CASE REPORT

Spontaneous conception and intrauterine pregnancy in a symptomatic missed abortion of ectopic pregnancy conceived in the previous cycle

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We encountered a rare case of combined intrauterine and extrauterine pregnancy that occurred following separate spontaneous ovulations. A 33 year old woman visited our hospital with the chief complaint of abdominal pain on April 16, 1993. Her last menstruation was from March 23 for 6 days. However, the urinary human chorionic gonadotrophin (HCG) on April 19 was 1024 IU/l. Pelvic examination and ultrasonography indicated an extrauterine pregnancy, which was confirmed by laparotomy and histological identification of trophoblast cells. The urinary HCG concentration markedly decreased after the operation. However, the HCG level increased again on the fifth post-operative day, and a gestational sac (11 mm) was identified in the uterine cavity on the 11th post-operative day, indicating that this intrauterine pregnancy was established following spontaneous ovulation which occurred whilst the woman had another peritoneal pregnancy.

Case report

The patient was a 33 year old nulliparous woman with a regular menstrual cycle (28-30 days) who had received no medication for ovulation induction. Her last menstruation prior to examination had been from March 23, 1993 for 6 days, which was confirmed by the basal body temperature record. She had abdominal pain on April 16, 1993, and visited our hospital. The urinary and serum β-human chorionic gonadotrophin (HCG) concentrations were ~1000 IU/l. Tenderness and tumour resistance were noted in the left lower abdominal region by bimanual pelvic examination.

Ultrasongraphical examination showed a solid tumour in the left adnexal region and a small amount of ascites in the pouch of Douglas. Magnetic resonance imaging (MRI) revealed the solid tumour to be a haematoma and the ascites to be bloody. The gestational sac was not identified in the uterine cavity by either ultrasonography or MRI.

Introduction

The simultaneous existence of intrauterine and extrauterine pregnancies is known as a combined pregnancy. Spontaneous combined pregnancy is a rare event (Reece et al., 1983), although its incidence has increased since the recent development of treatment of infertile women with ovulation induction or in-vitro fertilization (IVF) and embryo transfer (Yovich et al., 1984; Dor et al., 1991; Phipps and Evans, 1991). Combined pregnancy is usually associated with multiple gestations which originated from separate follicles but were presumably fertilized at the same coitus (Reece et al., 1983). Recently, we encountered a unique case of combined pregnancy in which an intrauterine pregnancy was established following a spontaneous ovulation occurring whilst the woman had another peritoneal pregnancy.

Key words: ectopic pregnancy/intrauterine pregnancy/spontaneous abortion/spontaneous ovulation

Figure 1. A photograph of the abdominal cavity at laparotomy. Haematoma was found at the left anterior wall of the broad ligament.
Figure 2. Histological identification of trophoblast cells. Cytotrophoblasts and syncytiotrophoblasts were identified in the excised tissue (haematoxylin–eosin staining, original magnification ×400).

Figure 3. Changes in the urinary β-HCG concentrations before and after the operation.

Under the diagnosis of a ruptured extrauterine pregnancy, laparotomy was carried out, and a haematoma was found at the left side of the uterus, indicating a peritoneal pregnancy (Figure 1). Macroscopically, only one corpus luteum was identified in the right ovary, and the bilateral tubes were normal. The haematoma was surgically removed. Trophoblast cells were histologically identified in the excised tissue (Figure 2). The tissue was also immunohistochemically stained for HCG (data not shown).

The level of urinary β-HCG decreased from 1024 IU/l to 128 IU/l on the third post-operative day, but increased again to ~2000 IU/l on the ninth post-operative day (Figure 3). On the 11th post-operative day, a gestational sac was observed by ultrasonography in the uterine cavity, and urinary β-HCG increased further to 8192 IU/l. The diameter of the gestational sac was 11 mm, which corresponded to 4 weeks of gestation (Hellman et al., 1969). Based on the HCG concentration and the ultrasonographic findings, she was also diagnosed to be at 4 weeks of gestation. The gestational age was confirmed 4 weeks later from the crown–rump length of the fetus.

Discussion
Combined pregnancy is a relatively rare obstetric abnormality (Reece et al., 1983). Usually, intrauterine and extrauterine pregnancies occur following multiple ovulations or transfer of multiple embryos. Thus, the incidence of combined pregnancy is higher in IVF-embryo transfer than in spontaneous pregnancy. In this case, the ovulations occurred spontaneously. Moreover, both pregnancies occurred following separate ovulations.

Our patient’s last menstruation was from March 23 for 6 days. When she came to our hospital, her menstrual cycle was at the 25th day. However, urinary and serum β-HCG concentrations were already about 1000 IU/l, which corresponds to approximately the 20th post-ovulatory day of pregnancy (Saxena et al., 1974; Braunstein et al., 1978). These HCG concentrations in the urine and serum were apparently higher than those expected at the 25th menstrual day (the 11th post-ovulatory day) (Braunstein et al., 1978). Moreover, the urinary HCG level was markedly decreased after the operation. These findings indicate that the source of HCG was the peritoneal pregnancy. In addition, the chorionic tissue in the excised peritoneal pregnancy was small and was histologically slightly degenerated. This finding suggests that the peritoneal pregnancy was in the second month of pregnancy but was in the state of missed abortion. Moreover, only one fresh corpus luteum was macroscopically identified in the right ovary. We detected no other corpus luteum by either MRI or ultrasonography. These findings lead us to speculate that the corpus luteum established by the peritoneal pregnancy in the previous cycle had degenerated during the course of the missed abortion, that the decreased luteal function could not block subsequent spontaneous ovulation, and finally that the fresh corpus luteum identified at the time of operation was established by the latest ovulation, which resulted in the intrauterine pregnancy. Thus, the peritoneal pregnancy appeared to have been present prior to the last menstruation but was in the state of incomplete abortion at the time of ovulation. The urinary HCG concentration was markedly decreased to 128 IU/l after removal of the peritoneal pregnancy. However, the HCG level increased again from the fifth post-operative day and reached 2000 IU/l at the ninth post-operative day, which corresponds to the 20–22nd post-ovulatory day of pregnancy (Saxena et al., 1974; Fossum et al., 1988). These findings indicate that the intrauterine pregnancy occurred ~10 days prior to the operation during the last menstrual cycle. Thus, before the removal of the ectopic pregnancy, ovulation and fertilization for intrauterine pregnancy had already occurred.

Generally ovulation is not considered to occur during pregnancy. However, ovulation has been reported to occur between 16 and 29 days after artificial termination of pregnancy, although the complete clearance of HCG occurs at a mean of 38 days, and luteinizing hormone (LH) and follicle stimulating hormone (FSH) peaks were seen even when the serum HCG concentrations were high after artificial termination of intrauterine pregnancy (Lähteemäki, 1978; Lähteemäki and Luukkainen, 1978; Marrs et al., 1979). Clinically, ovulation has been reported to occur 2 weeks after artificial abortion.
Spontaneous conception in aborting ectopic pregnancy of intrauterine pregnancy (Boyd and Holmstrom, 1972) or operation for ectopic pregnancy (Spirtos et al., 1987) at the earliest occasion. These reports indicate that the resumption of pituitary function after operation for extrauterine pregnancy is not different from that after the artificial termination of intrauterine pregnancy. Bahamondes et al. (1995) reported that the administration of exogenous HCG for ovulation induction or luteal support lowered the FSH in the late luteal phase, and increased the size of persistent follicles in the late luteal phase and the follicular phase of the next cycle. On the other hand, Naaktgeboren et al. (1986) suggested that second ovulation could occur during the course of delayed implantation in three out of eight cases. They speculated that the trigger of the second ovulation was endogenous HCG. Nevertheless, in this case, the pituitary function was not blocked by the extrauterine pregnancy, which might have been at the early stage of abortion or at the missed abortion stage but was still secreting a substantial amount of HCG; the urinary and serum HCG levels were over 1000 IU/I when ovulation occurred. The ultrasonographical findings of the intrauterine pregnancy together with the changes in the HCG concentrations strongly support the notion that the latter pregnancy had occurred ~8–10 days before the removal of the ectopic pregnancy (Hellman et al., 1969; Braunstein et al., 1978; Fossum et al., 1988). Thus, this case indicates that the combined intrauterine and extrauterine pregnancies can occur not only after the simultaneous multiple ovulations or the transfer of multiple embryos, but also after separate spontaneous ovulations.

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References


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