台灣婦產科醫學會 114 年度年會暨學術研討會

論文摘要

稿件編號：OF1

臨時稿件編號：
1415

自體血小板濃縮液注射:改善體外受精治療中卵巢反應不良的潛力方案
Autologous Platelet-rich plasma (PRP) Injections as a Promising Approach for Managing Poor Ovarian Response in IVF Treatments

李侑蓁[1] 陳怡君[1] 鄭恩惠[1] 李俊逸[1,2,3] 林秉瑤[1] 陳忠義[1] 黃俊嘉[1] 陳明哲[1] 李茂盛[1,3,4]

茂盛醫院[1] 中山醫學大學醫學系婦產科[2] 中山醫學大學附設醫院婦產部[3] 中山醫學大學醫學研究所[4]

論文發表方式：
口頭報告

論文歸類：
生殖內分泌

Objective:
Poor ovarian responders (POR) exhibit inadequate responses to ovarian stimulation, resulting in fewer oocytes, and reduced pregnancy outcomes. Autologous platelet-rich plasma (PRP), rich in growth factors and cytokines, has emerged as a promising therapy for enhancing ovarian function. Recent studies have shown that PRP can improve ovarian function in women with POR, leading to the generation of more follicles. With limited success in current treatments for POR, this research aims to explore PRP as a potential adjunctive therapy to enhance oocyte retrieval and embryo quality.
Material and methods:
This prospective case-control study was conducted at Lee Women's Hospital from July 2020 to September 2024 (IRB: CS2-20037). A total of 60 women undergoing in vitro fertilization (IVF) and diagnosed with POR [clinical criteria: fewer than 4 eggs retrieved and AMH <1.1 ng/ml] were enrolled and divided into two groups: a control group (n=30) and a PRP injection group (n=30). PRP was prepared from the patients' blood and injected into the ovarian cortex under ultrasound guidance. The primary outcomes measured included the number of oocytes retrieved, mature oocytes (MII), 2PN embryos, good-quality embryos, and blastocysts. Statistical analysis was performed using SPSS 22.0 to evaluate the efficacy of PRP in treating POR.
Results:
When comparing the clinical characteristics of the control group and the PRP-injection group, no significant differences were observed in age, BMI, AMH levels, duration of infertility, or the number of IVF cycle failures. After PRP treatment, several parameters significantly improved, including the number of MII oocytes (1.5±1.8 vs. 0.9±0.9, p=0.049), 2PN embryos (1.3±1.7 vs. 0.7±0.7, p=0.017), total blastocysts (0.6±0.8 vs. 0.1±0.3, p=0.001), and good-quality blastocysts (0.4±0.7 vs. 0.2±0.2, p=0.005). Additionally, the oocyte maturation rate (67.6% vs. 50.0%, p=0.048), total blastocyst rate (47.5% vs. 20%, p=0.039), and good-quality blastocyst rate (27.5% vs. 5%, p=0.040) significantly improved following PRP injection. Furthermore, in subsequent oocyte retrieval cycles after PRP injection, the improvements persisted, including basal FSH and LH levels, the number of MII oocytes, 2PN embryos, D3 good embryos, total blastocysts, and good-quality blastocysts. All these parameters showed significant improvement compared to the pre-treatment cycle.
Conclusions:
Autologous PRP injections significantly improve embryo quality and quantity in POR patients, showing promise as a treatment to enhance ovarian function and improve ART outcomes. Further studies are needed to clarify PRP mechanisms and optimize its application in reproductive medicine.

稿件編號：OF2

臨時稿件編號：
1404

雙酚 A 誘導的人類子宮內膜異位基質細胞的全基因組表達
Genome-wide expression of bisphenol A-induced human endometriotic stromal cells

王凱弘 [1]
台南郭綜合醫院婦產部 [1]

論文發表方式：
口頭報告

論文歸類：
生殖內分泌

Introduction
Bisphenol A (BPA), an estrogenic-like endocrine disrupting chemical, is one of the most widely produced chemicals in the world. Recent studies have found that BPA is associated with female reproductive disorders such as recurrent or spontaneous miscarriage, endometrial hyperplasia, and endometriosis. Endometriosis is a chronic gynecological disease affecting women of childbearing age. It is mainly caused by the implantation of uterine tissue at ectopic abdominal places, originating from retrograde menses. This ectopic endometrium responds to hormonal signals, causing dysmenorrhea, chronic pelvic pain, and infertility. To obtain clues as to the etiology and pathophysiology of endometriosis, genome-wide expression analysis of eutopic and ectopic endometrium has already been reported; however, the impact of BPA on the expression profile of endometriosis progression has not been studied. In this study, we used genome-wide expression to explore the regulation of endometriotic stromal cell-related genes by BPA.
Materials and methods
Endometriotic stromal cells isolated from human ovarian endometrioma (hEN-SCs) were used in this study. Genome-wide expression was analyzed using Illumina Whole Genome Expression Arrays and RT-PCR. Protein expression was performed using western blot analysis.
Results
Whole genome expression profiling identified 2,892 differentially expressed genes, with 1,679 genes upregulated and 1,213 downregulated in BPA-treated hEN-SCs. 81 out of 1,679 upregulated genes (4.8 %) significantly increased more than tenfold in their expression. Among these 81 genes, ESR1, HSD17B1, OXTR, VPS37D, AXUD1, and TP53I13 were confirmed to be genes related to the pathogenesis of endometriosis. To verify these results, we quantified the gene and protein expression of these six genes using RT-PCR and western blot analysis, respectively. RT-PCR results showed significantly higher expression in BPA-treated hEN-SCs than hEN-SCs (14.1, 7.3, 10.2, 4.1, 7.8 and 5.1-fold increases in ESR1, HSD17B1, OXTR, VPS37D, AXUD1 and TP53I13, respectively). However, western blot analysis results revealed that only HSD17B1 and OXTR protein expressions were significantly higher in BPA-treated hEN-SCs than hEN-SCs (5.9 and 3.8-fold, respectively). According to related research and literature reports, HSD17B1 is a risk factor for infertility in women with endometriosis. OXTR expression is associated with endometriosis-related fertility and endometriosis-related symptoms.
Conclusion
The results provide evidence of the adverse effects of BPA on endometriosis. We hope to further understand the mechanism of this endocrine disrupting chemical on the progression of endometriosis through this research model.

稿件編號：OF3

臨時稿件編號：
1635

剖腹產生產史對於胚胎非整倍體基因檢測的冷凍囊胚植入後著床率的影響

Effect of a prior cesarean section delivery on implantation rates of frozen-thawed embryo transfer in PGT-A cycles

詹子葳[1] 陳怡婷[1] 黃俊嘉[1] 陳秀惠[1] 陳建宏[1] 李俊逸[1,2] 陳忠義[1] 黃梨香[1,3] 李宗賢[1,4,5,6] 李茂盛[1,4,5,6]
茂盛醫院生殖中心[1] 中山醫學大學醫研所[2] 中山醫學大學護理系[3] 中山醫學大學[4] 中山醫學大學醫研所附設醫院婦產部[5,6]

論文發表方式：
口頭報告

論文歸類：
生殖內分泌

Background: Little is known about the relationship between previous mode of delivery and the success of subsequent assisted reproductive treatments. The freezing-all strategy provides a new model to study the independent impact of prior caesarean section (CS) on embryo transfer outcomes. One adverse effect of CS reported in some studies is an increased risk of subfertility. No studies have evaluated the relationship between previous mode of implantation outcomes after frozen blastocyst transfer (FET) in aneuploidy preimplantation genetic testing (PGT-A) cycles. In this study, we primarily investigated the impact of a history of CS on PGT-A-FET results compared with a history of vaginal delivery (VD).
Methods: This single-center retrospective cohort study included 215 patients who underwent PGT-A-FET cycles from October 2021 to July 2024 in Lee Women's Hospital. In total, 134 women with a previous VD were assigned to the VD group, and 81 women with a history of delivery by CS were assigned to the CS group. Patients with age > 45 years, repeat implantation failure (RIF) or recurrent pregnancy loss (RPL) were excluded in this study. Only qualified and expanded blastocyst was selected for trophectoderm biopsy. All FET cycles have least one euploidy or low mosaicism (30%) blastocyst with top quality (ICM and TE was least B grade) for transfer. A hormone replacement treatment (HRT) protocol was used for the endometrium preparation. The primary outcome measure was clinical pregnancy and implantation rates. Univariate and multivariate logistic regression analyses were performed using the GEE analysis. Binary logistic regression analyses were performed to explore the association between clinical outcomes.

Results: Average of women age was 37.3±3.7 years. The overall clinical pregnancy and implantation rates were 78.6% (169/215) and 65.7% (239/364), respectively. Compared with the VD group, the clinical pregnancy rate (81.3%, 109/134) was lower in women with a history of CS (74.1%, 60/81). Furthermore, the implantation rate in VD group (69.8%, 157/225) was significantly higher than that in CS group (59.0%, 82/139, p=0.034). The miscarriage rates between CS and VD groups (12.8%, 14/109 vs. 10.2%, 6/59) were no significantly different. When adjusted for women age and patient characteristics, only the positive association between endometrium thickness and pregnant success was maintained (OR: 1.18, 95% CI: 1.004-1.379). In addition, all patients were further divided into 4 subgroups based on endometrial thickness (ROC curve cutoff is 10 mm). The clinical pregnancy and implantation rates in group of endometrial thickness ≧10 mm (83.8%, 171/206 vs. 69.9, 253/362) was significantly higher than that in group of endometrial thickness < 10 mm (68.0%, 83/122 vs. 54.2%, 115/212, p<0.001). However, the implantation rate in group of CS with endometrial thickness ≧10 mm (64.6%, 64/99) was significantly lower than that in group of VS with endometrial thickness ≧10 mm (76.2%, 109/143).

Conclusions: This study showed that the presence of CS did not significantly reduce clinical pregnancy rates after PGT-A-FET compared with VD group. However, even in patients with endometrial thickness ≧ 10 mm, CS group showed significant defects in implantation. We suggested that CS may have a certain degree of influence on implantation.

論文摘要

稿件編號：OF4 臨時稿件編號： 1403	IL-1β 降低顆粒細胞的間隙連接通訊和 FSHR 表現 Interleukin-1β reduces gap junctional intercellular communication and follicle-stimulating hormone receptor expression in granulosa cells 王凱弘 [1] 台南郭綜合醫院婦產部 [1]
論文發表方式： 口頭報告 論文歸類： 生殖內分泌	Introduction Interleukin-1β (IL-1β) is an important cytokine that simultaneously regulates the production of inflammatory mediators and affects female reproduction. In mammals, the follicle is the functional unit in the female reproductive organ. The ovarian follicle is the functional unit of the ovary and is composed of an oocyte surrounded by layers of somatic follicular cells (granulosa cells; GCs) and a basement membrane. Since oocyte quality (oocyte maturation, ovulation, and luteal growth/involution relies) is positively correlated with efficient gap junctional intercellular communication (GJIC) between GCs, female fertility may be reduced when GCs undergo apoptosis. Connexin43 (Cx43) is an important gap junction protein required for communication between GCs and GCs or oocytes. The extant literature proves that follicle-stimulating hormone (FSH) can increase the expression of Cx43 in GCs. Since FSH acts exclusively through its receptor, the abundance of FSH receptors (FSHR) determines the sensitivity of GCs to FSH and its activity on these GCs. This study mainly investigated whether IL-1β affects the GJIC and FSHR expression in GCs and explored its possible mechanism. Materials and methods The GCs were collected from patients undergoing IVF procedures after controlled ovarian stimulation. GJIC was determined using the scrape loading-dye transfer technique. FSHR and Cx43 expression was quantified by immunofluorescence staining and reverse transcription polymerase chain reaction (RT-PCR) analysis. Results In our previous study, we demonstrated that IL-1β exerts adverse effects on GCs, including increasing the expression of apoptotic rate genes (caspase-3) and inflammatory cytokines (COX-2 and IL-8). From this study, we first found that GCs treated with different concentrations of IL-1β (0, 5, 10, 15, 20 ng/ml) for 24 hours showed a dose-responsive decrease in GJIC ability. To further elucidate the mechanisms of IL-1β on GJIC in GCs, RT-PCR and immunofluorescence staining were used to detect the effect of IL-1β on Cx43 expression. The results clearly show that the Cx43 level of GCs was significantly downregulated after 24 hours of treatment with IL-1β (10, 15, 20 ng/ml). Next, we analyzed the effect of IL-1β on FSHR expression in GCs. The results showed that IL-1β (20 ng/ml) significantly reduced FSHR expression in GCs. Conclusion Our study shows that IL-1β could reduce FSHR and Cx43 expression in GCs and decrease the GJIC ability of GCs, thereby leading to IL-1β-induced female reproductive disorders.

稿件編號：OF5

臨時稿件編號：
1414

PGT-A 對懷孕及新生兒影響: 台灣生殖資料庫研究(2015-2019)
Pregnancy and Neonatal Outcomes of PGT-A: A Pilot Study from Taiwan's ART Registry (2015–2019)

徐以樂[1] 陳姿廷[2] 張至婷[2] 莊蕙瑜[2] 蔡英美[2]
屏東基督教醫院婦產科[1] 高醫婦產部[2]

論文發表方式：
口頭報告

論文歸類：
生殖內分泌

Objective: This study evaluates the impact of preimplantation genetic testing for aneuploidy (PGT-A) on pregnancy and neonatal outcomes using data from Taiwan's national assisted reproductive technology (ART) registry (2015–2019).
Methods:
A retrospective cohort study analyzed 45,429 blastocyst-stage embryo transfer cycles (1,009 PGT-A and 44,420 non-PGT-A), including both fresh and frozen transfers. Cycles with incomplete data or use of donor gametes were excluded. Pregnancy outcomes (biochemical pregnancy, clinical pregnancy, ultrasound-confirmed fetal heartbeat, and live birth) and neonatal outcomes (gestational age at delivery, birth weight, delivery method, and gender) were assessed. Inverse probability of treatment weighting (IPTW) was applied to balance confounding factors before outcome assessment. Subgroup analyses were conducted based on maternal age and the number of embryos transferred.
Results: PGT-A utilization increased from 0.95% (2015) to 3.21% (2019). The PGT-A group had a higher proportion of advanced maternal and paternal ages and a greater rate of single embryo transfer (71.95% vs. 22.59%, $p<0.001$). While the overall pregnancy and live birth rate did not show significant differences (PGT-A vs non-PGT-A 53.72% vs 54.42, $p=0.657$; 42.12% vs 41.11%, $p= 0.518$, respectively), After IPTW adjustment, PGT-A cycles demonstrated significantly higher rates of biochemical pregnancy, clinical pregnancy, ultrasound confirmation of fetal heartbeat, live birth and lower artificial abortion rates across single and double embryo transfers.
Among singleton live births, the PGT-A group had higher neonatal birth weights, increased incidence of large-for-gestational-age (LGA), and reduced small-for-gestational-age (SGA) rates. A higher proportion of male neonates was observed. For double embryo transfers, PGT-A was associated with a higher incidence of multiple gestations.
When categorized by maternal age and number of embryos transferred, PGT-A was associated with improved biochemical pregnancy rates, clinical pregnancy rates, and fetal heartbeat confirmation in women ≥ 35 years undergoing single embryo transfer and in women ≤ 39 years undergoing double embryo transfer. Enhanced live birth rates were observed across most PGT-A subgroups, except for women aged 30–34 years (single embryo transfer) and >34 years (three or more embryos transfer).
Conclusion: In its early use in Taiwan (2015–2019), PGT-A was generally associated with improved pregnancy outcomes after adjusted with confounding factors such as paternal age and infertility etiology. However, the increased rates of multiple gestations in PGT-A double embryo transfers highlight the importance of elective single embryo transfer.
This study has limitations, including a significant disparity in the number of PGT-A and non-PGT-A cycles, which could result in statistical bias. Furthermore, the data represents only the initial five years of PGT-A registry use, limiting its relevance to current trends. Further studies are needed to provide results that better represent current clinical practices.

稿件編號：OF6

臨時稿件編號：
1571

胚胎著床前單基因遺傳性疾病檢測 林口長庚紀念醫院 近五年病例回顧
Pre-implantation Hereditary Genetic Disease Screening: A Retrospective Case Review from the Past Five Years at Linkou Chang Gung Memorial Hospital

蔡喬伊[1] 張嘉琳[1]
林口長庚紀念醫院婦產部[1]

論文發表方式：
口頭報告

論文歸類：
生殖內分泌

Objective: To investigate outcomes of embryos underwent preimplantation genetic testing for monogenic/single gene (PGT-M) from in vitro fertilization (IVF) or intracytoplasmic sperm injection (ICSI) cycles in Linkou Chang Gung Memorial hospital.

Method: This retrospective cohort study collected data from a medical center in Taiwan in recent 5 years. Total 14 patients were included, with 124 blastocysts biopsied and screened. We analyzed the indication of PGT-M, embryo outcomes and subsequent pregnancy results.

Results: Of the 14 PGT-M patients, total 338 oocytes were retrieved, with 31 fertilized via IVF and 252 via ICSI. 31.5%(39/124) of embryos are unaffected, and carriers of autosomal recessive diseases account 21%(26/124). The most common indication for PGT-M is alpha-thalassemia(N=3), followed by osteogenesis imperfecta(N=2). Other indications were represented by a single patient each. The cumulative pregnancy rate for patients who had embryo transfers was 57.9%, with an ongoing pregnancy or delivery rate of 42.1%.

Conclusion: These findings offer an insight to current status of PGT-M in Taiwan and supplement existing literature to set realistic expectations for patients undergoing PGT-M.

稿件編號：OF7

臨時稿件編號：
1443

子宮頸癌病患接受保留生育治療後成功妊娠：輔助生殖技術困難的挑戰之病例報告

Successful Pregnancy Outcome Following Fertility-Sparing Treatment for Cervical Cancer: A Case Report on the Challenges of Assisted Reproductive Techniques

祝筱涵[1] 吳憲銘[1]
林口長庚紀念醫院婦產部[1]

論文發表方式：
口頭報告

論文歸類：
生殖內分泌

Introduction
Cervical cancer is a leading cause of morbidity among women, particularly impacting fertility in those of reproductive age. While fertility-preserving treatments like trachelectomy aim to retain reproductive potential, they often result in complications, including cervical incompetence, thin endometrium, and embryo transfer difficulties. Assisted reproductive techniques (ART) provide a pathway to parenthood for these patients but pose unique challenges.
Case Presentation
We report a 37-year-old nulliparous woman with stage IB cervical cancer and chronic hypertension who underwent trachelectomy, radiotherapy, and chemotherapy. Prior to treatment, she cryopreserved 10 oocytes and 10 embryos. Following cancer remission, she sought fertility treatment but faced obstacles, including ovarian failure, uterine atrophy, and isthmal synechiae.
An extended hormone replacement therapy regimen, including estradiol, pentoxifylline, and vitamin E, improved her endometrial thickness to 0.78 cm. Hysteroscopic dilation resolved uterine adhesions, enabling successful transfer of two cryopreserved embryos. At 29 weeks gestation, pre-eclampsia and fetal distress necessitated cesarean delivery, resulting in a live birth.
Discussion
This case highlights the multifaceted challenges of ART in cervical cancer survivors, including endometrial preparation, embryo transfer, and pregnancy complications. Extended hormonal protocols and surgical interventions can address structural and functional barriers, while vigilant prenatal care mitigates risks of hypertensive disorders and preterm delivery.
Conclusion
Despite significant obstacles, successful pregnancy outcomes are achievable for cervical cancer survivors through individualized ART protocols, careful pregnancy management, and multidisciplinary care. This case underscores the importance of innovative approaches in fertility preservation and reproductive medicine.

稿件編號：OF8

臨時稿件編號：
1614

Ibuprofen 使用與男性不育
Ibuprofen use and male infertility: Insights from a nationwide retrospective cohort study

Wan-Ting Huang [1] Jen-Hung Wang [1] 丁大清 [2] 陳沛安 [2]
花蓮慈濟研究中心 [1] 花蓮慈濟婦產科 [2]

論文發表方式：
口頭報告

論文歸類：
生殖內分泌

Previous studies have indicated that nonsteroidal anti-inflammatory drugs, including ibuprofen, may have varying effects on the male reproductive system. This study aimed to evaluate the impact of ibuprofen on male infertility in Taiwan. This nationwide retrospective cohort study used the Taiwan National Health Insurance Database from January 1, 2000, to December 31, 2021. The study participants were males aged 20–59 years who had used ibuprofen or acetaminophen between 2000 and
2020. The primary outcome was the incidence of male infertility. Cox regression analysis estimated cumulative incidences and hazard ratios (HRs) with their corresponding 95% confidence intervals (CIs). The Kaplan–Meier method was used to illustrate cumulative incidence curves. The participants using ibuprofen and acetaminophen were 15564 and 15564. After the propensity score matching, the two groups did not show differences in age, medication year, and disease prevalence. Ibuprofen usage for >60 days per year had a higher HR of male infertility than acetaminophen usage for the same duration. The cumulative incidence of male infertility over time showed that ibuprofen use for >60 days per year was significantly associated with a higher incidence of male infertility compared to acetaminophen. The association between ibuprofen use and male infertility has broad public health implications. If further confirmed through prospective studies, these findings may impact medical advice and inform discussions on drug use, particularly among individuals of reproductive age.

台灣婦產科醫學會 114 年度年會暨學術研討會

論文摘要

稿件編號：OF9 臨時稿件編號：1676	電腦輔助精液分析及活體活動精子選擇裝置是否適合引進作為一個生殖中心實驗室的常規使用: 初步評估 Computer-assisted sperm analysis (CASA) and Live motile sperm sorting device as a routine technique in the IVF laboratory? A Self-validation preliminary report 黃璧蒼[1] 林育如[1] 龔福財[1] 蘇鈺婷[1] 蔡妮瑾[1] 蕭宇揚[1] 連顥庭[1] 藍國忠[1] 高雄長庚醫院婦產部[1]
論文發表方式：口頭報告 論文歸類：生殖內分泌	Infertility leads to significant psychological and social challenges, while also placing a heavy financial strain on both patients and the health-care system. Worldwide, about 8 to 12% of the reproductive age couples are faced with infertility problems and male factor solely contribute to 20-30% of them. Sperm DNA fragmentation (SDF) testing has emerged as a valuable tool for diagnosing male infertility. Studies indicate that elevated SDF levels can contribute to male subfertility, IVF failure, and an increased risk of miscarriage. Recently, Hsu et al. reported that the CA0 separation device (LensHooke CA0, Bonraybio Co. , Taichung, Taiwan) significantly enhances multiple sperm quality parameters while minimizing sperm DNA fragmentation. Kuroda et al. demonstrated a strong correlation and consistency between the novel sperm chromatin dispersion kit(LensHooke R10 plus® ,R10], Bonraybio Co., Taichung, Taiwan) combined with an AI-aided platform(LensHooke X12PRO® X12], Bonraybio Co. , Taichung, Taiwan) and traditional sperm chromatin dispersion methods, achieved through the analysis of a larger number of spermatozoa. Before introducing the computer-assisted sperm analysis (LensHooke X12PRO® X12], Bonraybio Co. , Taichung, Taiwan) and the CA0 live motile sperm sorting device (LensHooke CA0, Bonraybio Co. , Taichung, Taiwan) to a CAP-certificated IVF lab, we would like to evaluate the efficacy and accuracy of the R10 plus kit in combination with X12PRO as well as the CA0 sorting device.

稿件編號：V16 臨時稿件編號： 1577	剖腹產疤痕子宮內膜異位症的機器人治療——經血逆行理論的新可能部位 Robotic treatment of Cesarean scar defect endometriosis – a possible new site of retrograde menstruation theory of endometriosis. 莊乙真[1] 陳曦[1] 亞東紀念醫院婦產部[1]
論文發表方式： 影片展示 論文歸類： 生殖內分泌	Introduction/Background This report presents the surgical process and outcomes of a patient with isthmocele (Cesarean scar defect). The retrograde menstruation theory, the oldest explanation for endometriosis, suggests that endometrial cells or debris flow backward through the fallopian tubes into the pelvic cavity during menstruation, contributing to the development of endometriosis. Materials and Methods This case report presents a 39-year-old woman who received treatment at our hospital. She had a prior low transverse cesarean section 8 years ago and experienced prolonged dysmenorrhea, dysuria, and infertility for 3 years. After two failed IVF cycles, an ultrasound revealed a 2x1.8x1.0 cm Cesarean scar defect. Robotic repair was performed. The analysis includes a review of outpatient records, hospitalization, surgical details, follow-up history, and laboratory data. Results The surgical findings revealed a dense endometriotic mass at the site of the scar defect and extending onto the bladder flap. A purple-colored mass was identified, along with additional areas of endometriosis observed on other pelvic structures. The accompanying surgical video illustrates these findings, demonstrating the extent of pelvic endometriosis. Conclusion A previous Cesarean scar defect may serve as a new site for retrograde menstruation, contributing to the development of endometriosis. This theory suggests that endometrial tissue can be transported into the pelvic cavity through the scar during menstruation.