CASE REPORT

Ovarian Pregnancy After IVF–ET in a Patient With Absent Tube

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INTRODUCTION

Ovarian ectopic pregnancy is an extremely rare event, with an incidence of 1:7000 deliveries (1) and 2.6% of all ectopic pregnancies (2) after natural conception. In cycles of assisted reproduction, the incidence becomes even more rare (3). Marcus and Brinsden (4) have reported an incidence of 7:2, 745 pregnancies, and 7:116 ectopic pregnancies after in vitro fertilization cycles. We report a case of ovarian pregnancy after IVF–ET treatment for primary infertility due to tubal factor (one fallopian tube absent and the other blocked).

CASE REPORT

The couple (female 39 years old and male 41 years old) presented with 4 years of primary infertility. The female went through menarche at the age of 13 and had regular menstrual cycles of 28 days within the last 10 years. The female infertility evaluation showed

normal endocrine profile, and blocked left tube and absent right tube, diagnosticated at histerosalpingogram and confirmed at laparoscopy (when right tube was removed). Pelvis and endometrium were normal. Male semen evaluation was performed according to the recommendations of the World Health Organization (WHO) (5) and revealed a normospermy (concentration: 43 million/mL; motility: 55% grade A; morphology: 50% normal head forms).

Treatment started on day 2 of the cycle with subcutaneous administration of 3.6 mg of gonadotrophin releasing hormone analogue (GnRHa, Goserelin, Zoladex, Zeneca, Brazil) for suppression of the pituitary function. To confirm pituitary suppression, serum estradiol (E2) levels and endovaginal ultrasound (Tosbee, Toshiba, Japan) were performed 15 days later. As E2 concentration was less than 30 pg/mL and the ultrasound showed an endometrial thickness of less than 3 mm, patient was considered ready to start treatment.

Ovulation induction started on the following day with daily intramuscular injections of 300 IU of recombinant follicular stimulating hormone (rFSH) intramuscular injections (Puregon, Organon, Brazil). The dose of rFSH was tailored according to the E2 levels and follicular growth monitored by vaginal ultrasound. Fourteen days after starting the use of rFSH, the patient reached the desired criteria (at least 3 follicles of more than 17 mm with compatible serum estradiol) and 10,000 IU of human chorionic gonadotrophin (hCG, Pregnyl, Organon, Brazil) was administered. Transvaginal oocyte retrieval was performed 34 h later.

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Fig. 1. (A) Enlarged right ovary with an irregular mass seen at vaginal ultrasound. (B) Right ovary with gestational sac seen at laparotomy.

A total of 17 oocytes were retrieved and inseminated 5 h later with approximately 50,000 motile sperm/oocyte in 20 μ L drops of Earle's balanced salt solution (SIGMA) with 10% of heat-inactivated maternal serum, covered with mineral oil (SIGMA), and incubated at 37°C under a gas phase of 5% CO₂. Semen preparation was performed with the swim-up technique. Oocytes were checked for fertilization 19 h after insemination and 13 presented pronuclear formation and second polar body extrusion.

On day 3, i.e., 70 h later, 13 embryos reached the 8 cells stage. A total of five embryos that were Grade I (absence or few fragmentations and regular blastomeres) were transferred into the uterine cavity. The luteal phase was supported with vaginal progesterone (Utrogestan, France) 500 mg daily for 12 days, starting after embryo transfer.

Serum β -hCG was measured by RIA 12 days after embryo transfer and showed a result of 1000 mIU/mL. Vaginal ultrasound was performed 8 days later and showed a thick endometrium without gestational sac. A new serum β -hCG was observed 7 days later when we found a significant increase in its levels, i.e., 1500 mIU/mL. Vaginal ultrasound was then repeated and we found an irregular image within the endometrial cavity and enlarged right ovary with an irregular mass (Fig. 1A). As β -hCG levels were very high (100,000 mIU/mL), the first diagnosis considered was hidatidiform mole and we decided to perform a dilatation and curettage. The results were not confirmed after histopathologic study, and a laparoscopy was suggested. As the patient refused the procedure, and taking into account her stable condition, we decided to undertake expectant management monitoring β -hCG levels, that started to decrease until 4,500 mIU/mL when the couple moved back to their home town. One week later the patient developed a severe pelvic pain, and a laparotomy was performed. The finding was ovarian ectopic pregnancy that was successfully removed, keeping the ovary intact (Fig. 1B).

DISCUSSION

Ectopic ovarian pregnancy is a rare form of pregnancy after natural conception and extremely rare after assisted reproduction techniques. Although it is an uncommon event, its importance relies on the clinical importance due to the possibility of abdominal haemorrhagia. Also important is the mechanism of ovarian pregnancy after IVF, specially with absent or blocked tubes.

It is very important to give early diagnosis so as to avoid clinical complications. In our report the patient refused to perform laparoscopy, and we had to keep conservative expectant treatment, monitoring β -hCG levels. For that reason, a laparotomy had to be performed later on. It is our opinion that as soon as possible, minimal invasive procedure should be done to avoid the risks of vascular rupture, increment of morbidity rates, and future reproductive damage. Moreover, once surgery is indicated, it must be performed in a conservative way.

The mechanism of ovarian pregnancy after IVF is unclear specially in a patient with absent and blocked tubes. For IVF in patient with normal tubes, reverse migration through the Fallopian tube could be considered, with posterior implantation in the ovary. This migration could be due to the ET technique, and the volume of culture medium injected. Another possibility could be a fertilization of any unrecovered oocyte, but only if coitus occurred near the day of the oocyte retrieval. However, as patients are routinely advised not to have sexual intercourse, this possibility is very unlikely. Moreover, in this case, another mechanism must have taken place as the embryo implanted in the ovary where the tube was absent. For this reason, we must also consider an intraabdominal migration as described previously by Marcus and Brinsden (1993). As the other tube was blocked, we have to also consider the presence of a cornual fistulae between uterus and pelvis. These mechanisms however are only theoretical and need to be confirmed.

Although it is a rare event, it is very important to consider ovarian pregnancy even after treatment with assisted reproductive techniques. Thus early diagnosis must be performed to allow treatment with conservation of ovarian tissue and consequently, women's fertility.

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