

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

Hiroko Tanaka<sup>1</sup>, Keiichi Kumasawa<sup>1,2</sup>, Aiko Kakigano<sup>1</sup>, Kazuya Mimura<sup>1</sup>, Masayuki Endo<sup>3</sup>, Takuji Tomimatsu<sup>1</sup>, Tadashi Kimura<sup>1</sup>. <sup>1</sup>Department of Obstetrics and Gynecology Osaka University Graduate School of Medicine; <sup>2</sup>Department of Obstetrics and Gynecology The University of Tokyo Hospital; <sup>3</sup>Division of Health Sciences Osaka University Graduate School of Medicine

**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

Yoshimasa Kawarai, Hirokazu Tanaka, Soshi Ushimaru, Masataka Kagimoto, Ayaka Kaneko, Yoko Fujimoto, Kaoru Kakinuma, Motomasa Ihara, Toshiyuki Kakinuma, Michitaka Ohwada, Kaoru Yanagida. *International University of Health and Welfare Hospital*

**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

Asako Matsumura, Yuri Hasegawa, Akari Watanabe, Kazuaki Ohashi, Kayoko Fujio, Kanako Matsumoto, Kiyonori Miura. *Department of Obstetrics and Gynecology, Nagasaki University*

**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

Naoko Takahashi, Tatsuya Miyake, Futa Ito, Masako Kanda, Sachi Takaoka, Mika Handa, Hitomi Nakamura, Tsuyoshi Takiuchi, Tadashi Kimura. *Department of Obstetrics and Gynecology, Osaka University*

**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

conception groups, the risk of placenta previa (OD: 14.3%, AO: 5.6%, NC: 2.0%,  $p=0.049$ ), placenta accrete (OD: 28.6%, AO: 8.9%, NC: 1.0%,  $p\leq 0.01$ ) were higher. Moreover, compared with spontaneous conception group, the incidence of caesarian section (47.6%), postpartum hemorrhage (over 1,000mL) (61.9%), blood transfusion (19.0%), postpartum hysterectomy (9.5%) were higher in OD group.

**Conclusion:** Pregnancies by oocyte donation have increased risk of obstetrical complications including placental abnormality.

## 62.

### EFFICACY OF THE DEDICATED NEEDLE FOR UTERINE COMPRESSION SUTURE AND BAKRI BALLOON FOR POSTPARTUM HEMORRHAGE WITH PLACENTA PREVIA

Takeya Hara, Shinya Matsuzaki, Nakagawa Satoshi, Erika Nakatsuka, Tatsuya Miyake, Aiko Kakigano, Kazuya Mimura, Masayuki Endo, Takuji Tomimatsu, Tadashi Kimura. *Osaka University*

**Objective:** We used a Sengstaken-Blakemore tube, rolled gauze and vertical compression suture (VCS) with an epidural needle for the management of postpartum hemorrhage (PPH) in cases of placenta previa (PP) and low-lying placenta (LLP) before 2014 in our institution. Since 2014, we have been using a dedicated needle for uterine compression suture (UCS) that was developed by our institution and a Bakri balloon for the management of PPH in cases of PP and LLP. This study aimed to evaluate the efficacy of the dedicated needle and Bakri balloon.

**Methods:** Cases of PP and LLP from January 2008 to March 2019 were retrospectively analyzed and included in the study. However, cases of placenta accrete were excluded. We divided the patients into two groups according to treatment period as follows: period 1 (from January 2008 to December 2013; 64 cases) and Period 2 (from January 2014 to March 2019; 121 cases). Surgical outcomes were then compared between the two groups.

**Results:** Significant improvements of surgical outcomes were observed in period 2 as compared with period 1 regarding the incidence rate of massive hemorrhage. (>3000 ml; 20.3% [13/64] vs. 7.4% [9/121],  $P = 0.02$ ) and transfusion rate (32.8% [21/64] vs. 9.9% [12/121],  $P < 0.001$ ).

**Conclusion:** Our study suggests that use of the new straight blunt needle dedicated for VCS and the Bakri balloon significantly improved the surgical outcomes in the cases of PP and LLP in this study.

## 63.

### A CASE OF A TRILOBATE PLACENTA WHICH DETECTED AS A SUCCENTURIATE PLACENTA BY ULTRASONOGRAPHY DURING PREGNANCY

Kei Sagawa<sup>1</sup>, Gen Ishikawa<sup>1</sup>, Chikako Hasegawa<sup>2</sup>, Asako Nagashima<sup>1</sup>, Yu Yamaguchi<sup>1</sup>, Naofumi Okuda<sup>1</sup>, Sayuri Kasano<sup>1</sup>, Ai Ikki<sup>1</sup>, Akiko Sakata<sup>1</sup>, Momoko Owada<sup>1</sup>, Noriko Nishikata<sup>1</sup>, Kazuho Nakanishi<sup>1</sup>, Takashi Yamada<sup>1</sup>, Tsutomu Hatori<sup>2</sup>, Toshiyuki Takeshita<sup>1</sup>. <sup>1</sup>Department of Obstetrics and Gynecology, Nippon Medical School; <sup>2</sup>Department of Pathology, Nippon Medical School Chiba-Hokusoh Hospital

**Introduction:** We were experienced succenturiate placenta by screening ultrasonography at pregnancy checkup. That placenta revealed trilobate after delivery.

**Case:** Gravida 2 Para 0, 38 years old pregnant patient has come to our facility after intracytoplasmic sperm injection - blastocyst transfer. She has a history of myomectomy 9 months before pregnancy. At the checkup of 21 weeks and 6 days of pregnant age, placentas of separated shape on anterior and posterior wall of uterus were detected by screening ultrasonography. By the ultrasound, it was observed that umbilical cord formed bridge between both lobes, and at the middle of the bridge, main cord was formed and extent to the fetus. At the bridge part, cord seemed it did not have a membranous part and free from supportive tissue by ultrasonography. After intimate pregnancy checkups, at 38 weeks and 2 days of pregnant age, elective cesarean section was performed. Neonate was 2560g male

and Apgar score was 8/9 at 1 minute and 5 minutes after birth respectively. The umbilical arterial pH was 7.295. The placenta and cord were delivered without tearing or visible damage. The weight was 617gms and 25 X 16 cm. The shape of placenta revealed trilobite and the cord insertion manners showed marginal or velamentous according to lobes. The dimensions of lobes were 16 X 10 cm, 11 X 10cm, 6.5 X 4.5cm. The bridging part supported with membranous formation and there was no freely part of cord there. As histopathological findings, there were subchorionic fibrin deposit and calcification but no pathological damage on whole lobe like mass infarction or necrosis fortunately.

**Discussion and conclusions:** By some reports and papers, the frequency of succenturiate placenta is 0.16 to 1% and significantly higher observed in pregnancy after assisted reproductive technology. And it is regarded that the frequency of non-reassuring fetal status is significantly high. In some case, malformed placenta might influence to the prognosis of pregnancy and delivery, thus ultrasound screening on not only fetus and amniotic cavity but placenta and cord could be important.

## 64.

### GESTATIONAL DIABETES(GDM) AS GREAT OBSTETRICAL SYNDROME(GOS)

Masayoshi Arizawa. *Tokyo Metropolitan Ohtsuka Hospital*

**Object:** We can refer to Gestational diabetes (GDM) as Great Obstetrical Syndrome (GOS) because GDM appears just during pregnancy but can develop into Diabetes Mellitus (DM) later in life. Likewise, babies delivered from mothers with GDM have health risks both soon after delivery and in later life.

There are three reasons why GDM can be considered GOS

- 1 - In Japan after HAPO study, diagnosis of GDM became more accurate. Before the HAPO study around 1 to 3% of all pregnancies showed GDM, but after the study, this rose to around 10 to 15%.
- 2 - The number of women with GDM who go on to develop problems later in life is high, which is why we need to be aware of this at the time of pregnancy. Pregnancy can be considered a stress-test for later life.
- 3 - A high rate of babies born to mothers with GDM develops RDS, hyperglycemia, hyperbilirubinemia, and so on. Later in life they may develop Cardio Vascular Disease (CVD) and DM.

In this study I confirm these three points through placental pathology.

**Method:** I studied 239 cases of GDM, diagnosed by 75g of OGTT, over a period of 6 years.

In each of the 239 cases, I checked the clinical record and examined the placenta.

GDM is defined by even one-point positive in three glucose level checks, with the base being 92 at 0 minutes and then, after oral glucose, 180 at 60 minutes, and 153 at 120 minutes.

**Results:** From the 239 cases, by microscopic examination, I diagnosed

57 cases of thrombosis in decidua -23.8% Maternal side  
40 cases of villous vessels abnormality -16.7% Baby's side

**Conclusions:** In the past we did not have the opportunity to examine a large number of GDM placentas, but with this study I examined 250 placentas over a six-year period, demonstrating an increase in awareness of the importance of placental pathology in GDM. This shows a change in thinking among obstetricians.

Secondly, in this study I showed through placental pathology, that mother's vessels problems during pregnancy can continue to have an impact on cardiovascular disease later in life.

Thirdly, this study showed that vascular problems in the mother can also continue to have an effect in later life on cardiovascular disease in the baby. Placental pathology is basically for the mother and baby, but it is also a vital tool not only for obstetricians, but also for internal medicine and pediatrics. That is why GDM can be referred to as GOS.