} = 30 \text{ Gy}$ . In absence of systemic metastasis we renounce an additional chemotherapy. In a clinical control four weeks after hospitalisation and radiotherapy the patient was able to pronounce her words slowly but properly.

**Conclusion:** This is a rare case of a singular brain metastasis without evidence of systemic recurrence. Brain metastasis of ovarian epithelial cancer is reported in fewer than 600 cases in literature. Survival for patients with brain metastasis is generally poor; however, the literature on prognostics, survival, and treatment options for patients with epithelial ovarian cancer offers limited applicability to patients with only one metastasis.



P 117

## LMS of the right fallopian tube. A rare differential diagnosis in young women

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**Introduction:** Leiomyosarcoma (LMS) is a rare type of cancer that affects smooth muscle tissue. Gynecologic LMS usually arise in the uterus. LMS affecting the fallopian tube is very rare and management is controversial.

**Case Report:** Our 21-year old patient presented with recurrent pain in the lower abdominal part. Ultrasound showed an unclear structure near the right adnexa. Due to the most likely differential diagnosis of an extrauterine gravidity a laparoscopy with excision of the tumor from the right fallopian tube was performed. Pathology diagnosis was LMS. After consultation with various experts, we decided to do a second surgery with right salpingectomy, mesosalpinx peritonectomy, biopsies from the peritoneum and the omentum. In addition, biopsies were taken from the right ovary with the aim to safely obtain ovarian tissue in an attempt to preserve fertility. Pathology did not reveal further tumor manifestations. Staging by MRI and CT excluded uterine or others metastasis. Hence, the final diagnosis and stage were LMS of the right fallopian tube pT1a cN0 cM0. Importantly, WHO does not recommend grading for LMS. One randomized study investigated adjuvant chemotherapy (CTX) vs. surveillance in uterine LMS. This trial was closed prematurely due to slow accrual and was ultimately negative. Consequently, there is neither consensus on adjuvant CTX for uterine LMS nor -owing to the rarity- for fallopian tube LMS. After extensive discussions with external experts, we recommended adjuvant CTX with 4 cycles of doxorubicin 75mg/m<sup>2</sup> und dacarbazine 500mg/m<sup>2</sup> to reduce the risk of LMS recurrence following suboptimal primary surgery and a possibility of sarcoma dissemination. After a careful consenting process the patient decided to undergo this adjuvant CTX regimen. Ovarian protection was intended and we gave goserelin 10.8 mg s.c and tibolon as an add back therapy.

**Discussion:** The prognosis of fallopian tubes LMS is poor irrespective of the stage. Only a few cases of fallopian tube LMS have been described so far. For the lack of data and evidence from randomised studies, the best treatment strategy is not clear. A tumor excision without damaging itself should be done. If there is a clinical lack of tumor, ovaries can be left in situ especially when the patient's family plan is open. Lymphonodectomy, excision of the omentum or hysterectomy are not recommended by experts. Adjuvant CTX is controversial. Adjuvant radiotherapy regarding PFI and OS is not considered beneficial.



P 118

## Pregnancy after Pyocolpos due to Herlyn-Werner-Wunderlich Syndrome

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**Introduction:** Herlyn-Werner-Wunderlich Syndrome (HWWS), characterized by the triad of uterus didelphys, obstructed hemivagina and ipsilateral renal agenesis, is a rare congenital anomaly of the urogenital tract. Since 1922 only a hundred cases have been reported and only a few pyocolpos are described. Usually symptoms present shortly after menarche when hematocolpos develops during menstruation resulting in dysmenorrhea and a pelvic mass. The mainstay of diagnosing HWWS is radiologic findings.

**Material and Methods:** Case report of the medical findings.

**Results:** A 23-year-old woman presented herself as an emergency with acute pelvic pain since two days. In her history menarche had occurred at the age of 15 years with sporadic lower abdominal pain on the right side. In the clinical examination, the patient complained of a pressure intolerance of the entire abdomen. In the gynecological examination, the entrance to the vagina could only be visualized after a sonographic check-up, the vagina could then be inspected, and pus emptied. In addition a mass on the right side was palpable. The ultrasound confirmed anomalies with uterus didelphys, hematocolpos and renal agenesis on the right site. Antibiotic therapy with co-amoxicillin in combination with vibramycin was indicated based on suspected adnexitis with pus emptying from the left cervix. The initial response was good, but the general condition deteriorated with increasing infection parameters after 3 days. We performed a surgical therapy by vaginal septum resection and drainage of pus. Two years later the patient had a spontaneous conception with a complication-free pregnancy in the left part of the uterus. The patient delivered a healthy baby by caesarean in the 39th gestational week, boy 2550g, APGAR 8/9/10, pH 7.32.

**Conclusion:** HWWS should be suspected in cases with cyclic pelvic pain and also in neonatal cases with any renal malformations. Monitoring HWWS in the puberty can prevent secondary infection like pyocolpos by obstructed hemivagina. HWWS can have successful pregnancy in 87% and in 62% positive obstetrics outcome without complications during delivery.



P 119

## Bilateral sentinel lymph nodes - a rare phenomenon in breast cancer

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**Introduction:** We present the case of a 52 year old female diagnosed with invasive-lobular breast cancer on the left side which showed sentinel lymph nodes both in the ipsilateral and in the contralateral axilla.

**Case:** The 52 year old patient has had a history of breast reduction surgery due to macromastia. She was admitted with an initial diagnosis of bifocal invasive lobular breast cancer in the inferior medial quadrant of the left breast. She was diagnosed after palpation of a lump, and first underwent mammography, sonography and biopsy. The subsequently performed MR-mammography showed two foci, with an extent of about 8 cm. A PET-scan showed no metastasis. The day before the segmentectomy was performed, nanocolloides marked with Tc-99m were injected to identify the sentinel lymph nodes. Surprisingly, there was predominant uptake in a contralateral axillar lymph node, while the ipsilateral lymph nodes did not show any substantial uptake. During surgery, patent blue was injected in the area of the tumor. In the contralateral axilla we could detect three sentinel lymph nodes with a high activity detected by gamma counting. On the ipsilateral side, only one node with considerably less activity could be detected. None of them were stained blue. A frozen section analysis was performed in all four sentinel lymph nodes and showed no signs of tumor infiltration. Postoperatively, adjuvant chemotherapy, radiotherapy and endocrine therapy were performed.

**Conclusion:** The phenomenon of contralateral sentinel lymph nodes in breast cancer is very rare (0.2%) and often associated with a history of breast operations, as in our patient. There is a discussion about whether to treat metastases in contralateral sentinel lymph nodes as N+ or M+. Since lymphoscintigraphy showed altered lymphatic drainage presumably due to the patient's medical history, we would have considered a potential contralateral lymph node metastasis as a regional lymph node rather than a distant metastasis.



P 120

## First case report of a streptococcal toxic shock syndrome after insertion of an intra uterine ball (IUB)

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**Introduction:** The intrauterine ball is a copper intrauterine device (IUD) which takes extends to its three-dimensional shape after insertion in the uterus. It is available since 2013 and is supposed to ease insertion, reduce perforation, malposition or expulsion due to its form and deployment process. We present the case of a 39-year old woman (II-P) who was seen with abdominal pain three months after insertion of an intrauterine ball.

**Case report:** The patient presented with a history of acute lower abdominal pain since the previous day. Clinical findings were severe abdominal distension and bloating, hypotension: RR 85/55mmHg and tachycardia 100/min. Laboratory results showed alteration of inflammatory parameters: neutropenia 0.56 G/L, CRP 354mg/l. The vaginal ultrasound revealed a dense collection suspicious of a tubo-ovarian abscess of 4x5cm in diameter. We indicated an emergency laparoscopy and pre-operative Ceftriaxone and Doxycycline were administered. Intraoperative findings were peritonitis with pus in all abdominal quadrants. The left tube and ovary were enlarged and showed signs of infection. Unilateral adnexectomy was performed and the IUB was removed. The patient was transferred to the intensive care unit due to suspicion of a toxic shock-like syndrome. After confirmation of streptococcal infection in blood cultures, the antibiotic therapy was adjusted to Piperacillin/Tazobactam and Clindamycin. Postoperatively, the patient suffered from multi-organ failure with septic cardiomyopathy, kidney failure stage 3 and septic hepatopathy with hypoglycemia and thrombocytopenia. Intubation with ventilation for 10 days was required because of an acute respiratory distress syndrome. Recovery was additionally complicated by a delirium and occurrence of a paralytic ileus. After 16 days, the patient could be transferred from the intensive care unit to the regular ward. The patient could be discharged after 24 days with regredient inflammatory parameters: Leucocytes 11 G/L, CRP 41mg/l. She was admitted to a rehabilitation facility.

**Conclusion:** Insertion of an IUD can be associated with risk of ascending infection with consecutive pelvic inflammatory disease. Though rare and only described in case reports, Streptococcal toxic shock syndrome from an intrauterine device should be considered with patients diagnosed with pelvic inflammatory disease. An instantaneous therapy including surgery and adequate antibiotics should be considered. Standardized pre-insertion screening for infection does not exist.





P 121

## Extraovarian fibrothecoma: A case report

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Extraovarian sex-cord-stromal tumors, especially fibrothecoma, are a rare entity and therefore lead to frequent diagnostic uncertainties.

We report the case of a fibrothecoma originating from the right uterosacral ligament in an 83-year-old female presenting with mixed urinary incontinence due to a tumorous lesion absorbing the entire pelvis. The patient had previously undergone multiple pelvic surgeries including hysterectomy and bilateral adnexectomy. In a preoperative percutaneous biopsy the lesion was diagnosed initially as PEComa. After surgical extraction of the tumor and subsequent thorough histopathological, histochemical and immunohistochemical examination the initial diagnosis had to be changed to fibrothecoma.

Diagnosis of extraovarian sex-cord-stromal tumors remains challenging and tight interdisciplinary exchange is necessary to improve diagnostics and consecutive therapy in patients with this rare tumor entity.



P 122

## Can preoperative L1CAM assessment be used to avoid lymphadenectomy in low to high-intermediate risk endometrial cancer patients?

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**Introduction:** Several studies already evidenced the potential of L1CAM as a prognostic marker in endometrial cancer. L1CAM is associated with lymph node invasion as well as poor prognosis. The aim of this study was to test L1CAM as a negative predictor for lymph node invasion in a cohort of patients with low to high-intermediate risk endometrial cancer. The role of the lymphadenectomy in these patients remains controversial, therefore the resulting morbidity is elevated and de-escalating strategies are still required.

**Materials and Methods:** Retrospective data of 143 patients with endometrial cancer who were treated at the University Hospital in Basel from 2011-2019 were examined. Immunohistochemical staining for L1CAM was performed on curettage and/or hysterectomy specimen of these patients. Additionally, the following parameters were collected: age, histology, FIGO stage, LVSI, lymph node invasion, operative decisions, PR and ER. We analyzed the correlation between L1CAM and lymph node invasion as well as any discriminatory potential from other preoperative histopathological features in their correlation to L1CAM.

**Results:** L1CAM was positive (cut off >10%) in 19 (13.3%) and negative ( $\leq 10\%$ ) in 124 of 143 patients (86.7%). The patients were preoperatively divided in risk groups based on the ESMO-ESGO classification, excluding LVSI as mostly unknown preoperatively. Thus, 92 (64.3%) patients could be classified in the low to high-intermediate risk group and 51 (35.7%) in the high to advanced/metastatic risk group. High L1CAM was associated with LVSI ( $p=0.017$ ) and higher grade ( $p<0.001$ ). However, no significant correlation of lymph node invasion and elevated L1CAM was found in our cohort.

**Conclusion:** Even though elevated L1CAM was associated with high risk features as LVSI and higher grade, no benefit for the preoperative assessment of L1CAM in regards to lymph node invasion could be demonstrated. In low to high-intermediate risk groups, preoperative L1CAM did not add substantial predictive information to the so far used clinicopathological features and should therefore not be suggested for tailoring in regards to lymphadenectomy.



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## Surgical management of an epidermoid inclusion cyst as a long-term complication of female genital mutilation

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Epidermoid cysts can occur in a various locations in the body. These cysts are the result of invagination/implantation of squamous epithelium under the dermis or subcutaneous tissue. This may happen in case of injuries where tissue from the skin surface get stuck under the surface during the recovery process. In the vulva this may arise from injuries, such as episiotomy or tears caused during birth delivery but could also develop as a long-term complication of female genital mutilation. Female genital mutilation is still practiced in numerous countries of West Africa, Middle East, and Southeast Asia. Worldwide 200 million women are estimated to be concerned.

We report the case of a 25-years old pregnant Somalian woman (GIV PIII) presenting at 14 weeks for a first pregnancy control. The husband reported a growing genital mass since the latest vaginal delivery in May 2018 which disturbed the sexual intercourse. Her history reveals a FGM with excision of the clitoris without suture of the vulva. Perineal examination revealed a 6x6x8cm, well-rounded cystic swelling inserting at the ancient location of the clitoris and obstructing the vaginal introitus. Contact to bladder or urethra as well as the presence of fistula were excluded with MRT imaging, but no accurate statement over the nature of this swelling was possible. Because it caused pain and discomfort, but also represented a serious obstacle for the vaginal delivery to come, the decision to excise the cyst was made.

The surgery took place during the 19th week of gestation in February 2019 under Hexoprenalin tocolysis without complication. Incision was done at the transition zone between vulval skin und vaginal skin and the cyst was removed in toto after subcutaneous stripping. Pathological findings showed an epidermoid cyst. The wound healing went well. The result was satisfied, also after the vaginal delivery of a 4300g baby 20 weeks later.

A correct diagnosis in the case of swelling of the vulva is essential to provide an optimal management. Differential diagnosis includes abscess, vulval malignancy, obstructed paraurethral or Bartholin's gland, lymphocele, cyst of the canal of Nuck, endometrioma and Skene's gland cyst. MRT could be helpful in unclear situation. However, in random cases the definite diagnosis can only be given by the pathological report after surgery.



P 124

## Review of treatment strategies for HER2 positive breast cancer and their implementation in a major Swiss hospital

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**Introduction:** In Switzerland, approximately 6,000 women are diagnosed with breast cancer (BC) each year. In 15-20% of all BC patients the human epidermal growth factor receptor 2 (HER2) is overexpressed and was associated with poor prognosis before the introduction of HER2-targeted therapy. This study aims to overview the implementation of current treatment strategies in the clinical routine of a Swiss Cancer Center.

**Material and Methods:** A retrospective data analysis of 158 patients with newly diagnosed early and advanced HER2+BC between 2008 and 2018 at the University Hospital of Basel was performed. All statistical evaluations were done using the software R.

**Results:** The investigated cohort contains 70,3% (n=111/158) patients with early BC (Stage I to IIB), 17,1% (n=27/158) with locally advanced BC (Stage IIIA-IIIC) and 12,6% (n= 20/158) with Stage IV disease as first diagnosis. In the studied group 89.9% (n=142/158) of the patients were treated with HER2-targeted therapy. Surgery as initial treatment is appropriate in small, node-negative tumors, which was found in 3.16% (n=5/158) of the cases. Of the patients analyzed, 28.5% (n=45/158) received NAT, and 68.9% (n=31/45) a HER2 dual blockade plus chemotherapy. A pathological complete response (pCR) was achieved in 57.8% (n=26/45) of the patients with NAT and 70.8% (n=17/24) of node-positive patients were node-negative after NAT. Palliative treatment with HER2-targeted therapy was conducted in 95% (n=19/20) of the patients with stage IV disease. The median time to relapse in the palliative care group was 31 months.

**Conclusion:** In Switzerland Trastuzumab was approved for the treatment of metastatic HER2+BC in 1999 and for adjuvant treatment in 2006. The dual HER2 blockade with Pertuzumab and Trastuzumab was authorized in Switzerland in 2013 for metastatic breast cancer and expanded to NAT of early, locally advanced HER2+BC in 2016. NAT as a standard of care has been confirmed by the St. Gallen Consensus for Stage II and III HER2+ disease in 2017. To continue improving the outcome of HER2+BC patients, new chemotherapy schedules and HER2-targeted agents such as TDM1 have been introduced for metastatic BC and also for patient with non-complete pathological response after NAT in 2019. Awareness of the current guidelines and treatments can help to improve patient's individual care and balance under- and overtreatment.



P 125

## Rare case of distant recurrence of a non-invasive encapsulated papillary carcinoma of the breast - a case report

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**Introduction:** The encapsulated papillary carcinoma (EPC) of the breast, usually found in postmenopausal women, is a rare malignancy diagnosed in less than 2% of primary breast cancers. There are no specific clinical or imaging features to EPC. Histologically, it lacks a myoepithel layer along the fibrous capsule indicating potentially invasive behaviour. However, clinically it was considered to behave like a non-invasive carcinoma (i.e. B5a-lesion) until recently. Accordingly, treatment in the absence of a frankly invasive component EPC corresponded to that of ductal carcinoma in situ (DCIS). EPC is considered to have a favourable prognosis with median survival of up to 95%.

**Case report:** We report the case of a 49-year-old woman with a history of mammary reduction surgery in 2013 and bilateral fibrocystic change. Fine needle aspiration in 12/2015, due to growth of a supposed oil cyst, revealed cells of a papillary neoplasia with atypia. A resection in sano was undertaken in 02/2016, and the histology showed an EPC of 0.6 cm (oestrogen receptor (ER) 90% positive, progesterone receptor (PR) <2 % positive) with high-grade nuclear atypia. No frankly invasive growth pattern beyond the fibrous capsule was found. Due to the small size of the EPC, therapy was limited to adjuvant radiotherapy. In 10/2019, the patient presented with thoracic wall and shoulder pains. The diagnostic work-up revealed bone (thoracic and lumbosacral spine, os ilium, ribs, scapula) and liver metastases (segments II/III/IV). The histology demonstrated tumours with an EPC-like morphology (ER 90%, PR negative, Ki-67 15-20%, HER2 negative) with high-grade nuclear atypia, consistent with metastases of the primary EPC. The identical morphology of the metastasis and the EPC argues against an unidentified alternative primary tumour. The patient received palliative radiation therapy of the thoracic spine and is currently undergoing palliative endocrine therapy.

**Conclusion:** Here we present a case of high grade EPC with subsequent development of distant metastases, which following the guidelines at the time of initial diagnosis and WHO-Classification 2012 was treated like a DCIS. To the best of our knowledge, lymph node involvement or local recurrences are rare, and only few cases of distant metastases of non-invasive EPC have been published so far. This case underlines the necessity to treat high grade EPCs like invasive breast cancers as recommended in the recent 2019 WHO-classification.



P 126

## LATS expression is not associated with overall and relapse-free survival in serous ovarian cancer

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**Background:** LATS proteins are putative tumor suppressors and poorly expressed associated with poor outcome in many cancers. A recent immunohistochemistry study showed LATS protein expression correlated with poor outcome in serous ovarian cancer. LATS governs cellular homeostasis by preventing cell proliferation and migration, inducing cell death and senescence, and regulating cell cycle checkpoints to maintain genetic stability. Consistent with their proposed tumor-suppressive function, LATS proteins have been reported to be down-regulated in various cell types including breast cancer, non-small lung cancer, and gastric cancer, suggesting a prognostic value for LATS. However, LATS was reported overexpressed in nasopharyngeal cancer, suggesting that the function of LATS remains controversial and may be cancer type-dependent.

**Materials and Methods:** We analyzed LATS expression in various ovarian cancer transcriptomic data sets, immunohistochemically assessed LATS protein expression in a Swiss ovarian tumor cohort. Results were compared the results to clinic-pathological characteristics and outcome. We also compared LATS protein expression in serous ovarian cancer cell lines to their EMT-status (Western blotting) and drug sensitivity for carboplatin, cisplatin, doxorubicin and paclitaxel (MTT-assay).

**Results:** Analysis of 15 different transcriptomic data sets showed that LATS2 associated with poorer outcome while LATS1 was irrelevant (HR=1.19 and HR=1.00, respectively). The TCGA-RNASeqV2 data set showed that low LATS1 and LATS2 associated with better survival in serous ovarian carcinoma. Despite heterogeneity among the different data sets, LATS expression is not an indicator of survival in serous ovarian cancer and LATS2 expression may even be tumorigenic. LATS expression was neither associated with survival and relapse-free survival nor with stage and grade in the Swiss cohort. It was low in cystadenoma, intermediate in carcinoma, and high in borderline tumors and was higher in serous than mucinous ovarian carcinoma. LATS protein expression extent was comparable in epithelial-, intermediate-, and mesenchymal-type ovarian cancer cells and was not associated with drug sensitivity

**Conclusion:** These results are largely incompatible with a tumor-suppressive function of LATS in ovarian cancer and LATS protein level is also not an indicator for drug sensitivity and EMT-status of ovarian cancer cells.



P 127

## Iatrogenic reactivation of an elusive chronic salpingitis

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**Introduction:** This case illustrates the challenges of diagnosing PID. One of the diagnostic problems is the wide spectrum of infection with many subclinical manifestations. It's difficult to define a single diagnostic gold-standard. The practical approach is to rely on a clinical diagnosis and perform invasive testing such as laparoscopy or endometrial biopsy only in patients who are therapy-resistant or have atypical symptoms.

**Case report:** We present the case of a 34-year-old female patient with therapy-resistant metrorrhagia, contact bleeding and dyspareunia. The symptoms began after the external cervix had been partially amputated as part of a cerclage procedure and then been removed in 2010. Apart from a successfully treated chlamydia-induced pelvic inflammatory disease in 2008 the medical history was inconspicuous. A shared decision was made to perform a vaginal hysterectomy. On the 2nd postoperative day, an increased abdominal tenderness as well as a significant CRP rise to 266 mg/l was observed. The CT scan of the abdomen showed no plausible cause and an empiric antibiotic therapy with Co-Amoxicillin was started. Nonetheless the CRP rose to 392 mg/l the next day and the clinical examination showed an increasing abdominal defense. Therefore it was decided to perform a diagnostic laparoscopy. Intraoperatively a purulent peritonitis with maximum activity in the adnexal spaces and co-reaction of the appendix was found. An iatrogenic injury to the urinary tract or the intestine could be excluded. A bilateral salpingectomy and appendectomy was performed. The histological findings were consistent with an acute-on-chronic salpingitis but the bacteriological sampling was negative. The patient recovered quickly under dual antibiotic therapy with Co-Amoxicillin and Doxycylin and was discharged 4 days later in good general condition.

**Conclusion:** In retrospect, all the complaints reported by the patient could be attributed to chronic salpingitis. However it wasn't detected by the performed bacteriological smear from the cervix, the blood samples or by ultrasound. During the hysterectomy however the infection was reactivated and spread to the abdominal cavity despite the intraoperative given antibiotic prophylaxis. When the postoperative infection became apparent the performed CT scan showed no injury of the bowel or urinary tract but couldn't detect the PID. The diagnosis could only be made by laparoscopy, which highlights the value of the laparoscopy as an important diagnostic tool.



P 128

## Centralized GTD management is important – one year of experience of our newly established “GTD-Zentrum Deutschschweiz”

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**Introduction:** Gestational trophoblastic disease (GTD) is a rare group of benign and malignant tumors arising from abnormal placenta with an incidence of 1 per 1000 pregnancies. The malignant forms are potentially deadly, but have high cure rates attributable primarily to early detection, appropriate treatment and follow up. Because its low incidence limits the experience of most hospitals, centralization of GTD management is recommended for optimal management, since treatment for GTD at specialized centers is associated with lower morbidity and mortality. In this context, we decided to establish a GTD center to help improve detection and treatment of this disease.

**Material and Methods:** The “GTD Zentrum Deutschschweiz” was created in October 2018, in close collaboration with the “Centre des maladies trophoblastiques” in Geneva. The center is managed by a multidisciplinary team of gynecologists, a GTD-nurse, oncologists and pathologists. The aim of the center is to monitor and coordinate the follow-up of patients with GTD as well as to advise and make treatment decisions in case of abnormal hCG evolution. Pathologists perform a second pathology review and patients are registered in our database. Once the diagnosis of GTD is confirmed, contact is established with the local physician, who will follow the patient clinically and by hCG assays weekly.

**Results:** During the last year nine patients with GTD were registered in our center. Three of them presented with partial and six with complete mole. We performed second pathology review including molecular pathology in all of the cases. Microsatellite analysis led to a revision of the conventional histologic diagnosis in two cases. One patient with a complete mole after uterine evacuation presented with hCG-persistence and evidence of residual disease on ultrasound; after hysteroscopic resection hCG decreased to negative. Further on, another patient became pregnant during follow up, ending in a miscarriage with histologically no suspicion for GTD. She is now still under surveillance and hCG is declining.

**Conclusion:** Centralized care is needed for optimal management of a rare disease like GTD. Even our small cohort demonstrates the importance of a strict follow up and a timely intervention as well as a correct histological diagnosis due to an experienced team of pathologists with the opportunity to perform molecular pathology in selected cases. Collaboration with the local physicians is fundamental, as they assure the clinical and biological follow up.





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## Live-born with Mosaic trisomy 22 at amniocentesis: a case report

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**Introduction:** Trisomy 22 is the second most common autosomal trisomy in miscarriages, accounting for 3-5% of all spontaneous abortions. However, live-born children with mosaic trisomy 22 are very rare.

**Case report:** We present the case of a live-born preterm baby with mosaic trisomy 22. First trimester screening showed a high risk for trisomy 21 (1:139) with a normal nuchal translucency (1.2 mm). Testing for cfDNA was highly indicative for trisomy 22. Amniocentesis confirmed the diagnosis. The prenatal ultrasound up to 28 weeks of pregnancy revealed several abnormalities of the heart and the great vessels, such as a small VSD and Primum ASD I, a vena Azygos continuation with missing Vena cava inferior. The fetal stomach could not be clearly identified, but a cystic structure in the right abdomen, led to the diagnosis of a situs inversus abdominalis. At 28 weeks of pregnancy the patient was hospitalised due to vaginal bleeding and contractions. Fetal lung maturation and neuroprotection were performed. Due to a severe IUGR with severe doppler abnormalities and suspicious CTG a Caesarean section was performed. At 29 2/7 weeks of pregnancy we delivered a live girl (Apgar 5/7/7). The premature baby was notable for its growth restriction (670 g; < 3rd) and signs of dysmorphism. Postnatal ultrasound showed a Heterotaxy syndrome with situs ambiguus abdominalis, midline liver and dextroposition of the stomach. Azygos continuation with persistent left superior vena cava (LVCS) in absence of an anomalous vein with enlarged coronary sinus as well as an absent inferior vena cava and multiple VSDs were confirmed. Postnatal FISH was considered compatible to a low-grade mosaic trisomy 22.

**Conclusion:** The mosaic form of trisomy 22 is a rare chromosomal anomaly that is compatible with life. To date, only 5 cases with prenatally detected mosaic trisomy 22, which survived in the neonatal period, are listed in the literature. Because of the rarity of pathology, the poor data of live born children and the tissue-specific cytogenetic discrepancy, the trisomy 22 in mosaic form results in a difficult counseling situation. Although malformations detected prenatally, i.e. heart defects, allow a prediction on survival, a reliable prognosis on morbidity, especially related to cognitive development, is not possible.



P 130

## Diagnosis of endometrial pathologies with transvaginal sonography compared to hysteroscopy - A quality control Study

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**Introduction:** Hysteroscopy is considered as gold standard for the diagnosis of endometrial pathologies. Given that it is an invasive and expensive procedure the correct indications need to be assured. The aim of this study is to compare ultrasonography with the histologic report from hysteroscopy.

**Material and Methods:** We conducted a retrospective analysis of patients with hysteroscopy between 2014 and 2018 after a previous standardized ultrasound. Data regarding patient characteristics, medical history, ultrasound findings, intraoperative findings and histological results were obtained from the ultrasound data base and electronic patient files. Patients with endometrial pathologies associated with pregnancy were excluded.

**Results:** Data of 777 patients were included with 40.9% being premenopausal and 59.1% being postmenopausal. 7.7% (N=60) of patients had malignancies. Of the suspected polyps, 95.7% had benign histology. 74.1% of the patients were symptomatic. The complication rate was 4.2%. Of the patients with endometrial cancer 93.6% (N=44) were symptomatic. 6.4% (N=3) were asymptomatic, of which only one patient had no suspicion of malignancy in the sonography but had multiple risk factors and stage FIGO Ia.

**Conclusion:** Transvaginal ultrasonography is an important and accurate method to assess endometrial pathologies. The vast majority of patients with endometrial cancer are either symptomatic or at high risk. The necessity of hysteroscopy for incidental findings in asymptomatic women and in women with a normal ultrasound in the absence of risk factors needs to be discussed carefully.



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## Conservative treatment of acute appendicitis in twin-pregnancy: a case report

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**Introduction:** Appendicitis is a rare but potentially life-threatening complication in pregnancy with an incidence between 0.04% and 0.2%. It is the most common cause of surgical interventions during pregnancy. Due to the anatomical changes the typical signs may be obscured and the diagnosis might be challenging. Incorrect and delayed diagnoses increase the risk of spontaneous abortions and premature deliveries.

**Case:** We report a case of a 29-year-old woman with a twin-pregnancy at 27 weeks` gestation presenting with premature contractions and severe right flank pain, diagnosed in ultrasound a covered perforated ap-pendicitis. With antibiotic therapy with co-amoxicilline the patient was asymptomatic and the infection parameters decreased to a normal level. A secondary cesarean section was performed at 33 weeks` gestation due to premature rupture of membranes and contractions. The appendectomy is planned after the breastfeeding period.

**Conclusion:** The choice of conservative versus surgical treatment in acute appendicitis in pregnancy is still debated. After clinical suspicion an ultrasound examination is mandatory. If the ultrasound is not conclusive a MRI should be performed. If there is no suspicion of a perforated appendix with peritonitis or a maternal sepsis, a conservative management including broad-spectrum antibiotics can be applied for 48 hours. If there is no improvement after 24-48 hours, an appendectomy should be carried out. However, in any case of acute appendicitis in pregnant woman a multidisciplinary team approach is recommended.



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## RISKS OF MATERNAL ZIKA INFECTION AND ADVERSE PREGNANCY OUTCOMES AMONG TRAVELLERS: RESULTS OF THE INTERNATIONAL ZIKA IN PREGNANCY REGISTRY

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**Introduction:** Zika virus is a Flavivirus transmitted through *Aedes* spp. mosquitoes present in most tropical areas. It has recently emerged as a teratogenic agent associated with severe adverse pregnancy outcomes similarly to other TORCH agents. Though the risk of adverse pregnancy outcomes among patient living in areas with ZIKV circulation is well documented, the risk for travelers remains unknown.

**Material and Methods:** This multicentric prospective cohort aimed at evaluating (1) the risks of maternal ZIKV infections and (2) adverse pregnancy outcomes, among exposed pregnant travelers compared to patient living in areas with ZIKV circulation.

**Results:** A total of 978 patients were enrolled in the study. Pregnancy outcomes and results of maternal testing were available for 870 patients including 149 travelers and 721 patients living in areas with ZIKV circulation. A ZIKV infection occurred more frequently in patients living in areas with ZIKV circulation ( $n = 309$  (42.9%); 95% CI 39.3-46.5) compared to travelers ( $n=38$  (25.5%; 95% CI 19.2-33.1). In an independent analysis, risk factors for maternal infection were travelling during the epidemic period (i.e. July 2015 to December 2016), travelling to the Caribbean and stay > 2 weeks. In a multivariate analysis, only travelling during the epidemic period remained significant (aRR 15.6; 95% CI 2.2-112.1;  $p = 0.006$  for epidemic period, aRR 0.2; 95% CI 0.28-1.28;  $p = 0.088$  for a length of stay  $\leq 2$  weeks and aRR 1.2; 95% 0.7-2.1;  $p=0.459$  for travelling to the Caribbean). Overall the prevalence of severe adverse outcomes (severe neurological symptoms or fetal losses) was low (7.8%;  $n=71$ ). The risk of severe adverse pregnancy outcomes did not differ among infected travelers and infected patient living in areas with ZIKV circulation ( $n=4$ , 10.3%, 95% CI 4.1-23.6 versus  $n= 39$  12.7%, 95% CI 9.7-17.2%), as well as the risk of materno-fetal transmission (17.7% ( $n=6$ ), 95% CI 8.3.6-33.5.8 versus 12.2% ( $n= 77$ ), 95% CI 9.8-14.9).

**Conclusions:** The risk of adverse pregnancy outcomes is related to the risk of maternal ZIKV infection which appears to be lower for travelers. The risk seems to be minimal when travelling outside of epidemic period. Short stays are very likely associated with a lower risk though our study may not have been powered enough due to the low number of included patients with short stay. International travelling recommendations should therefore be adapted according to the epidemiological situation.



P 133

## When OBGYN specialists should call for ophthalmologist in emergency

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We present here a rare cause of genital ulcerations associated with systemic manifestations whose consequences might be severe if not recognized and treated early.

A 23-year-old western European and otherwise healthy woman presented at first with vulvar erythema and painful genital ulcerations. Upon the strong clinical suspicion of an Herpes simplex Virus (HSV) primo-infection, treatment with valaciclovir was started and samples taken.

One day later, she developed progressive blurred vision in the center part of her visual field. She consulted the general emergencies where a lumbar puncture was performed excluding an herpetic encephalitis, or bacterial meningitis and the patient was sent home assuming symptoms to be related to medications side effects. Later on the genital lesions progressed to severe ulcerations, while her vision significantly worsened. Despite PCR samples of the lesions being negative for HSV-1 and 2, she was admitted and started on IV acyclovir, due to the neurological symptoms. The diagnosis of Behçet disease was finally made when an ophthalmologic consultation showed severe macular edema compatible with a retinal microangiopathy. High doses of intravenous steroids were administered. Oestro-progestosterone contraception was switched for progesterone only pill given the higher risk of venous thromboembolism associated with this condition.

The differential diagnosis of genital ulceration is wide. Behçet disease needs to be suspected in case of genital ulcers associated with visual symptoms. Ophthalmologic management is an emergency in Behçet disease since retinal microangiopathy, although uncommon, can lead to irreversible vision impairment.



P 134

## Solitary metastasis of breast cancer in the ovary 11 years after initial diagnosis - A case report

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Metastatic ovarian tumors originates from various sites, such as stomach, breast or colon. It is estimated to account for 10% of the total malignant ovarian tumors.

This case report demonstrates the case of a 52 years old patient assigned to our clinic for adnexectomy because of a new solid Tumor in the left ovary detected by transvaginal sonography during the regular check. The patient had no symptoms. CA 125 marker was normal. The clinical examination showed in the transvaginal ultrasound a solid Tumor of 28x32x38mm in the left ovary. The right adnexa and the Uterus such as endometrium were sonographically normal. No free liquid in the douglas space was found. In this situation we indicated a both sides laparoscopic adnexectomy.

The patient has in her history an axillary metastatic invasive ductal breast cancer; ypT2 ypN3a (15/25) cM0 G2 ER/PR positiv (12/12) HER2 negativ in February 2008. At that time we performed a mastectomy with axillary dissection afte 4 cycles neoadjuvant chemotherapy with FEC. Adjuvant radiotherapy of chest wall, supraclavicular field and axilla in addition followed. Adjuvant endocrine therapy with ovarian suppression (Lucrin) in combination with Tamoxifen administrated as well. Endocrine therapy was given for 10 years.

The family history regarding breast cancer is negative. A genetic testing was negative for BRCA 1 and BRCA 2 mutation. In 2016 diagnosis of DCIS high grade of the right Breast; followed with mastectomy right. Intraoperative we found a solid tumor of about 4 cm of the left ovary without papillary deposits and without ascites. The upper and lower abdomen was without pathology on inspection. We performed a laparoscopic adnexectomy of both sides with gaining of a peritoneal washing cytology. The histology of left ovary has shown metastasis of breast cancer. Histologically no evidence of primary ovarian cancer. The right ovary was histological normal. The peritoneal washing cytology was positive for adenocarcinoma cells corresponding to the breast cancer.

The case report highlights the importance of regular controlling by transvaginal ultrasound many years after first diagnosis of breast cancer.



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## True Diphallia with associated anomalies: a case report

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**Introduction:** A true diphallia or a penile duplication is an extremely rare congenital anomaly that occurs once in every 5.5 million live birth. The extent of penile duplication and the number of associated anomalies vary greatly, ranging from a double glans from a penis with no associated anomaly up to complete penile duplication associated with multiple anomalies (bladder, urethra, exstrophy of the cloaca, anorectal malformations, colon and rectosigmoid duplication). Moreover, true diphallia if occurs, is associated with severe malformations such as bifid phallus. These newborns have a high mortality due to infections associated with their renal or colorectal anomalies.

**Materials and Methods:** We report a case of a newborn with a true diphallia, a double imperforate anus and a tethered cord syndrome with unremarkable scans and first trimester screening before birth.

**Results:** A 39-year-old primigravida with an overall unremarkable personal and family history and healthy pregnancy was referred to our department at 41+5 weeks of gestation with a premature rupture of membranes. Her obstetric history reported of a threatened abortion at 4+5 weeks of gestation, group C streptococcus and a pre-known mild depression medicated with sertraline discontinued in the late pregnancy as well as tachycardia since the fifth month of pregnancy. The prenatal ultrasound scans performed by her gynecologist showed no anomalies, except for an enlarged yolk sac in the early pregnancy, neither did the first trimester screening nor the mothers blood samples. After a labor induction because of lack of uterine contractions the gravida delivered a male infant at 42 weeks gestation, weighing 3320 g (Apgar 9/10/10; umb. art. pH, 7.29) with a O<sub>2</sub>-saturation of 100 %. A diphallia and two imperforated anuses was revealed and the neonate was transferred to the Neonatal Intensive Care Unit of the nearest University Hospital for further examinations and therapy. After one month of therapy and reconstructive surgery inclusive laparotomy and transversostoma the Neonate was discharged from the hospital in good general condition. A penile surgery is still outstanding.

**Conclusion:** A true diphallia, although exceedingly rare, is difficult to detect with prenatal screenings. Careful ultrasound examination of the fetal phallus and adjacent organs is essential to establish the diagnosis and to detect sever associated anomalies.



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## Outcome of pregnancies with TRAP sequence: a bicenter experience

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**Introduction:** Twin reversed arterial perfusion (TRAP) complicates 1-3% of monochorionic twin (MC) pregnancies. It is an extreme form of interfetal transfusion in which a twin with an absent or rudimentary heart ("acardiac twin") is perfused by its co-twin ("pumping twin") via arterio-arterial anastomoses. Treatment to interrupt blood flow to the acardiac twin includes fetoscopic umbilical cord coagulation, cord ligation or coagulation of the anastomoses as well as intrafetal laser therapy or radiofrequency ablation (RFA).

**Method:** Using databases of the Inselspital and CHUV, all cases of TRAP sequence in MC between 2006 and 2019 were retrospectively analyzed. Evaluation included prenatal management (conservative, fetoscopic coagulation, intrafetal laser, RFA), gestational age (GA) at time of intervention, outcome of pumping twin.

**Results:** 16 cases were included in our analysis. Of those, one was a triplet and one a quadruplet pregnancy with 2 acardiac fetuses. Median (range) GA at diagnosis was 16 (11-24) weeks. 12 cases underwent interventions at a GA of 15 (12-21) and 18 (16-21) weeks for intrafetal (n=5) and fetoscopic (n=7) treatment, respectively. 2/5 (40%) cases after intrafetal therapy survived, 3 were miscarriages. Of those 1 was a quadruplet pregnancy. After umbilical cord coagulation 2/7 (29%) pumping twins survived and delivered at term, while 5/7 pregnancies were late miscarriages (16-22 weeks). Among 4 cases with conservative management (due to spontaneous thrombosis or cessation of perfusion of the acardiac twin or missing ultrasound features of cardiac burden of the pumping twin), there was 1 abortion (15 weeks) and 3 live births (1 at 35 weeks, 2 at term).

**Conclusion:** The management of TRAP pregnancies is complex and associated with a high failure rate. Albeit, different treatment options are available, timing, selection criteria for and GA at intervention are still a matter of debate.





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## Reproductive outcomes after fetal myelomeningocele repair

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**Background:** Fetal myelomeningocele (fMMC) repair is an accepted therapeutic procedure in fetal surgery centres around the world as it decreases neonatal morbidity associated with spina bifida. However, there is limited data available on the impact of this open procedure on future fertility.

**Objective:** The objective of this study was to evaluate pregnancy outcomes in pregnancies followed by fMMC repair.

**Study Design:** A detailed patient registry from the Department of Obstetrics, University Hospital Zurich was used to trace and report outcomes in pregnancies followed by the first 100 fMMC repairs which were performed from 2010-2018. Additionally, a standardised questionnaire was sent to all women. The study was approved by the Ethical committee of the University of Zurich.

**Results:** Ten subsequent pregnancies were reported in 8 women. All conceptions were natural. The mean inter-pregnancy interval was 29.5+/-14.5 months. There was 1 first trimester loss. All other 9 pregnancies were delivered via caesarean section after 35 weeks of gestation (GW) with a mean gestational age of 37.6+/-1.6 weeks and a live-birth rate of 100%. One woman with a multiple gestation in the subsequent pregnancy, that was followed at an external institution, developed uterine rupture at 35.1 GW. The rate of thinning of the uterine scar was 33%. No major maternal or neonatal complications were reported.

**Conclusion:** These preliminary results show that although open fetal surgery carries considerable risk of uterine rupture or scar thinning in the subsequent pregnancy, live birth rates in pregnancies following fetal myelomeningocele repair are comparable to that of the general population.



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## Maternal height combined with neonatal weight as a new anthropometric predictor for adverse delivery outcomes

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**Introduction:** Elevated maternal pre-pregnancy BMI, gestational weight, and macrosomia, are well known predictors for adverse pregnancy outcome, including cervical and shoulder dystocia associated with perineal lacerations. We aimed to evaluate the impact of maternal height combined with neonatal weight at birth (MH/NW) on delivery outcomes, in a very large cohort of singleton pregnancies.

**Material and Methods:** A database including 429.863 women who delivered in Switzerland from 2005 to 2017, was analyzed. Inclusion criteria were singleton pregnancies in cephalic presentation, birth weight >10th percentile, and gestational age at delivery between 37 0/7 and 42 0/7 weeks of gestation. Women with hypertensive disorders, abnormal Doppler findings, and with fetal structural or chromosomal anomalies were excluded from the analysis. Adverse perinatal outcomes were defined as mode of delivery (emergency cesarean section, operative vaginal delivery), umbilical cord arterial pH <7.15, 5'Apgar score <7, admission to the NICU, and/or perinatal mortality.

**Results:** Among 226.935/429.863 pregnancies who met the inclusion criteria, the MH/NH was an independent prognostic factor for delivery outcomes, such as shoulder and cervical dystocia (OR1.27(95%CI 1.25,1.29)  $p<0.0001$  and OR1.06(95%CI 1.01, 1.11)  $p=0.009$ , respectively), grade III-IV perineal lacerations (OR1.08(95%CI 1.07,1.09)  $p<0.0001$ ), use of Vacuum-assisted vaginal delivery (OR1.027(95%CI 1.022,1.033)  $p<0.0001$ ), and cesarean section performed for prolonged labor or failure to progress (OR1.086(95%CI 1.08,1.09)  $p<0.0001$ ), at the univariate and multivariate analysis. Furthermore, MH/NW significantly correlated with these delivery outcomes with an  $r$  (correlation coefficient) ranged from 0 and 1, at the Pearson correlation test ( $p<0.01$ ).

**Conclusion:** The ratio between maternal height and neonatal weight may represent a new anthropometric predictor for adverse delivery outcomes.



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## Case report of a septic ovarian venal thrombosis with an untypical location, in a woman presenting no special risk factors for septic pelvic thrombophlebitis

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**Introduction:** Septic pelvic thrombophlebitis (SPT) is a rare but severe complication in the postpartum periode. It occurs in 0.1% of deliveries. Approximately 90 % of all SPT appear after cesarean section (CS). Following the anatomic drain, their localization is mostly on the right side. There are risk factors related to pregnancy like maternal age < 20, multiple gestation, preeclampsia and black ethnic group as well as duration of delivery.

We report the case of a 22-year old primiparous caucasian woman after secondary CS with an atypical located SPT on the left Vena ovarica (V.o.) near the confluence of the V. renalis (V.r.).

After birth arrest in the 40 5/7 gestational week, in the second stage of labour, she received an uncomplicated CS. Because of persistent pain, worsening of her general condition and high infection parameter (CRP 130 mg/L, Lc 13.5 G/L) she received a CT on the 3. postpartum (pp) day: A huge parauterine hematoma on the left side was detected. We started an empiric antibiotic therapy (ABT) with amoxicillin/clavulanacid. A second CT was done on the 6. pp day, because of raising infection parameter (CRP 327 mg/L) and first onset of fever up to 38.6 degree. This time a SPT was seen by the radiologist, located in the left V. o. near the confluence of the V.r. We started an therapeutical anticoagulation (AC) with Enoxaparin and extended the (ABT)to Piperacillin and Tazobactam. As the general condition of the patient did not improve and the hemoglobin lowered slowly (interpreted due to the hematoma) within three days to 60 g/L, we decided to give three blood-cell-concentrates. The intermittent poor oxygenation, with a value as low as 81%, was interpreted as result of the anemia. In the absence of a therapeutic consequence we decided not to conduct another CT to exclude the differential diagnosis of a pulmonary embolism. On the 9. pp day the patient's condition improved clearly. Infection parameter decreased to CRP 78 mg/L, and she could be discharged from hospital with the continuation of the AC for three months. Follow-up CT after three months showed a complete remission of the SPT.

**Conclusion:** Although SPT is a rare complication after delivery it should always be taken into consideration if women present symptoms like fever, abdominal pain, or high infection parameters even in the absence of any risk factor as presented in our case. Easily the localization on the left side could be overseen, since it is a rare and untypical position.



P 140

## Primary strumal carcinoid of the ovary: a case report

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**Introduction:** Primary strumal carcinoid of the ovary is a very rare type of germ cell tumor accounting for less than 0.1% of all ovarian malignancies. This particular form of ovarian teratoma is characterized by a mixture of thyroid tissue and carcinoid structures, a well-differentiated neuroendocrine tumor with excellent prognosis. The diagnosis on frozen section is challenging, and definitive histology with immunohistochemistry is necessary for a conclusive diagnosis. Due to limited data, evidence-based guidelines regarding treatment and follow up remain sparse.

**Material and Methods:** We review and present the case of a 42-year-old nulligravida with a primary ovarian strumal carcinoid.

**Results:** Due to chronic constipation, a transvaginal ultrasound was performed, showing a suspicious multilocular cystic-solid pelvic mass of 15cm diameter and a consecutive bilateral hydronephrosis because of compression. Tumor markers and relevant hormone levels were within normal range. A fertility-sparing surgery was performed via laparotomy with unilateral salpingo-oophorectomy, peritoneal washing and biopsy. Since the intraoperative frozen section was inconclusive, and a sex cord stromal cell tumor could not be ruled out, the staging procedure was completed by hysteroscopy and curettage. The final histopathology report including immunohistochemistry rendered the diagnosis of a moderately differentiated ovarian strumal carcinoid. The tumor consisted mainly of carcinoid strongly expressing somatostatin-receptor SSTR2a, and very little thyroid tissue was found adjacent to the tumor. Post-operative thyroid function tests were normal. A 68 Ga-DOTATOC-PET/CT for post-operative staging was performed and revealed a hypermetabolic lymph node of 7 mm, which remained stable on the follow up imaging two months later. Chromogranin A was used as tumor marker for follow up and remained within normal range. The next follow up is planned in 3 months.

**Conclusion:** Ovarian strumal carcinoid represents a unique form of ovarian tumor, which usually presents asymptotically. Severe constipation has been linked to peptide YY production in the carcinoid and might explain the symptom of our patient. When confined to the ovary, excellent prognosis has been described and simple unilateral or bilateral salpingo-oophorectomy seems to be a sufficient treatment. Nevertheless, metastatic recurrences, even if extremely rare, have been reported. An extended pathological work-up is essential, since more aggressive subgroups must be excluded.



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## Sepsis after abscessating Mastitis puerperalis in a woman with Morbus Behçet – A case report

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**Introduction:** Lactational mastitis is a well-known complication in breast feeding women and described to occur in up to 10% during the first three months of breastfeeding. Diagnosis and therapy are of common knowledge and 90% of cases resolve without further complications. Morbus Behçet is an autoimmune inflammatory disorder often resulting in vasculitis with oral and genital ulceration amongst other things.

**Case report:** A 31 year old patient presenting with typical signs of mastitis puerperalis in the right breast on the 17th day postpartum. With no signs of abscess, an antibiotic therapy with Co-Amoxicillin was induced. The patient was diagnosed with Morbus Behçet two years prior and until the 20th week of pregnancy was under therapy with glucocorticoid and the monoclonal antibody Infliximab. Two weeks after giving birth reactivation of Morbus Behçet occurred with arthritis of the left ankle joint and ulceration on the feet as well as one the nipple, resulting in re-induction of the treatment with Infliximab and cortisone. The microbiology showed growth of penicillin-sensitive Staph. aureus. The patient responded well to the initial therapy and the therapy was stopped after 7 days of treatment. 5 days later the patient re-presents with now massive abscessating mastitis as well as fever and elevated inflammatory blood counts. The last administration of Infliximab occurred 6 days prior and the patient was still under cortisone. She was admitted for i.v. antibiotic therapy and surgical abscess-incision. The cortisone therapy was stopped as an acute inflammatory situation was occurring. Despite targeted antibiotic therapy she showed a prolonged recovery with reoccurring abscessation und surgical drainage as well as sepsis with lung oedema. The blood count showed persistent elevated leucocytes and CRP. After an interdisciplinary conference the prolonged symptoms were explained due to a reactivated Morbus Behçet also resulting in new oral ulcerations and a positive pathergy test. A monitored restart of the corticoid therapy was induced. The inflammation and symptoms regressed and the patient was released after 17 days of hospitalisation in a good general condition.

**Discussion:** We want to raise awareness of autoimmune diseases resulting in prolonged or complicated inflammation despite correct antibiotic therapy and, as show-cased in this report, to highlight the use of glucocorticoid in patients with autoimmune diseases even in case of inflammation.



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## PreThy Study : association between neonatal thyroid dysfunction and preeclampsia or vascular intrauterine growth restriction

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**Introduction:** Preeclampsia (PE) and vascular intrauterine growth restriction (IUGR) have both been associated with high plasmatic concentration of sFlt1 (soluble fms-like tyrosine kinase 1). It has also been suggested that preeclampsia is associated with maternal thyroid dysfunction through a sFlt1-mediated mechanism. sFlt1 crosses the placental barrier and whether it is responsible for fetal thyroid alterations is not known. We hypothesize that high plasmatic levels of sFlt1 can lead to neonatal hypothyroidism. The objectives of our study are 1) to compare thyroid stimulating hormone (TSH) blood level between neonates born to mothers with and without PE and 2) to assess the correlation between gestational age at the onset of PE and the severity of neonatal hypothyroidism.

**Material and Methods:** This is a retrospective matched case-control study carried out at Geneva University hospitals with data collection from January 1st 2009 to February 28th 2017. We included 291 preeclamptic mothers with a singleton pregnancy with a live birth at all gestational ages from the Renal PostPec cohort who delivered at our institution, and 291 controls matched for gestational age at delivery. Controls were identified as women with a singleton pregnancy who delivered in the same period. Neonatal TSH levels were retrieved from the Guthrie test and compared between groups.

**Results:** Results will be presented at the SSGO meeting.

**Conclusion:** We expect children born to a mother with preeclampsia to have significantly higher TSH plasmatic level concentrations. As thyroid function is paramount for neurodevelopment, our findings may impact on the follow-up and treatment of children born after a pregnancy complicated with PE or vascular IUGR.



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## Case Report : an utero-cutaneous fistula following a hysteroscopy

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**Case Report:** an utero-cutaneous fistula following a diagnostic hysteroscopy.

**Introduction:** hysteroscopy is very common and the gold standard for the diagnostic and treatment of endometrial pathologies. Infection following this procedure is very uncommon and can occur in 0.18-1.5% of cases.

**Material and Methods:** A 41 years old patient, 2G0P underwent a C-section at 22 weeks five months earlier, for a death in utero, probably in a context of a chorioamnionitis. She received an antibiotherapy with flagyl and a drain was left during 7 days. Because of the diagnosis of chorioamnionitis and thus the risk of synechiae, a diagnostic hysteroscopy was conducted one month later. There were no synechies or sign of infection. The following months, the patient reported abdominal pain but no clear origin was found during multiple medical visits. In early February, she comes to the emergency room because the abdominal pain has worsened and since 48h a right iliac fossa carbuncle has appeared. She reports abnormal vaginal discharge. She is hemodynamically stable, her vital signs are good and she has no fever. An abdominal CT-scan shows an intra-uterine collection and a fistula between uterine fundus and the abdominal wall. The patient underwent IV antibiotics and subsequently a total hysterectomy with bilateral salpingectomy by laparotomy. The clinical evolution is good.

**Discussion:** Infection following operative hysteroscopy is rare and infection after diagnostic hysteroscopy like in our case is even rarer. The risk of synechiae after a chorioamnionitis is up to 40%, thus many center throughout the world recommend a hysteroscopy in the following three months. Whereas The "Collège National Des Gynécologues et Obstétriciens Français" (CNGOF) does not recommend the use of antibiotics when doing a diagnostic or operative hysteroscopy, no guidelines exist to hysteroscopy performed after a chorioamnionitis, where the infectious risk is higher.

**Conclusion:** Performing a hysteroscopy after a chorioamnionitis allow the diagnosis and treatment of synechiae but it increases the risk of endometritis. Abdominal abscess, peritonitis uterine perforation with subsequent fistula can occur. In that context, an antibioprohylaxis should be discussed before the surgery.



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## Stress urinary incontinence after prolapse surgery, evaluation, prediction, communication and advice

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**Introduction:** Stress urinary incontinence is a common comorbidity in patients with genital prolapse symptoms in preoperative evaluation. Prolapse was resolved by laparoscopic surgery with sacrocolpopexy, by vaginal approach with native tissue repair such as anterior/posterior repair, sacrospinal fixation/hysteropexy to the sacrospinous ligament or with vaginal mesh surgery (Elevate anterior). Hypothesis: The postoperative prevalence of stress urinary incontinence is different after various surgery types. The results of this study should help for advising patients and for decision making before prolapse surgery.

**Material and Methods:** The present study is a retrospective observational study in which the prevalence of stress incontinence urinary incontinence after prolapse surgery was determined. We have evaluated the data of patients who underwent surgery in the period from January 2015 to December 2016 including history, cough test, urodynamic findings and ICIQ questionnaire. We divided our collective into 3 groups: sacrocolpopexy, vaginal surgery with mesh and vaginal surgery without mesh.

**Results:** A total of 198 patients were included in the study. We treated 144 patients with laparoscopic sacrocolpopexy, 16 patients underwent vaginal mesh procedure and 38 patients received vaginal surgery without mesh. The average age of 65.1 in the sacrocolpopexy group was significant lower than vaginal mesh group (79.0) and native surgery group (70.4). Preoperatively the prevalence of stress urinary continence was 45.8% in the sacrocolpopexy group, 50% in the vaginal surgery group with mesh and 52.6% in the vaginal native surgery group. After prolapse surgery the rate of stress urinary incontinence was reduced to 38.2% in the sacrocolpopexy group and to 17% in patients who received a vaginal surgery without mesh. However, there was a slight increase of stress urinary incontinence rate(56.3%) in the group with vaginal surgery with mesh.

**Conclusion:** After prolapse surgery, the prevalence of stress urinary incontinence is significantly lower than preoperatively. Therefore simultaneous incontinence surgery during prolapse surgery should be avoided to reduce «over-treatment » and unnecessary complications. These findings influence advising patients and informed consent before prolapse surgery. A two-stage approach is recommended.





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## Bilateral otorrhagia during gynaecological laparoscopic surgery: a case report

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**Introduction:** Otorrhagia during laparoscopy is a rarity, and hence, often represents an unknown complication for the treating physician. The exact etiology remains unclear; the most likely cause is an increase in both arterial and venous pressure during Trendelenburg positioning aggravated by pneumoperitoneum and possible hypercapnia, leading to a rupture of the subcutaneous capillaries.

**Material and Methods:** We review and present the clinical features of a patient with spontaneous bilateral otorrhagia during laparoscopic gynaecological surgery.

**Results:** A 73-year old woman underwent a laparoscopic bilateral salpingo-oophorectomy due to asymptomatic bilateral multicystic adnexal masses. The patient reported a history of progressive sensorineural hearing loss since the age of 30. Additionally, there have been episodes of repeated sudden hearing loss, with a M. Ménière as potential differential diagnosis. Since about 3 years hearing aids are used. The remaining medical history was uneventful. The surgical procedure was performed in a mild Trendelenburg position (20-30°) for better exploration of the pelvis and with a pneumoperitoneum of 12 mmHg without any complication. The frozen section showed a benign histology, and the procedure ended after 90 min. Immediately after surgery, a bilateral otorrhagia was noticed, leading to a severe hearing loss. Further diagnostic, particularly an otorhinolaryngological exam with an audiometric testing, were initiated: a bilateral haematotympanum was diagnosed with blood clots in both external auditory canals. An initially suspected perforation of the left eardrum could not be confirmed on subsequent follow up. Earlier sensorineural deafness in both ears was aggravated by a temporary conductive hearing loss, which resulted in combined severe deafness. The ears were strictly protected from water and a liquid local anti-infective therapy was initiated. The haematotympanum resorbed spontaneously over the next few weeks. Although the conductive hearing looks similar to that before the operation, the patient reports an incomplete recovery as she describes recurrent episodes of dizziness and tinnitus, as well as pronounced autophony with a feeling of fullness in the ears and headache.

**Conclusion:** Perioperative otorrhagia is a rare and potentially traumatic event for patients. For our patient it was particularly frightening due to the resulting acute hearing loss, which was also perceived as stressful for the medical staff.



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## Extensive bilateral macromasty due to pseudoangiomatous stromal hyperplasia – A case report

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**Introduction:** Pseudoangiomatous stromal hyperplasia (PASH) is a benign breast lesion histologically representing a stromal myofibroblastic proliferation lining anastomosing slit-like spaces. Often PASH is localized and rarely presents as a rapid diffuse enlargement of both breasts. It can occur in girls, men, pre- and postmenopausal women. The etiology of PASH is unknown. However, the concomitant use of oral contraceptives or hormone replacement therapy in patients diagnosed with PASH may be observed. Spontaneous disappearance of PASH has also been reported. Treatment options include close observation or surgical excision. Local recurrence after resection can occur.

**Methods:** A 41-year old, uniparous female with a medical history of lupus erythematoses treated with Plaquenil 200mg, presented to her gynaecologist with a progressive mastodynia and macromasty. An MRI was inconspicuous and Vitex agnus-castus treatment showed no improvement. However, hyperprolactinemia was diagnosed. At this point the patient was referred to the Department of Gynecology/Gynecologic Oncology at St. Clara Hospital.

**Results:** The patient reported a massive enlargement (from cup A to cup D), reddening, and a sense of heat of both breasts, and a weight gain of 7 kg within 3-4 months. Clinical examination showed a slim, 158cm tall (BMI 20) Asian female with an impressive macromasty, a bust size of 99cm and diffuse reddening and hyperthermia of both breasts. Breast ultrasound revealed the absence of a solid tumor, a distortion of the entire breast architecture with no normal breast tissue left. The histology of core biopsies revealed bilateral PASH. Because of the hyperprolactinemia, an MRI was performed and a microprolactinoma of 4mm diagnosed. Under therapy with Cabergolinum (Dostinex®), the bust size increased to 101cm. Under Tamoxifen it did not decrease but remained stable at 99cm. The macromasty caused increasing back pain and dyspnoea especially in a lying position with an overall negative impact on the patient's quality of life. Bilateral excision/nipple sparing mastectomy is planned.

**Conclusion:** Only a handful of cases of extensive bilateral PASH are published in the literature. Under Tamoxifen, a -usually temporary- decrease of symptoms and size has been reported. However, in case of a diffuse involvement of both breasts, bilateral mastectomy is indicated.



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## Ultrasound-guided core needle biopsy (CNB) of pelvic masses in gynecology

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**Introduction:** Due to advances in treatment options for advanced ovarian or peritoneal malignancies, there is a need for histologic sampling prior to neoadjuvant chemotherapy for cytoreduction. A biopsy may also be indicated in patients with a history of gynecologic malignancy and a suspected disease recurrence or in patients with a pelvic tumor of unclear origin. The aim of our study was to retrospectively evaluate the indications, feasibility, diagnostic accuracy and safety of CNB performed in our gynecologic cancer center.

**Material and Methods:** We reviewed the medical records of 29 patients who underwent transvaginal or transabdominal US-guided core biopsy between May 2017 and January 2020. Biopsies were performed after a detailed gynecologic ultrasound (GE Healthcare, Voluson E 10). For the transvaginal biopsy we use an attached needle guide, a 18 Gauge/ 25 cm needle and an automatic biopsy gun (BARD® Magnum® Reusable Core Biopsy). For the transabdominal biopsy local anesthesia is required. We use a 14-16 Gauge/ 15-20 cm needle. We evaluated the indications, diagnostic accuracy and complication rate of the procedures.

**Results:** 23 transvaginal and 6 transabdominal CNBs were performed during the study period. Indications for CNB were patients with advanced ovarian, primary inoperable malignancies (n=10), inoperable patients due to comorbidities (n=3), patients with suspicion of metastases or recurrence of gynecologic malignancies (n=11) and patients with tumors of unknown origin in the pelvis (n=5). An adequate sample for histological analysis was obtained in all cases. All procedures were tolerated with minimal discomfort on an outpatient basis. Of the 28 lesions, 27 were confirmed to be either benign (n=9) or malignant (n=19). One lesion was not histopathologically diagnosed after biopsy. A CT scan guided biopsy showed an adiponecrosis. No complications occurred during or after CNB procedures.

**Conclusion:** Transvaginal and transabdominal ultrasound guided biopsy seems to be a feasible and safe procedure for histopathologic diagnosis of pelvic masses.



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## BARTHOLIN'S GLAND CARCINOMA: A CASE REPORT

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**Introduction:** Bartholin gland carcinoma (BGC) is an extremely rare type of vulva cancer with an annual incidence of maximum 0.1/100000 women. We would like to describe a case of recent institution experience with this disease.

**Description:** In December 2019 a 64-years old was sent to our hospital with a suspicious lesion of the vulva. The patient had noticed a mass since October, besides since a few days a genital pruritus and a vaginal discharge. The clinical examination showed a 4x4x3 cm big mass with wrinkled surface in the lowest third of the left vulva, which extended to the anus without involving the rectum. The biopsy gave as result an atypical gland proliferation. An abdominal CT showed a possible involvement of the caudal vagina and of an inguinal lymph node (LN) left. Upon multidisciplinary agreement we performed an inguinal bilateral lymphadenectomy and a wide excision of the vulva and vagina until the anal skin. After removing the vulvar mass no tumoral tissue was to see macroscopic at the surgical resection margins and the anal sphincter could be left intact. On the 7th day post-op we removed the catheter and the left inguinal drainage. At the same time, a superficial dehiscence of the surgical wound was noticed. We decided for a "wait and see" approach. On the 12th day post-op the patient was dismissed against medical advice with the right inguinal drainage still in situ. The definitive histology showed a Bartholin gland adenocarcinoma pT1b pN0 LV10 Pn0 G1 with R1 resection (medial and deep resection margins). To achieve a margin free resection an amputation of the rectum would be needed. We decided instead to perform an adjuvant radiotherapy with curative aim in order to assure the patient a better quality of life.

**Conclusion:** BGC accounts for 5% of all vulvar carcinomas (VC). Clinical signs and symptoms are unspecific: vulvar mass, genital pain, bleeding and burning. Because of that BGC is oft misdiagnosed as a cyst or an abscess. Patients have at diagnosis a younger median age (53 years) and a higher rate of advanced stage disease compared with other VC. Preoperative imaging to assess the involvement of bladder, bowel, urethra and LN is recommended. The therapy is the radical local excision with inguinal lymphadenectomy or sentinel LN biopsy, similar to other forms of VC. The histological type may vary, originating from the BG's different cell types; the most common are the adenocarcinoma, the squamous cell and the adenoid cystic carcinoma.



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## Primary undifferentiated pleomorphic sarcoma of the breast: A case report

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**Introduction:** Undifferentiated pleomorphic sarcoma of the breast is an extremely rare but aggressive subtype of sarcoma. Representing less than 1% of all breast malignancies, breast sarcoma can appear de novo as primary forms, or secondary to radiotherapy or chronic lymphedema. Lymphatic spread is uncommon; dissemination usually occurs hematogenously, mainly to the lungs, bones and liver.

**Case presentation:** A 58-year-old female attended our breast center with initially an atypical fibroxanthoma of the left breast, which was diagnosed by shave excision of the skin by her dermatologist. She had a personal history of a Wertheim's operation for carcinoma of the cervix at the age of 37. Previous mammography was without findings in 2018. On physical examination, the patient had a mobile lump of 3cm underneath the skin lesion. Ultrasonography and mammography showed a circumscribed irregular mass of 32mm diameter in the left breast. The core biopsy and immunostaining led to the diagnosis of high-grade pleomorphic sarcoma. A chest CT scan excluded sarcoma infiltration of the thoracic wall, as well as lymphatic or distant metastasis. In our interdisciplinary sarcoma board, neoadjuvant radiotherapy was recommended before surgery due to the location of the sarcoma close to the thoracic wall. Radiation dose of 50 Gy in 25 fractions was well tolerated. Follow-up-MRI and ultrasound showed progression of the tumor (44mm), unknown if due to swelling or substantial tumor progress. Mastectomy with partial resection of the pectoral muscle was performed with intraoperative radiotherapy. Histopathological analysis confirmed a pleomorphic sarcoma grade III (FNCLCC) with R0-resection. Hence, no adjuvant therapy was necessary. The patient presented for follow-up three months after surgery in good general condition without any signs of recurrence.

**Conclusion:** In this particular case a potential dedifferentiation of an atypical fibroxanthoma as a benign lesion towards a sarcoma can be postulated, which is still a conceptual matter of debate. Since primary breast sarcoma is very rare, standard treatment approaches have not yet been established. In our patient neoadjuvant radiotherapy has been selected as an individual approach. Surgery is the main treatment in patients without distant metastasis; tumor size and adequate resection margins are the most important prognostic factors. Because of the important recurrence risk of breast sarcoma close follow-up examinations are necessary.



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## Acquired hemophagocytic syndrome in a patient with cervix cancer - a case report

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**Introduction:** Pancytopenia in cancer patients is common. Hemophagocytic lymphohistiocytosis (HLH) is a rare but life-threatening syndrome of overwhelming activation of the immune system leading to excessive inflammation. It is characterized by pancytopenia, fever, hepatosplenomegaly, hypofibrinogenemia, hypertriglyceridemia and hemophagocytosis within the bone marrow. Based on the underlying pathophysiology, it can be classified into primary (inherited) or secondary (acquired) HLH.

**Case report:** We present the case of a 36-year-old women diagnosed with squamous cell carcinoma of the cervix FIGO IIIB with acquired HLH. The patient was initially treated with radiochemotherapy. After first relaps we started Taxol and Bevacizumab (in analogy to GOG 240). Because of recurrent neutropenia Carboplatin was not added. After 6 cycles complete response followed by a maintenance with Bevacizumab. 15 cycles later it was stopped due to hypertensive crisis, sigmoidal abscess and cytopenia. In addition the patient was hospitalized with severe febrile neutropenia. Empiric antibiotic therapy and virostatics were started. Despite giving G-CSF no sufficient increase of the neutrophil count was shown. The patient suffered from persistent intermittent fever and worsening of general condition. Further diagnostics showed splenomegaly, elevated ferritin, hypertriglyceridemia and increased soluble IL 2 receptor. The bone marrow aspirate showed hypoplasia of myelopoiesis. Despite lacking evidence of hemophagocytosis the patient fulfilled 6 of 8 diagnostic criteria and HLH was diagnosed. The search for infectious agents showed low intensity EBV-reactivation. However EBV-reactivation resolved spontaneously and auto-antibodies remained negative. Treatment with steroids was started, which dramatically improved the patients condition and blood counts. After tapering of steroids the patient remained in complete remission from HLH.

**Discussion:** HLH in patients with malignancy has to be considered in cases of persistent pancytopenia. To our knowledge this is the first case report with HLH in a patient diagnosed cervix cancer. Treatment should be started promptly in order to suppress the hyperinflammatory status. Possible factors contributing to HLH in this patient are abnormal neoplastic production of cytokines, EBV infection and the immunosuppression status under chemotherapy.



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## Fulminant HELLP Syndrome with Subcapsular Liver Hematoma: A Case Report

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**Introduction:** HELLP syndrome is a rare but potentially lethal complication of pregnancy, occurring in 0.5-1% of pregnancies. Delivery is the only causal treatment. Below 35 weeks gestation expectant management is possible; however, there is no evidence of perinatal benefit and greater risk of fetal death. Subcapsular liver hematoma occurs in 1% and carries a mortality rate of 39%, especially if treatment is delayed. Laboratory abnormalities and liver pathology correlate poorly.

**Case Report:** We present a case of a 37-year-old patient, Gravida 4, Para 1. Each pregnancy was induced through intracytoplasmic sperm injection. Two miscarried and one was a biochemical pregnancy. The patient has a heterozygotic prothrombin mutation, treated with dalteparin and aspirin during pregnancy. This pregnancy was uncomplicated. The patient presented at 35 6/7 weeks with severe upper right abdominal pain, headache, and acute hypertension. Liver enzyme and lactate dehydrogenase levels were elevated (aspartate aminotransferase 186 U/l, alanine aminotransferase 193 U/l, LDH 764 U/l). Platelet count was normal (236'000/ $\mu$ l). An urgent caesarean section was performed under general anaesthesia. The patient was transferred to the intensive care unit. Two hours postoperatively the platelet count fell to 114'000/ $\mu$ l. Abdominal ultrasound and CT confirmed subcapsular liver hematoma suspected due to severe persistent upper abdominal pain. The woman was transferred to the University Hospital Zurich. Shortly after arrival she went into hemorrhagic shock with coagulopathy, requiring massive blood transfusion. Explorative laparotomy was performed with hemostasis of liver segments III, VI, and VIII. She developed liver failure with a factor V nadir <10%, acute prerenal kidney failure needing hemodialysis for 8 days, and respiratory failure needing ventilation for 3 days. Platelet nadir was 43'000/ $\mu$ l. Additionally the woman developed Sheehan syndrome. She was discharged home in stable condition 19 days postpartum with endocrinologic and surgical follow-up.

**Discussion:** This case presents a vital reminder of how essential early recognition and rapid intervention are in suspected HELLP cases. The clinical impression is especially crucial, outweighing laboratory values. Due to excellent interdisciplinary teamwork and cooperation between peripheral and central hospitals, leading to efficient and immediate treatment, this patient survived several life-threatening complications of HELLP syndrome.



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## Extraintestinal GISTs as challenging differential diagnoses of ovarian masses: a case report

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**Introduction:** Extraintestinal gastrointestinal stromal tumours (EGISTs) are mesenchymal tumours that can mimic ovarian tumours. Only 5-10 % of all GISTs occur outside of the gastric or intestinal wall. Their diagnosis and management can be challenging.

**Material and Methods:** We report and review the case of a patient with a large mass filling the pelvis, initially suspected to be an ovarian tumour and finally shown to be of extragenital and extraintestinal origin – an EGIST.

**Results:** A 71-year-old woman with increased urinary frequency and swelling of the abdomen showed a hypermetabolic lesion up to 17 cm of the right adnexa with central necrosis on the transvaginal ultrasound and FDG PET-CT. A metastatic disease was excluded. The tumour markers were within the normal range; only LDH was elevated (491 U/mL). A median laparotomy revealed a highly vascularised tumour with a fragile capsule filling the pelvis. The ovaries were unaffected. The mass was adherent to the back wall of the uterus, as well as the rectum. A hysterectomy and bilateral salpingo-oophorectomy were followed by an anterior rectum resection in order to remove the neoplasm of unclear origin. Its mobilisation was challenging and resulted in elevated blood loss (4.5 L) with high demand of noradrenaline. We proceeded to pelvic compression with tissue, so called “packing”, and postponed the completion of the operation to the following day. After stabilisation of the patient, a descendrectostomy with protective ileostoma could be safely performed. Frozen section was not conclusive. The final histology confirmed a normal uterus, adnexa and vagina but a pararectal, partly epitheloid, extraintestinal gastrointestinal stoma tumour of high-risk category 6b with CD117 positivity. A deletion in the KIT gen of unknown significance, but located in a hotspot region, was shown and is suggestive of a pathogen mutation. An adjuvant targeted therapy with Imatinib, a small molecule kinase inhibitor, was initiated.

**Conclusions:** EGISTs are rare tumours that can mimic an ovarian neoplasm. Their surgical management can be challenging, and life threatening situations can be unexpectedly encountered, which require interdisciplinary management. Even if extremely rare, EGISTs should be considered as differential diagnoses of large, solid and hypervascularised pelvic masses. This awareness may help optimise surgical management and prevent adverse outcomes.





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## Pregnancy outcomes in women with heterozygous haemoglobinopathies: a multicentre, retrospective study

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**Introduction:** Although commonly known that anaemia in pregnancy is a significant risk factor of adverse maternal or foetal outcomes, previously published studies on the effect of heterozygous haemoglobinopathy on pregnancy provided rather controversial results and inconsistent conclusions. We conducted this study in order to investigate the adverse pregnancy outcomes in pregnant women with heterozygous haemoglobinopathy.

**Material and Methods:** Retrospective cohort study to compare adverse maternal and neonatal outcomes between pregnant women with heterozygous haemoglobinopathy (study group; n=172), and without heterozygous haemoglobinopathy (control group; n=360). The medical data were extracted from clinical records from pregnant women attending antenatal care and delivering at University Hospital Basel or University Hospital Zurich between 2015 and 2018.

**Results:** A total of 172 pregnant women with a heterozygous haemoglobinopathy and 360 controls were recruited. Apart from foetal distress corresponding to increased rate of non-elective Caesarean section, the groups did not differ significantly in any variables of adverse neonatal outcomes. Whereas among the maternal outcomes the rate of abortion, gestational diabetes mellitus, bacteriuria or urinary tract infection, intrahepatic cholestasis, abnormal placentation and anaemia postpartum were significantly increased in women with heterozygous haemoglobinopathy.

**Conclusions:** In our study, heterozygous haemoglobinopathy increases the risk of adverse maternal outcomes, and excluding foetal distress does not increase adverse neonatal outcomes.



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## Quality control of the obstetrics department of the city hospital Waid and Triemli: Application of the Robson Group Classification for the identification of obstetrical targets to reduce the CS rate

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**Introduction:** Sectiones caesarea (CS) account for over 30% of all births in Switzerland. This aligns with a worldwide trend, which raised concerns about possible later complications. In 2016, the gynaecological clinic of the Stadtspital Triemli (SWT) recorded a CS rate of 36.4%. The World Health Organisation (WHO) has stated that a CS rate above 10-15% is not associated with reduced maternal or fetal morbidity and mortality. Furthermore, the WHO recommends the Robson classification system for the analysis of CS rates. This system divides patients into ten groups according to obstetric data and is therefore able to identify the patient groups contributing the most to the total number of CS. The main aim of this study was firstly to identify the Robson group (RG) contributing most to the number of the CS in SWT. Secondly, the indications of CS were reported to make an according trial of reduction of CS.

**Methods:** In a retrospective quality control all CS (n=757) that were recorded at SWT in 2016 were classified into Robson groups according to the Robson classification system. Furthermore, the RG were used to analyze indications of CS, indications of induction of labour and maternal health data.

**Results:** The Robson groups of the primiparous (RG 1 and 2) and the repeat CS (RG 5) account for the largest percentages of the sections with 72.5%. The suspicious or pathological cardiotocograph and the failure of progress in birth in first and second stage of labour were identified as the two largest parts of the CS indications.

**Conclusions:** Solutions for reduction of the CS should be applied in Robson groups 1, 2 and 5. Importantly, RG 1 and 2 will have an impact on the future RG 5, so the main goal should be to reduce the number of CS caused by primiparous (RG 1 and 2). It is important to recognize that the number of CS consists mainly of births that would not primarily be classified as risk births. The remaining Robson groups together have only a small influence on the number of CS, with each group not exceeding 8%. A reduction of CS in these groups would therefore not significantly change the total number of CS. In addition, the groups include risk births such as multiple birth and lay anomalies. Since the indication for CS is mainly influenced by cardiotocography and handling of failure of progress in labour, the clinic should focus on improving the ability to interpret cardiotocography and on the diagnosis and management of failure of progress in labour.



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## Rare case of atypical hemolytic uremic syndrome after delivery

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**Introduction:** Pregnancy-associated atypical hemolytic-uremic syndrome is rare. It is defined by microangiopathic hemolytic anemia, thrombocytopenia and acute kidney injury. Rapid differentiation of the diagnosis is challenging, and targeted therapy is immensely important in this potentially life-threatening syndrome.

**Case Report:** The inpatient admission of the 31-year-old G1P1 at 37 weeks of gestation with dichorial twins was done on the basis of a diagnosed preeclampsia with elevated blood pressure and proteinuria. Upon entry the patient showed no neurological symptoms like headache, eye flickering and had only a mild hypertension with no need of therapy. Except the proteinuria and slightly increased uric acid the laboratory values regarding preeclampsia were unremarkable. MgSO<sub>4</sub> Infusion was administered as cramp prophylaxis. After an unsuccessful induction of labor, a cesarean section was performed. Due to a uterine atonia, Sulproston was administered and a balloon tamponade system was placed intrauterine. Moreover, the patient received 1g tranexamic acid, 3g Fibrinogen and Factor XIII. The blood loss was approximately 2500ml. Six hours later at the ICU she presented first signs of HELLP-like symptoms with elevated liver enzymes, decreased level of haptoglobin and high level of LDH, slight vaginal bleeding and decreased oxygen saturation. Subsequently an embolism of both uterine arteries was performed, and a prophylactic inferior vena cava filter was placed. Moreover, the patient presented an anuria which made a dialysis necessary. After interdisciplinary discussion the tentative diagnosis of an atypical hemolytic syndrome was postulated. ADAMTS 13 was determined and a periodic plasmapheresis was established. A Shiga toxin producing *Escherichia coli* hemolytic uremic syndrome was ruled out. Her ADAMTS levels were normal ruling out a thrombotic thrombocytopenic purpura. A weekly therapy with Eculizumab was established. Cumulative the patient got 26 FFP's and 11 units of blood during the inpatient stay. The follow-up showed that despite complete hematological remission of aHUS and nephroprotective therapy the patient is still in need of Eculizumab and periodic dialysis.

**Conclusion:** This case highlighted the life-threatening potential of this syndrome. Physicians should be aware of aHUS as a differential diagnosis while treating a severe case of HELLP with acute kidney injury. Regarding the poor prognosis and fast progression, it is imminent to get a fast diagnosis and treatment with Eculizumab.



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## Late miscarriage due to chorioamnionitis

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**Introduction:** Chorioamnionitis is responsible for 50% of preterm deliveries. The diagnosis must be made early to allow proper management.

**Material and Method:** Case report and literature review of the Pubmed and the UpToDate database.

**Clinical case:** 35-year-old patient, 6G4P, at 18 6/7 weeks of pregnancy presents to the emergency room in septic shock. The patient describes bloody vaginal discharge. The Ultrasound examination reveals the foetus in a breech position with no foetal cardiac activity and no amniotic fluid. The diagnosis of late miscarriage after premature rupture of membranes in a septic context is made. We start antibiotic therapy and the patient delivers vaginally in the operating room. Having difficulties to preserve her hemodynamic stability, the patient is sedated and transferred to the intensive care unit for further management. The patient was awakened four days later.

**Discussion:** Chorioamnionitis is the main cause of the infection during pregnancy. There are various risk factors: rupture of the membranes, carrying group B streptococcus or bacterial vaginitis. One of the severe maternal and neonatal complications is sepsis. The adequate management is immediate delivery and antibiotic therapy.

**Conclusion:** The complexity of this case is the difficulty to determine the time of infection, the clinical latency, and the factors that contribute to the infection. Indeed, at an early gestational age, the prognosis is often poor. A better understanding of the mechanisms by which infection occurs could lead to a decrease in prematurity, morbidity and mortality.



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## Ovarian yolk sac tumor with components of a carcinoid tumor of insular type: case report and review of the literature

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**Background:** Ovarian germ cell tumors (OGCT) constitute about 20-25% of ovarian neoplasms and arise primarily in young women. They may differentiate into extraembryonic fetal-derived cell populations or into embryo-like neoplasms. Yolk sac tumors are malignant OGCTs that have an incidence of 0.048/100'000 womanyears and a median age at presentation of 23 years. Ovarian carcinoid neoplasms are highly specialized monodermal teratomas, with an incidence of 0.011/100'000 womanyears. The combination of a yolk sac tumor and a carcinoid tumour is also called a mixed germ cell tumor.

**Case:** We present the case of a 19-year-old woman with previously diagnosed polycystic ovarysyndrome (PCOS) and acute abdominal pain. Transabdominal ultrasound and computer tomography of the abdomen showed a multilocular cystic adnexal mass with solid components, about 17cm in diameter, with little ascites. Tumormarkers showed an increased alpha fetoprotein (AFP) of 4794µg/l. We performed a left laparoscopic adnexectomy with peritoneal cytology. Histology showed a yolk sac tumor with endometrioid-like differentiation and components of a carcinoid tumor of insular type. A staging laparoscopy with appendectomy, omentectomy, pelvic and paraaortic lymphadenectomy, and peritoneal biopsies showed only endosalpingiosis in the omentum without tumor metastasis. The tumor was classified as FIGO IC1. Subsequently the patient received adjuvant polychemotherapy with 3 cycles of bleomycin, etoposide, and platinum (BEP), and ovarian protection with GnRHanalogues in order to preserve fertility. The follow-up AFP was negative.

**Discussion:** This is, to the best of our knowledge, the first case of an ovarian yolk sac tumor with components of a carcinoid tumor of insular type. OGCTs tend to be large (median diameter 16cm). Patients typically present with abdominal pain and an abdominal mass. Yolk sac tumors can grow very rapidly and aggressively with extensive intraperitoneal dissemination. They often produce AFP, which is useful for monitoring. Surgery is required for histologic diagnosis, treatment and staging. Malignant germ cell tumors are staged according to the International Federation of Gynecology and Obstetrics (FIGO). In stage I patients, unilateral adnexectomy has the same therapeutic effect as hysterectomy with bilateral adnexectomy, especially when combined with effective chemotherapy. Fertility preservation should be the standard of care in young patients. After an adequate treatment pregnancy rates of 50-80% can be achieved.



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## Recurrent Adnexal torsions despite multiple Ovariopexie: a case report

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**Introduction:** An ovarian torsion is a relatively rare but serious emergency in reproductive age. We present a case of a woman with recurrent adnexal torsions despite multiple ovariopexie.

**Case report:** A 23 year old nulligravida had her first diagnostic laparoscopy 6 years ago in a peripheral hospital because of an acute abdomen. Intraoperatively it showed an ovarian torsion on the right side and a detorquirung was done. One year later she got a therapeutic laparoscopy again with detorquirung of the right ovary and ovariopexie right in our hospital. 6 months later she got the third therapeutic laparoscopy in our hospital for prophylactic ovariopexie on both sides. 3 years later she was treated in another center hospital with a fourth therapeutic laparoscopy with ovariopexie right and renovation of endometriosis rASRM stadium I. 2 years further she showed up again in our hospital on the emergency with an acute abdomen. In suspicion of an recurrent ovarian torsion we performed the fifth laparoscopy with detorquirung of the right ovary and ovariopexie on the same sight. Intraoperatively it showed an increased right ovary and 3-4 times longer Lig. ovarii propria on both sides. For relapse prophylaxis we did 2 month later the sixth laparoscopy with shortening of the Ligamentum ovarii proprium right. The ligament was shortened with 3 single button sewn Etibond 3-0. On the left side we did not shorten the Lig. ovarii proprium.

**Conclusion:** An ovarian torsion is a relatively rare but serious emergency in especially reproductive age. It is affecting about 6 per 100 000 women per year. Women present with sudden abdominal pain, sometimes accompanied by nausea and vomiting. The definitive diagnosis is often made in the laparoscopy. The therapy of choice is the laparoscopic detorquirung of the ovary. For relapse prophylaxis an ovariopexie could be helpful. Risk factors for developing an ovarian torsion are growth of large corpus luteal cysts in reproductive age or long Ligg. ovarii proprii. It can occur with torsion of the fallopian tube, vascular pedicle and Lig. ovarii proprium. In 80%, torsion happens unilaterally, with slight predominance on the right. In case of recurrent adnexal torsions a shortening of the Lig. ovarii proprium on the affected side can be a relapse prophylaxis. The literature shows no benefit to do it on both sides.



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## Splenosis - Incidental finding in an elective gynaecological surgery

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**Introduction:** Splenosis is a benign, usually asymptomatic condition, involving heterotopic auto-transplantation of splenic tissue following splenic rupture, caused by trauma or surgery. The most common locations are the serosal surface of the small or large intestine, omentum and peritoneum, less frequently in the liver, stomach or pancreas and rare sites are kidneys, ovaries and subcutaneous tissue. Frequency estimates vary widely, following trauma in the range of 26 - 65%, following elective splenectomy around 20%. The diagnosis is made by radioisotope scanning, ultrasound or computed tomography. Splenosis following traumatic splenectomy is well documented, but there are only a few cases reported in the gynaecological literature.

**Material and Methods:** A 58 year-old woman with a history of traumatic splenectomy after a car accident 28 years ago, presented in an outpatient clinic with diffuse acute abdominal pain migrating to the lower abdomen. A CT scan was carried out which revealed no pathological finding except an accessory spleen adjacent to the pancreas. The then performed gastroscopy was also normal. A gynecologic exam was indicated. She had prolapse symptoms and the exam showed cystocele III°, uterine descent II°, rectocele I°. The abdominal pain disappeared spontaneously a few days later. Since prolapse needed treatment, a pessary therapy was tried out but not satisfactory. We therefore planned a supracervical hysterectomy with adnexectomy and sacrocolpopexy.

**Results:** During laparoscopy multiple blue implants were found on the omentum majus, the pelvic peritoneum and the sacrouterine ligament. These polylobulated nodules presented a smooth surface, the color ranged from blue to black. As the implants in the pelvis were located in the operation field, they got removed and sent to the pathology for histological examination. Pathological features revealed the diagnosis of splenic tissue. Due to the extensively reported benign nature of this condition, no further treatment was required.

**Conclusion:** Pelvic splenosis should be included in the differential diagnosis of patients with a history of splenic trauma or spleen removal who present with abdominal or pelvic nodules. It still remains a rare finding in clinical practice as it is usually asymptomatic. In most reported cases in the literature, the diagnosis was not considered before surgery. As the differential diagnosis include metastatic cancer as well as endometriosis, a biopsy may be necessary to prove benignity.



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## Minimal invasive closure of fetal membrane defect after fetoscopic intervention on a pregnant sheep model

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**Introduction:** Iatrogenic preterm premature rupture of membrane (iPPROM) after fetoscopy is an important and still unsolved problem. Sealing of fetal membranes after fetoscopy to prevent membrane rupture could improve fetal health and survival. The aim of our study was to test the functionality of a surgical tool able to apply a sealing material in a reproducible and precise way on a pregnant sheep model.

**Methods:** We developed an umbrella-shaped receptor that can be folded in the 10Fr catheter, deploys automatically when inserted into the amniotic cavity and enables the gathering of a glue at the precise site of puncture. We operated pregnant sheep at 70+/-10 days gestation. The uterus of the sheep was exposed and a 10Fr catheter was placed through the uterine wall by punching with a dorn. The receptor was then inserted through this catheter and was glued on the fetal membrane (N=10). Tightness of the sealed defects 4 hours post-operation was assessed by leakage tests.

**Results:** From the 10 receptors applied, 8 were applied successfully and held tightly throughout the 4 hours assessment period. The 2 last ones could not be placed tightly against the membrane because of difficult positioning control during their application but held for 4 hours with small leakage. On average 90 seconds were needed to close the defect.

**Discussion:** This device enables efficient and reproducible glue injection and is compatible with the existing surgical tools. It is promising to potentially becoming a standard in fetoscopic interventions to prevent iPPROM.





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## Management of a secondary postpartum hemorrhage in a woman with haemorrhagic diathesis

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**Introduction:** Secondary postpartum hemorrhage (PPH) is defined as any significant uterine bleeding occurring between 24 hours and 12 weeks postpartum. The principal factors of PPH are retained products of conception and/or subinvolution of the placental bed and infection. All the pregnant women are divided into 3 classes of risk for PPH (low, medium and high) based on their clinical history and associated disease.

**Material:** A case of secondary postpartum hemorrhage 17 days after delivery in a patient with von Willebrand disease treated with bilateral embolisation of the uterine arteries.

**Results:** A 33-year-old patient, G3P2, consulted our services for a metrorrhagia 17 days after a spontaneous vaginal birth complicated by manual placenta removal and curettage. She is known to have type I von Willebrand disease, with factors VII and XI minimum deficiency associated with thrombocytic dysfunction; as well as a clinical history of placental retention and uterine curettage in 2016. Upon arrival the patient was hemodynamically stable; 1,5 g of tranexamic acid and 1 g of fibrinogen were infused with the cessation of the bleeding. The patient was discharged in generally good condition. Two days later she returned urgently with ongoing vaginal bleeding. She had stable vital signs, Hb 101 g/L and an active vaginal bleeding with clot loss, estimated at 500 ml. The US showed a formation at the level of the anterior uterine wall, Doppler positive and suspected for arteriovenous malformation (AVM). An angio-tc was performed which showed a marked contrast-enhancement of the uterine walls in the arterial phase, with the appearance of a coarse contrasting reddening inside the cavity of the uterus. A bilateral emergency embolisation of the uterine arteries with gelfoam was performed successfully without complications, finishing the bleeding. The post-intervention course was favourable and the patient was allowed home on the 3rd post-operative day. At the post-surgery check, 4 weeks later, the patient reported no episodes of vaginal bleeding and a US displayed a uterus with normal vascularisation and no sign of intrauterine remains.

**Conclusion:** This case is an example of bleeding management in a patient with high risk for PPH. Pro-bleeding states could lead quickly to the execution of an emergency hysterectomy. The success of this case demonstrates that uterine artery embolisation offers a safe and conservative alternative treatment to hysterectomy.



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## It's an arteriovenous malformation!

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**Introduction:** What shall we do in case of undetermined heavy post-operative vaginal bleeding? Here's a case report of a patient who, in this context, undergone three surgeries in one week not helping in the finding of a diagnostic.

**Material and Method:** case report of a 2 parous woman who undergone a laparoscopic total hysterectomy and bilateral salpingectomy for a symptomatic myomatous uterus manifested by severe vaginal bleeding. The immediate recovery post-operative period was simple. Three weeks later, important vaginal bleeding appeared. First, a vaginal surgery was performed. Blood loss was about 1 liter. A "X" stich was made on a small colpotomy scar dehiscence. Second surgery was performed 6 days later for a hemorrhagic shock with a laparotomic approach (Pfannenstiel). Blood loss was about 1.5 liter. No etiology was found. Third surgery took place two days later with a vaginal approach. The patient lost 1 liter of blood. Hemoglobin resulted at 69 g/l. Suspicion of pulmonary embolism added difficulties in the management of that particular case when anticoagulation was needed. A new important vaginal bleeding occurred and motivated a transfer in our tertiary hospital.

**Results:** we performed a CT angiography which diagnosed a long right vaginal artery false aneurysm. An angiography confirmed the diagnostic and permitted an artery embolization with Gelfoam and coils which stopped all symptoms.

**Conclusion:** it is crucial to include arteriovenous malformation in differential diagnosis in front of unexplained vaginal bleeding. Transfer of patients in hospital where an interventional radiology center is available is necessary, especially in the postoperative recovery period.



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## Aneurysmal benign fibrous histiocytomas an unusual finding in the breast in a young female – a case report

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**Introduction:** Aneurysmal benign fibrous histiocytomas (ABFHs) are variants of dermatofibromas. These benign blood-filled lesions can mimic malignancies due to their rapid and recurrent growth. ABFHs have been reported to constitute 1.7% of all dermatofibromas. Most ABFHs occur in the extremities, especially the lower extremities. Cases of ABFH in the breast are extremely rare. In case of residual disease recurrence is frequent.

**Case report:** A 25-year old female presented herself at our clinic with a painful new blueish lesion of the right breast. The ultrasound showed a superficial hypoechoic lesion of 20mm. At fine-needle biopsy only blood could be evacuated. Due to a history of smoking an abscess was suspected and the patient was treated with antibiotics. The microbiology of the fluid was negative. A week later the ultrasound did not show any changes, hence an incision was performed and a lot of blood could be evacuated. The suspected diagnosis was now a hematoma, even though the patient had no history of trauma. After a week, the patient again reported pain and a growing swelling. The ultrasound showed now a vascular lesion, which was classified as BIRADS IV and a core-needle biopsy was performed. The biopsy showed a hematoma and necrotic tissue (B2 classification). An excision was performed through the plastic surgeons due to the constant pain of the patient. The surgery went well and the patient recovered quickly. The histopathological diagnosis was a diagnosis of exclusion as many malignant entities like metaplastic carcinoma and extremely rare sarcomas like angiosarcomas, PNET, undifferentiated sarcomas had to be ruled out. For this purpose multiple immunohistological stainings and a molecular NGS analysis had to be performed and a second opinion of an expert soft-tissue pathologist was obtained. No specific alterations on the protein or tumorigenic level could be found. Hence, the diagnosis of the aneurysmal benign fibrous histiocytomas was confirmed. Six months after the surgery the patient is well and shows no signs of relapse. We will see the patient now every 6 months for follow-up.

**Discussion:** This case underlines that patients with inconclusive findings in the core-needle biopsy and the ultrasound should be offered a surgical excision to confirm or to exclude rare histological findings. Additionally, the differential diagnosis of breast tumours should always comprise skin or skin adnexal tumours. Particularly, in young patients and superficial anatomical localizations.



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## Treatment of Inguinal Lymphocele after Lymphadenectomy for Vulvar Carcinoma with Inguinal Endoscopic Lymphatic ICG Leakage Mapping and Vessel Ligation: A Case Report

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**Introduction:** Surgical treatment of recurrent inguinal lymphocele after inguinofemoral lymph node (LN) dissection, although not always necessary, is arduous and so far, no technique has been considered as a gold standard. We report our experience of one case managed with inguinal endoscopic lymph leakage mapping with Indocyanine Green dye (ICG) by subcutaneous homolateral paramalleolar injection and concomitant ligation of lymphatic vessels.

**Material and Methods, Case Report:** A 48 years-old woman underwent an anterior radical vulvectomy with bilateral inguinofemoral LN dissection for a vulvar, FIGO 1B squamous cell carcinoma. Bilateral inguinal LN were clinically and sonographically suspected for metastasis, but none of the 34 LN was positive at the permanent section. Two vulvar bilateral drainages were left for 4 and 6 days respectively and a third left inguinal drainage was removed after 7 days from surgery. Post operatively the patient presented a left inguinal lymphocele. The lymphocele was drained 3 times (max. 700 ml). 5 weeks after surgery, for persisting symptomatic lymphocele, we performed a left inguinal endoscopy to identify and suture the lymphatic leaking vessels using ICG, with complete resolution of the lymphocele.

**Results:** An oblique 10 mm skin incision was made 3 cm distal to the left inguinal previous lesion and a 10 mm port was inserted for the CO<sub>2</sub> insufflation, 2 ancillary 5 mm ports were placed. After an initial debridement with removing of fibrous adhesions a continuous accumulation of serum hematic fluid was highlighted. 7 ml of ICG were then injected subcutaneously next to the left malleolus. After a few minutes leaking of the green fluid was endoscopically seen in the left groin. Two different vessels source of leaking were identified: the first was bound by a transdermic Vicryl 2-0 ligation, and the other one was endoscopically oversewn with PDS 2/0 ligation. At the end of the surgery all ports were removed and the skin was sutured with a 3-0 Vicryl, leaving a Redon drain for 5 days. Follow up over the next 2 months showed no complications such as accumulation of lymphatic fluid, swelling of the groin or left lower lymphoedema.

**Conclusion:** Inguinal endoscopic approach with subcutaneous perimalleolar injection of ICG for the identification of lymphatic leaking appears to be appropriate. This method permits also to treat the lymphocele without open surgery and multiple drainage. Further studies are needed in order to establish the real advantages and limits of this approach.



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## Terms, definitions and measurements to describe the sonographic features of inguinal lymph nodes in patients with vulvar cancer: a consensus opinion from the Vulvar International Tumor Analysis (VITA) group.

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The preoperative assessment of inguino-femoral lymph nodes is of crucial importance to select patients to systematic inguino-femoral lymphadenectomy (IFL) or sentinel lymph node biopsy (SLNB). IFL has been shown to reduce mortality in nodal positive women. Nevertheless, morbidity following IFL is high with significant negative impact on the quality of life and is therefore not recommended for patients with low risk vulvar cancer. For these cases (primary squamous cell vulvar cancer <4 cm of diameter, unifocal, no suspicious inguinal lymph nodes), SLNB has been introduced as a standard and safe procedure and is currently under investigation in high risk categories.

The aim of preoperative non-invasive imaging in patients with histologically proven vulvar cancer is to detect large intranodal metastatic lesions, while the identification of small volume metastases or micrometastases remains a challenge. The role of ultrasound in evaluating the lymph node status is widely approved in many malignancies including melanoma and breast cancer. However, it's role in vulvar cancer is not well defined yet and only few small studies are available in literature evaluating its performance in nodal staging. Even though other imaging techniques (computed tomography, magnetic resonance imaging and positron emission tomography) are recommended by international guidelines for preoperative workout, they do not seem to increase sensitivity nor specificity.

The Vulvar International Tumor Analysis (VITA) group statement is a consensus statement on terms, definitions, measurements and examination methodology that may be used for the assessment of inguinal lymph nodes on gray-scale and color/power Doppler sonography in staging of vulvar cancer. The relationship between the ultrasound features described and histopathological diagnosis is yet to be established. However, the VITA terms and definitions may form the basis for prospective studies to predict the risk of metastatic inguinal lymph nodes based on their ultrasound appearance.



P 166

## Chyle leakage after axilla dissection and breast cancer excision

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**Introduction:** Chyle leakage after axilla dissection is a rare complication that occurs with an incidence less than 0.5% after breast cancer surgery. Because it is associated with anatomical variations of thoracic ducts, these can be injured during surgery. Here, we report a rare case of a 56-year old woman with post-surgery chyle leakage.

**Case report:** The patient was diagnosed with invasive ductal carcinoma, cT2 cN3b M0 G3, with negative oestrogen and progesterone receptors but positive HER2 expression. Neo-adjuvant chemotherapy was established with a classic Anthracycline, Taxol and Herceptine-Perjeta regimen. After near complete remission, the patient was submitted to surgery and tumor excision (8x7.5x3cm) and axilla dissection were performed. After successful R0 resection, a redon drain was inserted in the axilla. The new TNM classification was ypT0 ypN0 (0/22) cM0. Post-surgery, a white discharge was noticed in the redon drainage with a maximal daily amount of 450 ml, which differed in color and consistency from classical exudate. Based on clinical signs, the efflux was identified as chyle and a chyle leak was postulated. Conservative treatment with bed rest, continuous drainage and pressure bandages was established. After decreased exudate amounts of maximum 100 ml per day, the redon drain was removed on day 7 post-surgery and the patient was discharged. 7 days after demission, the patient presented with a recurrent painful chyle collection in the axilla. In outpatient setting a conservative treatment was administered with three additional punctures over the course of 8 days. In addition, based on clinical and laboratory signs of suprainfection (temperature 38.0°C, leucocytes 17.7 G/l, CRP 21 mg/l, bacterial growth of staphylococcus aureus in the microbial cultivation), an antibiotic treatment with Co-Amoxiclav was established. One month after surgery there were no signs of new recurrent chyle collections or persistent infection, and the patient was referred to radio-oncology for adjuvant radiotherapy.

**Conclusion:** Even if rare, a chyle leak has to be considered if a milky discharge occurs after axilla dissection. Biochemical analysis of electrolytes, proteins and fat can be helpful to ensure the diagnosis. A conservative approach with low fat diet, adequate drainage, pressure bandages and bed rest is advised as initial treatment. Surgical methods such as direct ligation and gel foam can be applied if primary treatment fails.



P 167

## An innovative approach to predict PARP-inhibitor sensitivity in ovarian cancer cell lines in vitro

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**Introduction:** Various clinical trials have shown promising anti-cancer activity of PARP inhibitors (PARPi) in ovarian cancer (OC) patients with superior benefit in BRCA-mutated tumors. This suggests that there are other genetic alterations beyond BRCA mutations being relevant for PARPi response in those patients. Thus, the aim was to systematically study available PARPi in vitro and functionally investigate related genes in a panel of representative OC cell lines.

**Materials and Methods:** Olaparib, Niraparib, and platinum drug sensitivity was determined by the MTT viability assay. Results were compared to large data set from the Broad Institute Cancer Cell Line Encyclopedia (CCLE). In a parallel approach, we reviewed the literature to find genetic alterations associated with PARPi in OC and established a lentiviral negative selection CRISPR-Cas9 screen allowing to identify genes "essential" for survival ("cell fitness").

**Results:** In line with the CCLE drug response data, selected OC cell lines displayed a wide spectrum of PARPi sensitivity. Platinum drug and Taxol sensitivity moderately associated with Olaparib and Niraparib sensitivity. Interestingly, platinum-resistant TYK-nu(cisPT) cells showed cross-resistance to Olaparib (4-fold) and Niraparib (9-fold), whereas platinum-resistant A2780/CP cells were only cross-resistant to Niraparib (3.4-fold). However, PARPi sensitivity did neither associate with the mutation profile nor typical genomic signatures of ovarian cancer. The competition assay showed that mutations for instance in DNA-repair genes RPA3 and ERCC3 negatively affected 'cell fitness', while TP53 and AAVS1 were marginally affected cell fitness.

**Conclusion:** Carboplatin- and Taxol-sensitive cells tend to be sensitive to PARPi in a cell line-dependent manner. The observed PARPi cross-resistance of cells with acquired Cisplatin resistance may attract attention. Absent association between PARPi sensitivity and mutation profile of the cell lines indicates a poor utility of this approach. The established CRISPR-Cas9 competition assay allows functional validation of up to 100 genes/cell line and primary cultures and thus shows the potential for determination of 'true' predictive PARPi-related genes.



P 168

## Clinical management of gynecological sarcoma: the 10 year experience from the University Hospital of Bern

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**Introduction:** Sarcomas account for less than 1% of all malignant tumors and for 10% of uterine cancers. They do not only occur in the corpus but also in the ovaries, the vagina or the pelvis. These tumors are rare and behave aggressively with a worse prognosis than endometrioid adenocarcinoma. Aim of the study is to analyse the prevalence and outcome of these tumors at a university cancer center.

**Material and Methods:** Retrospectively, we searched all patients with gynaecological sarcomas treated within the last 10 years in our clinic. Data regarding patient characteristics, histology, tumor board recommendations and received therapy were extracted from patients charts and then correlated with the oncological follow up.

**Results:** 33 patients with uterine sarcomas were identified with a mean age of 56 years (range 29-80). 45% (15) of the patients had endometrial stromal sarcoma, 42% (14) had leiomyosarcoma, 9% (3) had undifferentiated uterine sarcoma, 3% (1) an adenosarcoma, which is in apparent contrast with the literature data, showing that leiomyosarcoma represents the main entity of the heterogeneous group of uterine sarcomas. The symptoms that led to the diagnosis were unspecific: 11 postmenopausal bleeding, 9 lower abdominal pain, 5 abnormal uterine bleeding, 4 uterus myomatosis. None of our patients used tamoxifen as a risk factor in the anamnesis. All patients were treated with surgery, R0-resection could be performed in 27 cases (82%). Adjuvant radiotherapy was administered to 12 % of the patients, adjuvant chemotherapy to 21%, combined radiotherapy and aromatase inhibitors to 9% and aromatase inhibitors alone to 6%. All the patients with undifferentiated uterine sarcoma died with a mean survival of 8 months (4-16months), underlying the extremely poor prognosis of this aggressive tumor. 64% of the leiomyosarcoma patients died on average after 27 months (7-72). There is a significant difference in outcome (Disease specific survival) between the different histology types (log rank  $p=0,02$ ). The stage of the disease however did not have a significant influence on the outcome ( $p=0,08$ ) Also the radical lymphadenectomy performed in 20,3% (7) did not lead to a better outcome ( $p=0,53$ ).

**Discussion:** Within these rare tumors we find large heterogeneity of the patients and symptoms. Even in early stage disease the prognosis is poor, except in the ESS group. Further studies about the molecular biology of these tumors possibly could lead to a better understanding of these highly malignant tumors.





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## Combined PARP inhibition and radiotherapy - a toxicity challenge or a chance for synergy?!

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**Introduction:** Poly(ADP-ribose)polymerase inhibitors (PARPi) interfere with the Base Excision Repair/Single Strand Break repair axis. During DNA replication, unrepaired DNA single strand breaks can mature into cytotoxic DNA double strand breaks that are repaired by homologous recombination (HR). In cells with mutated BRCA1/2 genes and deficient HR DNA double strand break repair, PARPi in combination with chemo-/or radiotherapy, which induces DNA breaks, was shown to cause cell death. This suggests that a combination of DNA strand break inducing chemo-/or radiotherapy and PARP inhibition may improve the prognosis for progression-free survival, particularly in patients with BRCA1/2 mutations. The most common side effects reported are anemia, neutropenia and nausea. No further toxicity from combined treatment regimens have been reported so far. Basic research has demonstrated significant synergy.

**Material and Methods:** Here we report the serious cutaneous and mucosal toxicity observed in two cases of recurring ovarian cancer, who underwent ionizing radiation being under PARPi. The radiotherapy field in one case was the mediastinal lymph nodes, in the second case the inguinal, vulva-perianal region. Further we performed vast molecular analysis on single cell and tumor tissue, i.e. NGS, scDNA and scRNA sequencing, cyTOF, imaging cyTOP, proteotyping, digital pathology fast and deep drug ex vivo testing.

**Results:** Radiation was performed with a dose of 36-39.9 Gy, and PARPi was given as Olaparib 2x300mg per day. We demonstrate serious mucositis in a 80yr old patient with radiation treatment in the mediastinal region. She is BRCAwt and shows ERBB2 mutation (L755S), NF1 loss of exons 31-35, NF2 splice sites 1340+2T>A, a TP53 deletion (Y220C) and RB1 loss of exons 1-20. The second patient showed a very painful dermatitis grade III in the inguinal, vaginal region and has sBRCA1 (mutation Q1395L and Q1395L) with additional MYC amplification, TP53 deletion (N131), and MAP2K4 splice sites 513+2T<C.

**Conclusion:** Future trials, particularly in breast cancer which will combine PARPi with radiation in a regular manner, need to be designed examining combined toxicities. Dose reductions or sequential use should be considered. Increased toxicities might lead to non-compliance or cessation of PARPi, if not used in adequate manner. Whilst rarely used in ovarian cancer, like in our examples, PARPi would be an optimal radiosensitizer and combination with radiotherapy in breast cancer might result in dose and cost reductions



P 170

## Multi-site hospital as an efficient tool to mitigate the cesarean section rate: findings from a time-trend analysis in southern Switzerland

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**Introduction:** As a consequence of the global increase of the abdominal surgery in obstetrics, policy and service provision recommend the promotion of strategies to decrease the rates of cesarean section (CS). Influence of several factors, including local geography, should be accounted in the strategic planning to reduce CSs. The aim of this study is to investigate the role of the healthcare model based on a multi-site hospital in the mitigation the rise of CS in southern Switzerland.

**Material and Methods:** All deliveries occurred during a 9-year period (2010-18) in all settings were revised. Rates of modes of deliveries were calculated. Descriptive analysis and one-way analysis of variance (ANOVA) with post-hoc Bonferroni correction for multiple comparisons were used to test the hypothesis of linear trend across the temporal study groups. **PATIENTS:** All women requiring assistance at delivery at the Obstetric Units of the Ente Ospedaliero Cantonale allocated in Lugano, Bellinzona, Mendrisio and Locarno (Ticino, Switzerland). **MAIN OUTCOME MEASURES:** Trends in modes of delivery, dichotomized into vaginal deliveries (VD) and CS, according to the temporal criterion (Period I, 2010-12; Period II, 2013-15; Period III, 2016-18).

**Results:** A total of 16,286 women admitted for assistance at delivery were included in the analysis. A global rate of 76.6% of VD and 23.4% of CS was assessed. From Period I to Period III, a significant increase in VD rates (72.1 vs. 79.7%;  $p < 0.001$ ) was observed. By using ANOVA, a statistical linear tendency in reduction of CS birth rate from 27.9 to 20.3 per 100 births was calculated across the study periods ( $p < 0.001$ ). Successful decrease in CS rates were recorded in all intra-organizational settings of the multi-site hospital (from Period I to Period III in Lugano, from 35.5 to 28.5%; in Bellinzona, from 21.3 to 18.5%; in Mendrisio, from 28.0 to 17.9%; and in Locarno from 28.2 to 19.4%, ( $p < 0.001$ ), respectively).

**Conclusions:** Optimal healthcare systems should guarantee a prompt clinical assistance in presence of some geographical limiting factors, such as mountainous territory. A model based on a multi-site hospital represents an effective tool in achieving the international targets which are recommended in obstetrics.



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## Pregnancy outcome with prior uterine rupture

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Uterine rupture is a serious complication occurring during late gestational weeks or labor. It is associated with a significant maternal and neonatal morbidity and mortality. Risk factors include transmyometrial surgical incisions, as a previous C-sections and prior uterine rupture, especially in the uterine fundus. Risk factors of uterine rupture of an unscarred uterus include dystocia, the use of uterotonic drugs, multiple gestation, macrosomia, uterine anomalies, abnormal placentation and trauma.

We report a case of a primigravida, who had a traffic accident with polytrauma that resulted in uterine rupture in the 29th gestational week. The 10 cm rupture occurred in the uterine fundus and resulted in the extrusion of the fetus with consequent death. Following the delivery, uterine reconstruction was performed with absorbable sutures. 17 months later the patient conceived again. A MRI was done in III. trimester and ruled out a dehiscence or thinning of the scar. She was hospitalized in the 32nd gestational week when she presented with abdominal pain and fear for observation and the administration of antenatal corticosteroids. In the 35+4 gestational week due to recurrent symptoms the C-section was performed by low-isthmus transverse incision. Intraoperatively an incomplete rupture of 2 cm of the previous scar could be seen. She conceived a third time 16 months later and was again hospitalized in the 32nd gestational week due to abdominal pain. Antenatal corticosteroids were given. Outpatient follow-up was continued until she presented in the 34+5 gestational week with recurrent complaints. The C-Section and sterilization were performed and intraoperatively thinning of the lower uterine segment and scarring of the reconstructed parts could be seen, without any signs of rupture or dehiscence.

**Conclusion:** Careful management of a pregnancy with prior uterine rupture is advised due to increased risk of reoccurrence ranging from 0-33% in literature. The C-Section should be timed by the 34+0 gestational week with prior hospitalisation and administration of antenatal corticosteroids. It should be especially advised to patients with complaints in relation to the scar. Measuring the myometrium thickness by sonography or by MRI might be beneficial to plan the timing of hospitalisation and of the delivery. With regards to further pregnancies one should keep a pregnancy interval of at least 24 months and should be educated about possible risks prior to conception.



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## Case report: Urogynaecology meets orthopaedics

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**Introduction:** Stress urinary incontinence (SUI) plays an important role in gynaecological care and different treatments have been established in the last decades. Operative treatment can be considered when conservative approaches are exhausted and the patient is asking for further treatment. The minimal invasive and highly effective tension free vaginal tape (TVT) is today the gold standard for the correction of SUI.

**Methods and Material:** A 66 year old woman complains about a new pelvic pain while sitting or cycling and a pelvic foreign body sensation. Incontinence is denied but she complains voiding dysfunctions. A history of incontinence and prolapse is known with an abdominal Burch colposuspension at age 35 followed by a total abdominal hysterectomy with a Marshall-Marchetti-Krantz (MMK) age 43 due to recurrent SUI and an anterior repair for vaginal wall prolapse. At age of 57 she received a classic retropubic TVT insertion for mixed urinary incontinence with predominant SUI. Gynaecologic examination demonstrated a 5 cm in diameter periurethral tumor. Multichannel urodynamics showed moderate obstruction. The MRI-scan described a cystic tumor close to the pubic bone with a compression of the urethra and bladder anteriorly.

**Results:** In collaboration with the orthopaedic surgeons a median laparotomy with frozen section biopsy was performed. The tumor surrounded TVT mesh material and was removed in total and histology confirmed inflammatory changes without malignancy. The pubic bone had to be partially removed and thereafter stabilized. Postoperative course was favorable without pain. Obstructive voiding disorder was resolved and the patients complained about mild stress urinary incontinence. Bulking was discussed but declined by the patient due to few symptoms only.

**Discussion:** This case shows a rare complication after TVT insertion, which had a deleterious influence on the patient's quality of life. Long-time complications are barely investigated. The risk of a mesh erosion are described at about 3-5 percent nine years postoperative and are often symptomatic. The International Continence Society (ICS) and the international urogynecologic association (IUGA) developed a coding system to report and classify mesh complications that we use in clinical practice. Our aim is to sensitize our colleagues to long-term complications after this very popular operation, which drop out of any studies and statistics because of lack of long-term data and follow up.



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## Renal clear cell carcinoma metastasis to the breast thirty years after nephrectomy: a case report

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**Introduction:** Renal cell carcinoma (RCC) accounts for 3% of all adult neoplasms and in about 30% of patients metastasizes to the lung, lymph-nodes, bone or liver. Metastatic RCC to the breast is very rare, occurring in 3% of all metastatic RCC.

**Materials and Methods:** A 75-year-old woman presented with an incidental discovery of a mass in her left breast. She had undergone a right nephrectomy with hilar and paracaval lymphadenectomy in 1989 for a clear cell RCC, whose postoperative classification was pT1b pN0 M0 R0 requiring no adjuvant treatment. Routine mammography had been taken every three years from 1994 to 2014 resulting always normal. Clinical examination showed a 4 cm painless lump in the lower-inner quadrant of the left breast with axillary lymphadenopathy. Mammography and sonography showed a well circumscribed oval opacity with microcalcifications, measuring 33x27x39mm, in addition suspicious periareolar nodules and left axillary lymph nodes.

**Results:** Histopathological exam of the tru-cut biopsy revealed metastasis of clear cell carcinoma in both lower-inner quadrant and periareolar region of the left breast, compatible with the known RCC. Immunohistochemistry showed expression of PAX-8, CD10 and Vimentin, Ki-67 proliferation index was 70%. The patient was admitted in hospital presenting productive cough, fever and weight loss of 10kg in the latter month. CT angiography and abdominal CT scan showed neoplastic pulmonary parenchymal lesions and multiple mediastinal lymphadenopathy compressing vascular and bronchial structures, as well as pathological lombo-aortic adenopathies. Bronchoscopy revealed sub-total occlusion of the right upper lobe. A post-stenotic pneumonia was diagnosed and treated with antibiotics. Oncologic treatment proposal was a combined immunotherapy with Nivolumab and Ipilimumab.

**Conclusions:** This case is unusual because of the site and time interval of metastatic progression of RCC. Literature review shows 25 cases with breast metastasis, 14 occurred 3-18 years after nephrectomy. Our case is the first one published reporting breast metastasis 30 years after primary therapy. It is important for physicians to be aware of this progression, so early and correct diagnosis can be made.



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## Giant Endometrial Polyp in post-menopausal women - A Case Report

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**Introduction:** Endometrial polyps are localized growths of the endometrial lining of the uterus. Polyps greater than 4cm, which are very rare, are called "giant polyps". The exact incidence of endometrial polyps is unknown; however, the prevalence of endometrial polyps ranges from 10% to 24%.

**Material and Methods:** An 81 year-old secundiparous presented with a chief complaint of lower abdominal pain without uterine bleeding. She had not sought gynecologic care for several years. Her past medical history was uneventful except for treated arterial hypertension and two previous cesarean sections. On bimanual examination, the uterus was augmented, smooth and mobile, without palpable adnexal masses. Transvaginal ultrasound showed a 10.5x8x8.7cm uterus, the uterine cavity was filled up with a heterogeneous mass of 8x8.7cm with multiple cystic small spaces, without vascular sign. Pelvic MRI excluded infiltration of myometrial wall or pathologic pelvic lymph nodes. A diagnostic hysteroscopy with biopsy of the lesion was performed. Histology showed an endometrial glandular-cystic polyp without atypia. Complete hysteroscopic removal was not possible due to the size of the polyp. Abdominal hysterectomy with bilateral adnexectomy was thus indicated.

**Results:** Pathology confirmed glandular-cystic polyp without hyperplasia or malignant fractions. The polyp measured 9.5cm in its greatest dimension. The patient was discharged on the 4th day after surgery in good clinical conditions.

**Conclusion:** Giant endometrial polyps are a rare entity. There are only 4 cases of giant polyps greater than 9 cm described in literature. 10% to 25% of symptomatic polyps may contain hyperplastic foci and malignant transformation has been observed in about 0 to 12.9%. The literature shows a clear correlation between postmenopausal status and augmented risk of malignancy or hyperplasia. Data regarding size and risk of malignancy are not conclusive, although size >1.5cm seems, in one study, associated with a higher risk of malignancy. If feasible, hysteroscopic polypectomy remains the mainstay of management for endometrial polyps. Regardless of which method is employed, removal of the entire polyp should be achieved, because histopathological examination is mandatory for its definitive diagnosis.



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## ASCITES IN CHLAMYDIAL INFECTION: A CASE REPORT

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**Introduction:** Chlamydia is a major cause of pelvic inflammatory disease (PID), which can be complicated by perihepatitis and rarely ascites, sometimes making it difficult to diagnose. To date, less than 30 cases of Chlamydial ascites have been described in literature.

**Material and Methods, case report:** A 31-year-old multipara woman with a Mirena IUD contraceptive device was diagnosed with ascites after USTV at her yearly gynecological review. A CT of the abdomen and pelvis was remarkable for moderate-volume ascites and mild enhancement of the pelvic peritoneum. One week later the patient presented to the emergency unit for abdominal pain without fever. Laboratory findings showed leukocytosis (15 G/L with an increase of neutrophils, negative PCR 3 mg/L). A second CT was performed which confirmed ascites and showed a suspicious right adnexal mass. Paracentesis of ascites fluid revealed leukocytosis. A gynecological examination was performed, confirming signs of peritonitis, an absence of increased vaginal discharge and cervical motion tenderness. The USTV revealed bilateral slightly enlarged non-homogenous ovaries and significant ascites in the pouch of Douglas. In addition, tumor markers were analyzed for suspicion of ovarian or gastro-intestinal malignancy. Pelvic inflammatory disease was assumed and the patient was hospitalized for IV administration of antibiotics with Clindamycin 600mg/8 h, Doxycycline 100 mg/12 h and Gentamicin 260 mg/24 h (due to Penicillin allergy). On the first day of hospitalization there was an increase of PCR 113 mg/L and the first episode of fever. CA-125 was elevated, at 204 kU/L. A laparoscopy was performed with the subsequent removal of the IUD.

**Results:** The laparoscopy revealed diffuse peritonitis, 300mL of exudative ascites, a bilateral pyosalpinx and no evidence of Fitz-Hugh-Curtis syndrome. The cervical swab tested positive for Chlamydia trachomatis. IV antibiotic therapy was administered for the 5 days of hospitalization for a confirmed diagnosis of PID with exudative ascites due to Chlamydia infection. Since discharge, the patient completed her oral antibiotic course reporting resolution of all symptoms and produced a negative result on a Chlamydia cervical swab 3 weeks later.

**Conclusion:** Chlamydia infection should be considered in the differential diagnosis of ascites in all young sexually active females. PID is a rare cause of ascites but should be suspected for preventing unnecessary diagnostic testing and allowing appropriate treatment.



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## Comparison of peak systolic velocity (PSV) in the umbilical artery (UA) and vein (UV) in monochorionic twins complicated by selective fetal growth restriction (FGR)

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**Introduction:** Selective FGR (sFGR) is a complication observed in about 10-15% of all monochorionic (MC) pregnancies, causing a significant increase in perinatal mortality and morbidity. We know there is a positive correlation between the PSV in the UA and the blood volume flow (ml blood/min). The blood flow and consecutively the PSV is reduced in FGR singleton pregnancies. Aim of our study was to investigate the behavior of the UA and UV in a complex hemodynamic situation, such as MC twins complicated by selective FGR.

**Material and Methods:** A retrospective study was performed on 100-MC pregnancies with sIUGR between January 2007 and December 2019. Cases with coexisting twin-twin transfusion syndrome (TTTS) were excluded. Doppler indices, including those of the umbilical artery (UA) and umbilical vein (UV) were recorded longitudinal. UA end-diastolic flow, defined as Doppler waveform pattern Type I (persistently positive), Type II (persistently absent or persistently reversed) or Type III (intermittently absent or intermittently reversed), was also recorded. In this subanalysis we compared the PSV values of the umbilical artery and vein of the two fetuses. Parametric and non-parametric tests were used for statistical analysis.

**Results:** Up to now we included the data of 33 MC pregnancies. The mean gestational age by inclusion (=diagnosis) was  $24.9 \pm 6.2$  weeks whereas the mean gestational age by delivery  $31.8 \pm 4$  weeks. Four Doppler examinations of each case were included. In our cohort there were 18 cases with waveform pattern Type I, 12 with Type II and 3 with Type III. Both the mean PSV of the UA and UV in the fetuses with sFGR was significant lower compared to the other twin ( $33.49 \pm 8$  vs  $46.47 \pm 13$  cm/s,  $p < 0.001$  and  $15.04 \pm 3.8$  vs  $11.93 \pm 2.9$  cm/s, respectively). The correlation of the PSV of the UA and UV with gestational age was not significant in the appropriate for gestational age (AGA) fetus ( $r = 0.12$ ,  $p = 0.25$  and  $r = 0.13$ ,  $p = 0.33$ ). Whereas in the sFGR fetus the PSV of the UA showed a positive correlation ( $r = 0.25$ ,  $p = 0.01$ ). Of interest, 7/32 (21.8%) sFGR fetuses had a singular umbilical artery (SUA).

**Conclusion:** As expected, the PSV in both UA and UV is significantly lower in the sFGR twin. Additional in our MC twin population complicated by sFGR we noticed a high incidence of SUA. We hope that the further examination of the PSV difference between MC twins especially before the sFGR diagnosis will reveal more information about the blood flow pattern in these cases.





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## Detecting BRCA1 and BRCA2 large genomic rearrangements in FFPE tissue: Orthogonal cross-validation of the Oncomine BRCA1 and BRCA2 Panel

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**Background:** BRCA mutation status has a predictive and prognostic value regarding the response to platinum-based chemotherapy and poly ADP ribose polymerase (PARP)-inhibitors. According to the results of SOLO-1 study, patients with BRCA-mutated platinum-sensitive high-grade ovarian cancer treated with olaparib as maintenance therapy had a 70% lower risk of disease progression. While the demand for BRCA mutation testing increases, large genomic rearrangements, which account for a small but still significant proportion of cases, may be missed by next generation sequencing. The amplicon-based Oncomine BRCA1 and BRCA2 Assay by Ion Torrent is a test routinely used for detecting aberrations within the BRCA1 and BRCA2 genes in diagnostic formalin-fixed paraffin-embedded (FFPE) specimen. The assay is validated for the detection of mutations and small insertions and deletions (indels), however, data on the performance of the test regarding the detection of large genomic rearrangements, especially in FFPE tissue, is sparse.

**Methods:** We used routine diagnostic FFPE samples in order to compare the Oncomine BRCA1 and BRCA2 Assay with the OncoScan and Foundation CDx test for the detection of loss of heterozygosity (LOH) and complete gene loss, respectively. In a second step we tested blood samples and the corresponding FFPE tissue of three patients with germline BRCA1 exon deletions that were previously determined in blood by multiplex ligation-dependent probe amplification (MLPA).

**Results:** Oncomine BRCA1 and BRCA2 Assay and OncoScan SNP Array show an overlap in the detection of LOHs in the BRCA1/2 genes. The BRCA2 complete loss reported by the Foundation CDx test was also detected with the Oncomine BRCA1 and BRCA2 Assay. Most importantly the already known germline exon 17, exon 20 and exon 20-21 deletions of the 3 patients were detected and correctly called in the FFPE tissue by the Oncomine BRCA1 and BRCA2 Assay.

**Conclusion:** We performed an orthogonal validation of the Oncomine BRCA1 and BRCA2 Assay and showed that it detects known, therapeutically relevant aberrations in the genes BRCA1 and BRCA2. Screening for mutations including large genomic rearrangements directly in tumour FFPE tissue using the test is feasible and fast and should be considered in routine diagnostic testing of ovarian cancer patients.



P 178

## Impact of ursodeoxycholic acid versus placebo in the treatment of the intrahepatic cholestasis of pregnancy on perinatal outcomes: a systematic-review and meta-analysis of randomized controlled trials

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**Introduction:** Intrahepatic cholestasis of pregnancy (ICP) is the most common liver disorder specific to pregnancy and presents with maternal pruritus, raised concentrations of serum bile acids and abnormal liver function tests. ICP is associated with increased rates of spontaneous and iatrogenic preterm labour, fetal hypoxia, meconium-stained amniotic fluid and intrauterine death. Treatment based on ursodeoxycholic acid (UDCA) might be offered. In contrast to maternal benefits in reducing pruritus and improving liver function, conflicting evidence are present to support additional advantages on pregnancy outcomes.

**Objective:** To investigate the role of UDCA in the management of ICP for reducing adverse perinatal outcomes (APO).

**Material and Methods:** Randomized clinical trials (RCTs) reporting pharmacological interventions based on UDCA versus placebo were included. Medline and Embase databases were searched. The primary outcome was any of the following APO: perinatal death, delivery less than 37 weeks' gestation, or neonatal unit admission. Random-effect meta-analyses of proportions were used to analyze the dataset.

**Results:** Six RCTs (734 patients, 373 treated with UDCA and 361 with placebo) were eligible for inclusion. Meta-analysis results indicated that the occurrence of APO was not statistically significant between study groups (OR = 0.38 [95% CI, 0.14-1.81]).

**Conclusions:** Treatment with ursodeoxycholic acid does not reduce adverse perinatal outcomes in women with intrahepatic cholestasis of pregnancy. However, limited information about severity of ICP in the study population does not allow to be conclusive, requiring additional investigations.



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## Pass me the sugar, please - Successful reduction of the ileum using sugar after evisceration through a vaginal cuff dehiscence 5 months after laparoscopic resection of the sigma and 5 years after vaginal hysterectomy

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**Introduction:** Vaginal cuff dehiscence is a rare complication after hysterectomy, most common occurring in the first weeks after surgery. The incidence is reported between 0.14% and 4.1%. A vaginal cuff dehiscence with evisceration of abdominal organs such as the distal ileum is an even rarer event with 0.032% to 1.2%. Due to the imminent insufficient perfusion of the expelled organs an evisceration has to be treated as a medical emergency.

**Material and Methods:** We present the case of a 65 years old female with an evisceration of 70cm of the ileum through a total vaginal cuff dehiscence 5 years after vaginal hysterectomy and sacrocolpopexy. Five months before she underwent a laparoscopic resection of the sigma after an acute inflammation due to a rupturized diverticulitis. According to her the evisceration occurred suddenly during the micturition, there was no sexual intercourse or vaginal manipulation the weeks before. The applied therapeutic procedure consisted of manual reduction of the bowels using sugar, monitoring the reperfusion and checking for inflammation by laparoscopy followed by the vaginal cuff closure.

**Results:** After successful and fast reduction of the ileum through the vagina using sugar for detumescence, the following laparoscopy showed a fast reperfusion. A bowel resection could be avoided. Inspection of the dehiscent vaginal cuff from intraabdominal and vaginal showed no sign of an actual infection or malignancy, but the distal two centimeters of the vagina were necrotic and without sufficient perfusion. Most likely the initial damage of the vaginal cuff occurred due to an inflammatory response or a thermic damage during the laparoscopic resection of the sigma five months before. Vaginal resection of the necrotic parts and vaginal cuff closure were achieved without complications. The patient stayed in hospital for 5 days with a stomach tube for the first two days and gradual return to solid food during the next days. An intraabdominal drainage remained in place for 4 days. Daily vaginal estriol application was recommended and the final control 4 weeks after the surgery showed no sign of dehiscence of the vaginal cuff.

**Conclusion:** Vaginal cuff dehiscence with evisceration of the bowels is a rare, but critical event. Using sugar for detumescence of the bowels can facilitate the reduction of the expelled bowels. A laparoscopy to check the reperfusion and search for intraabdominal inflammation causing the cuff dehiscence is highly recommended.



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## Complication rate in colorectal surgery of deep infiltrating endometriosis – an analysis of the last 3 years at the university hospital Inselspital Bern

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**Introduction:** Deep infiltrating endometriosis (DIE) is reported in approximately 20% of women suffering from endometriosis. The term describes endometriosis lesions infiltrating to a depth of more than 5mm. Intestinal involvement is seen in approximately 3-37 % of the patients, mainly affecting the distal sigmoid colon and rectum. Possible operative modalities consist in rectal shaving, full thickness or disc excision and resection of an intestinal segment. In this retrospective analysis, the aim was to analyze the rate of anastomosis insufficiency of women having undergone surgery for intestinal DIE . It is known that a deeper resection margin leads to a higher risk for an anastomosis insufficiency, however other risk factors specific to DIE are not known so far. Risk factors for anastomosis insufficiency are already known for colorectal surgery in colorectal cancer but can not be applied to women suffering from DIE, since they differ fundamentally from this collective, usually being young and healthy.

**Methods:** We recorded all patients prospectively having undergone surgery for DIE at the certified endometriosis center from the department of obstetrics and gynecology at the University Hospital of Bern in 2017, 2018 and 2019. We analyzed their operation modalities and postoperative adverse outcomes with regard to anastomosis insufficiency.

**Results:** From a total of 199 patients with surgery for DIE, 69 patients underwent 74 interventions of colorectal surgery such as shaving, disc resection or segmental resection due to DIE. The most commonly affected was the rectum (41/69, 59.4%), followed by the sigmoid colon (12/69, 17.3%) or both the rectum and the sigmoid colon (16/69, 23.3%). The operation modalities consisted in segmental resection (40/74, 54.1%), disc resection (9/74, 12.1%) and shaving (25/74, 33.8%). Anastomosis insufficiency was detected in 4 (5.4%). 3 Cases occurred after segmental resection, one after a disc resection. All cases of anastomosis insufficiencies were restricted to the rectum. The mean level of the resection distance to the anus was 6.5cm.

**Conclusion:** Anastomosis insufficiency is a rare, however severe complication to colorectal surgery and most likely occurs in low rectum resections.



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## Menstrual cups – Is there really a higher risk of IUD-dislocation in simultaneous use

**Author:** Fiedler A., Aichner S., Christmann C.

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**Introduction:** Loser et. al presented two cases of IUD dislocation in women utilizing menstrual cup (MC) at the annual SGGG congress 2019. Consecutively we observed multiple dislocations in a single women.

**Case report:** A triple IUD dislocation in a women using a MC. No other risk factors were identified.

**Material and Methods:** All IUD product inserts/ handouts were searched for information regarding MCs, an extensive pubmed research was performed, swissmedic contacted whether they have received notifications about this topic. All manufactures of different IUD systems available in Switzerland received an email asking for information about IUD expulsion in MC users and whether other risk factors are known of simultaneous use of MC.

**Results:** No product handouts warned for the risk of IUD dislocation simultaneously using MCs. The pubmed research resulted 77 hits for “menstrual cup”. Three had the topic of IUD-expulsion. A retrospective chart survey showed no evidence for an increased risk. A case series and a analysis of selfreports indicate a higher risk with no risk factors identified. We found one case report of a retained MC, four of renal colic or hydronephrosis and one case with a toxic shock syndrome. None of these complications was observed simultaneous using IUD. One large meta-analysis and review of literature shows all the above mentioned complications. Swissmedic has not received any notifications for IUD dislocation connected to MCs. Four companies provide IUDs in Switzerland. None of them has received any notifications about other risks factors regarding concomitant use of MCs. Two of them have no direct information about a higher risk of dislocation. One company reported two known events and is thinking about updating the product handouts. One company already updated their product handout in 2018, but did not explain us why they did.

**Discussion:** In conclusion, we still don't know if there really is a higher risk of IUD-dislocation for women simultaneous using MCs, but women have to be informed about the possibility. MC manufacturing companies inform women with a IUD inserted by product handout that they are at higher risk of an IUD dislocation. Definitely we all have to inform Swissmedic about every case of IUD-dislocation and other complications related to MCs. Besides, our research revealed further possible complications of MCs not linked to IUD use clinicians should be aware of.



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## Growing Teratoma Syndrome / Gliosis peritonea - A Case Report

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In 2016 a 15-year-old girl presented to the emergency department complaining of lower abdominal pain for two weeks. An abdominal ultrasound showed a tumor of 160 x 110 x 96 mm in the lower abdomen with solid components. A laparoscopic extirpation of the tumor was performed. Histologic results showed an immature high grade teratoma of the right ovary FIGO IC1, R1, G2 with 15 % immature neuroectodermal components as well as mature teratoma components. A laparoscopic right adnexectomy was performed thereafter. The first relapse occurred after six months, and another laparoscopy was performed aiming to resect metastases of the left ovary and in the minor pelvis. Surgery was followed by adjuvant chemotherapy with Vincristine weekly. After 16 months, the second relapse occurred with metastases in the diaphragm, uterus, and excessive infestation of the peritoneum. Biopsies of these metastases once again showed parts of a yolk sac tumor G0. Because of these findings, we diagnosed a Growing Teratoma Syndrome (GTS) in this patient. In July 2019, we performed a multidisciplinary fertility-preserving Debulking surgery with total deperitonealisation sparing only the left adnexa. The postoperative course was without significant complications.

In summary: Benign teratomatous elements usually enlarge and therefore mimic progressive or relapsed disease in Growing teratoma Syndrome. The disease occurs during or after chemotherapy for malignant nongerminomatous germ cell tumors, as with our patient. GTS is an important differential diagnosis in such cases. The disease is known to be chemotherapy- and radiotherapy-resistant. Therefore therapy consists of complete surgical resection. Especially in young patients, fertility-preserving approaches should be considered.



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## Non-molar choriocarcinoma

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**Introduction:** Non-molar choriocarcinomas are a rare entity among gestational trophoblastic neoplasias (GTN), with an estimated incidence of 1:50'000. GTN with brain metastasis are fewer, with an overall risk estimated at 2-3 cases per million pregnancies.

**Case report:** A 32 year old G1P1, with a history of hypertension, who underwent intra-uterine insemination, followed by a term pregnancy, needing an emergency C-section in 2018, due to foetal heart rate anomalies. Three months post-partum her menses came back, with a regular cycle of 28 days, without contraception. Due to an amenorrhea of two months her gynaecologist performed a pregnancy test, revealing a pregnancy of unknown localisation, with beta hCG at 250 U/l. A week later the patient consulted the emergency department due to uncommon and intense headaches. Cerebral CT revealed a subarachnoid hematoma, requiring emergency neurosurgery. Pathologic diagnostic concluded choriocarcinoma. PET-CT was performed showing a pulmonary nodule and hepatic lesion. FIGO 2000 scoring was > 7, qualifying as a high risk tumour, requiring multi-chemotherapy. Low-dose chemotherapy by etoposide and cisplatin was introduced for a total of three cycles, with beta hCG remission <3 U/l. Meanwhile a genetic exam has been performed confirming a gestational choriocarcinoma. Chemotherapy was continued by an EMA-CO schema for 4 cycles, with high dose methotrexate due to cerebral involvement. After eight weeks of chemotherapy beta hCG remained negative. A control MRI and PET-CT show complete regression of metastatic nodules. Furthermore a QF-PCR of 20 microsatellites on the chromosomes 13, 18, 21 and X has been performed, which shows completely identical alleles between the patient's firstborn child and the tumoral biopsy. This same genotype allows the diagnostic of a non-molar choriocarcinoma, which thus originates from the first pregnancy dating from 2018. Thereby the FIGO score amounts to a total of 12, making this an extremely high risk case, with a positive end outcome.

**Conclusion:** GTN mostly occur after complete molar pregnancies, but even a normal pregnancy may lead to a GTN. Genetic analysis is important when it comes to GTN to determine which pregnancy was at the origin of the disease, and to allow correct FIGO scoring. Even metastatic choriocarcinomas are responding very well to chemotherapy, with an estimated survival rate of 85% for GTN with brain metastasis.



P 184

## A web-based survey in assessing primary and preventive care for women of childbearing age among gynecologists in Switzerland (PreConceptCare Study)

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**Introduction:** Preconception care (PCC) is defined as health education, risk assessment and intervention before pregnancy for women of childbearing age and their families. The main benefit from PCC is the reduced risk of developing complications for the maternal-fetal dyad. Since the preconception period is defined as a window of opportunity for public health, efforts to endorse its promotion appear mandatory. To investigate the current practice of PCC among gynecologists in Switzerland and to recognize any potential weaknesses requiring ad hoc enhancements.

**Methods:** A web-based anonymous survey available in Italian, French, German and English will be sent by the Société Suisse de Gynécologie et d'Obstétrique (SSGO) secretary to all certified members. This includes sociodemographic information, details regarding training, attitude in performing PCC (i.e., duration of visit, PCC-to-pregnancy interval, etc.) and obstetric outcomes, if available. The closed-ended questionnaire can be filled out in 5 minutes. The survey will be sent out by March 1st, 2020 and the expected end date of the survey is fixed for March 31st, 2020. Statistical analysis, including Student's t-test for independent samples and Mann-Whitney-U, Pearson- $\chi^2$ , or exact Fisher's tests will be used to compare quantitative and qualitative data, respectively. Normal distributions will be assured by the Shapiro-Wilk test. All tests will be two-sided, and p-values lower than 0.05 will be considered statistically significant. IBM SPSS 23.0 (Armonk, NY, USA) and R version 2.15.1 (The R Foundation for Statistical Computing) with package version 1.7.2 software will be used for statistical analyses.

**Results:** Based on previous similar investigations involving health professionals, a response rate of at least 50% is expected. Findings on attitude to perform PCC and details about it will be presented at the SGGG congress in July 2020. Our results will be useful not only to inform about the state of art of PCC in Switzerland, but also to endorse its practice by using an adequate educational and structural support.

**Conclusion:** The potential health benefits of PCC are considerable and efforts to increase it should be encouraged.





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