

**Aim:** To Detect the small and slow blood flow of the placenta is expected to be useful for deterring vascular diseases such as placental factor and Hypertensive disorder pregnancy (HDP). This study presents open source image processing software for science. We examined the relationship between image analysis of placental slow blood flow area and placental pathology findings.

**Methods:** (1) FGR case with chronic intervillitis (n=1). (2) HDP with placental abruptio. (n=1) (3) Normal pregnant woman (n=1). Ultrasonic sonography apparatus (a) Aplio i 700 (Canon Medical Systems). (b) Voluson E10 (GE Healthcare) (1) The Aplio i 700 used the mSMI and cSMI. (2) The Voluson E10 used the Slow flow HD & Radiant flow, 3D-power doppler. The image was taken into Image J, and the ROI for image analysis was re-identified on Image J.

**Results:** This study shows that signal strength of the intra-placental blood flow with a small and complex form.

**Discussion:** In this study It was possible to show the identification and signal intensity of placental blood flow with fine and complicated morphology by Image J. And, Analysis of FGR intraplacental blood flow is expected to lead to an indicator of severity.

**Conclusions:** It is possibility fetal blood vessels of around 0.1 mm may be detected. It is expected that this study will be on the step for the determination of reduced placental blood flow and the ischemic region.

#### 54. PREVALENCE OF CHRONIC ENDOMETRITIS IN 14 PATIENTS WITH IMPLANTATION FAILURE AND THE REPRODUCTIVE OUTCOME

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**Objective:** The aim of this study was to investigate the prevalence of chronic endometritis (CE) in infertile women with a history of implantation failure (IF) and to determine whether antibiotic treatment improves their reproductive outcome in the following frozen embryo transfer (FET) cycles.

**Methods:** A retrospective study was performed at our institution from October 2018 through June 2019. Proliferative phase endometrial biopsy obtained from 14 infertile women with IF were subjected to immunohistochemical/histopathologic diagnosis of CE. Following antibiotic administration to the CE group, their histopathologic cure rate and reproductive outcome in the subsequent FET cycles were examined.

**Results:** In 14 infertile patients with IF, 35.7% (5 of 14) of them were diagnosed with CE (CE group). Following the doxycycline treatment, the histopathologic cure rate in the subsequent endometrial biopsy was 20% (1 of 5). Following the metronidazole/ciprofloxacin treatment, the overall cure rate was 60% (3 of 5). Among 7 patients in non-CE group, one patient achieved a clinical pregnancy, and two were diagnosed with chemical pregnancy in cumulative FET cycles. In CE group, only one patient, who was recovered from CE after the second-line treatment, attempted the FET and achieved a clinical pregnancy in the second FET cycle, although she experienced five failed FET cycles before the diagnosis of CE.

**Conclusion:** We found CE in 35.7% of infertile women with a history of IF in our institution and the clinical pregnancy after the treatment of CE. Further investigations are warranted.

#### 55. THREE CASES OF VASA PREVIA

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**Introduction:** Vasa previa is uncommon, but intrapartum diagnosis is very important. We had 3 cases of vasa previa.

**case1:** A 41-year-old woman was referred for low-lying placenta. Vaginal ultrasonography revealed a low-lying placenta and velamentous cord

insertion with low-lying placenta. The placenta had migration, but transvaginal color Doppler ultrasonography revealed fetal blood vessels covering the internal cervical os, a finding consistent with vasa previa. The patient underwent a scheduled cesarean delivery at 36 weeks of gestation.

**case2:** A 35-year-old woman was referred for placenta previa. The placenta had migration, and transvaginal color Doppler ultrasonography revealed fetal blood vessels covering the internal cervical os. The patient underwent a scheduled cesarean delivery at 36 weeks of gestation.

**case3:** A 31-year-old woman was referred for low-lying placenta. The placenta had migration, but transvaginal color Doppler ultrasonography revealed fetal blood vessels covering the internal cervical os, a finding consistent with vasa previa. The patient underwent a scheduled cesarean delivery at 37 weeks of gestation.

**Conclusion:** The antepartum diagnosis of vasa previa improves the perinatal survival rate.

#### 56. ANGIOGENESIS CAPACITY OF MESENCHYMAL STEM CELLS DERIVED FROM PREECLAMPTIC PLACENTA

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**Objectives:** Human placental mesenchymal stem cell (MSC) has been suggested as a possible therapeutic potentials for the pregnancy-related disorders. In this study, we analyzed the tube formation ability of human preeclamptic placenta-derived MSC (PE-MSC) to assess the angiogenesis capacity via paracrine effect of MSCs.

**Methods:** PE-MSCs (n=5) and physiologic placenta-derived MSCs as a control (CTL-MSC, n=8) obtained following written informed consent, were primarily isolated and cultured for 48 hours in a serum-free medium, then their conditioned mediums (CM) were extracted. Human umbilical vein endothelial cells (HUVEC) were seeded on matrigel-coated plates and cultured with PE-CM, CTL-CM, complete medium which contains serum and angiogenic factors as positive control (PC) and serum-reduced medium as negative control (NC). Following incubation for 16 hours, each tube formation of HUVECs was observed under a light microscope, and the average of total mesh area and total tube length was calculated by Image J software. Statistical significance was determined using Mann-Whitney U tests. This study protocol was approved by the IRB for Ethical, Legal and Social Issues.

**Results:** The total area was significantly larger in PE-CM than in CTL-CM, and the total segment length was significantly longer in PE-CM than in CTL-CM.

**Conclusion:** Our findings supported that conditioned medium of placental MSCs derived from patients affected by preeclampsia had significant angiogenic features in comparison with those from physiologic pregnancy.

#### 57. MATERNAL FLOOR INFARCTION ASSOCIATED WITH FETAL GROWTH RESTRICTION: A CASE REPORT

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**Introduction:** Maternal floor infarction (MFI) is a rare disease and is one of the causes of fetal growth restriction. There are few reports of its clinical reports. We report MFI cases diagnosed at our department.

**Case:** The authors report a case of a 20-year-old Japanese primipara who became pregnant spontaneously. She was introduced to our department to close examination purpose at 30 weeks of gestation. At the first examination, there were no morphological abnormalities or blood flow abnormalities other than FGR of 3SD and mild amniotic fluid loss (AFI 8.2). Fetal

growth was maintained  $-2.5$  to  $-3SD$ . She was admitted to hospital because she had abnormal blood flow 33 weeks of gestation. An emergency cesarean section was performed at 35 weeks of gestation because of an abnormality in the blood flow waveform in Ductus venosus and the onset of labor pain. She delivered a girl with a weight of 1596g, Apgar score of 1min 7.5min 8, UA pH: 7.337. Placenta weight was 244 g, and the pathological search showed mild MFI.

**Conclusion:** MFI emphasizes the importance of a placental examination with FGR. Given the risk of recurrence, it is also reported that low dose aspirin is useful for the next pregnancy. The identification of MFI should alert the clinician to the potential for FGR in subsequent pregnancies. It is important to carefully manage perinatal period and to carry out pathological examination of postpartum, keeping in mind this disease, especially in cases where FGR cases did not show abnormal findings before birth.

#### 58. INCREASING SOLUBLE FMS-LIKE TYROSINE KINASE1(SFLT1) IN PREECLAMPSIA CONTROLS ONESELF THROUGH ARGINASE

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**Objective:** The relationship between arginase and sFlt1 in preeclampsia was examined.

**Method:** 1. Serum samples of pregnant women, delivered at the Osaka University Hospital, Osaka, Japan, was measured. Arginase activity (units per liter of sample(U/L)) was determined to measure urea produced in the arginase reaction. Sandwich ELISA for the detection of sFlt1 was performed. 2. HUVECs from three normotensive pregnant women were mixed on fourth passages and used for experiments at passages 5 to 6. Arginase was measured by arginase assay.

**Results:** 1. Higher values of both sFlt1 and arginase activity were detected in the plasma of Hypertensive disorders of pregnancy (HDP) women compared with the normotensive (NT) group ( $p < 0.01$ ). The pregnant women were divided into four groups: group 1, sFlt1  $< 6000$ pg/ml and arginase activity  $< 110$  U/L; group 2, sFlt1  $\geq 6000$ pg/ml and arginase activity  $< 110$  U/L; group 3, sFlt1  $\geq 6000$ pg/ml and arginase activity  $\geq 110$  U/L; group 4, sFlt1  $< 6000$ pg/ml and arginase activity  $\geq 110$  U/L. The number of subjects in the NT group included in group 1 was much larger than in the HDP group (45.5% versus 0.0%  $p < 0.005$ ). The number of subjects in the NT group included in group 3 was conversely much smaller than in the HDP group (60.0% versus 0.0%  $p < 0.005$ ). 2. A slightly higher concentration of sFlt1, as in group 2, reduced arginase expression and arginase activity in HUVECs. BEC (S-(2-boronoethyl)-L-cysteine; arginase inhibitor) impaired sFlt1 secretion. In contrast, a higher level of sFlt1 increased arginase expression and arginase activity in HUVECs, as in group 3.

**Conclusion:** Our results suggest the existence of a mechanism to maintain the level of sFlt1. Soluble Flt1 negatively regulated itself against increasing serum sFlt1 in preeclampsia. Moreover, this study revealed that arginase inhibitors are a potential treatment option for preeclampsia.

#### 59. A CASE REPORT OF THE EXPECTANT MANAGEMENT FOR UTERINE ARTERIOVENOUS MALFORMATION AFTER LOSS OF ASSISTED REPRODUCTIVE TECHNOLOGY PREGNANCY

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**Introduction:** Although uterine arteriovenous malformation (AVM) is rare, cervical dilatation and uterine evacuation (D&E) is said to be one of the causes of AVM. Here we present one case of successful pregnancy after expectant management for AVM.

**Case:** A 31-year-old woman visited our hospital due to primary infertility. She got pregnant by infertility treatment, but she had missed abortion, so she underwent D&E. On the 15th postoperative day, there was a cystic lesion of 18 mm in the uterine part of right tube, and blood flow was recognized in the cyst by ultrasonography. We considered the possibility of remnants of chorionic tissue as well as AVM because serum hCG was 404 mIU/mL. At 1 month after surgery, hCG decreased to 7.9 mIU/mL and expanded the cystic lesion and increased blood flow around the cyst, so we confidently diagnosed AVM. CT showed that the right ovarian artery and the right uterine artery flowed into the AVM. Menstruation resumed at 1.5 months after surgery. At 4.5 months after surgery, hCG decreased less than 1.2 mIU/mL and the AVM disappeared at 5.5 months after surgery. At 8 months after surgery, we resumed infertility treatment, and she got pregnant afterwards.

**Discussion:** AVM may cause massive hemorrhage suddenly, so if it is necessary to cure it, total hysterectomy will be performed, but if it preserves the uterus, uterine artery embolization (UAE) is selected though UAE may impair fertility. It is suggested that if we give priority to desire to bear children, we can choose expectant management until AVM disappears.

#### 60. A CASE OF POSTPARTUM ABNORMAL BLEEDING DUE TO PLACENTA ACCRETA

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**Introduction:** Placenta accreta sometimes causes abnormal uterine bleeding after delivery. Recently, patients with placenta accreta increase due to the history of cesarean section and in vitro fertilization.

**Case:** A 41-year-old primipara, who got pregnant in vitro fertilization. She was delivered in 39 weeks of gestation by once vacuum extraction and uterine fundal pressure. Most of the placenta was separated, but the part of it remained in the uterine. Bleeding from the uterine continued, she was started oxytocin. However, bleeding was uncontrollable, so she was admitted to our hospital. Her pulse rate was 130 and blood pressure was 70/45 mmHg at the time. Ultrasonography revealed about 10 cm mass from cervical canal to cervix of internal cervix and showed the retention of placenta. Moreover, contrast CT revealed the extravasation from uterine artery, so we performed uterine artery embolization. However, bleeding continued due to retention of placenta. We removed it manually and put a Bakri balloon into the uterine in general anesthesia. We could stop uterine bleeding.

**Conclusion:** We could control emergency postpartum bleeding with placenta accreta using a combination of the uterine artery embolization, manual removal of the placenta and Bakri balloon tamponade.

#### 61. PREVALENCE OF OBSTETRIC COMPLICATIONS INCLUDING PLACENTA ABNORMALITY IN PREGNANCIES ACHIEVED BY OOCYTE DONATION IN OUR INSTITUTION

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**Objective:** To assess the risk of adverse obstetrics outcomes including placenta abnormality in pregnancies achieved by oocyte donation (OD).

**Methods:** Obstetric and neonatal outcomes were retrospectively compared between 3 groups, the oocyte donation pregnancies group (n=19), extremely advanced maternal aged pregnancies (over 42 years old) achieved by in vitro fertilization with autologous oocytes (AO) group (n=90), and natural conception (NC) group (n=100). All OD deliveries were performed in our hospital from January 2008 to June 2019.

**Results:** The oocyte recipients were aged 42 - 55 years (mean  $\pm$  SD; 48.8  $\pm$  0.9 years). In OD group, 85.7% (18 of 21) of them were nulliparous (OD: 85.7%, AO: 55.6%, NC: 24.0%,  $p \leq 0.01$ ). Compared with IVF and spontaneous