

ABSTRACT

Heterotopic Pregnancy is a coexistent intrauterine and ectopic gestation. It rarely happens in the setting of **Single Embryo Transfer (SET)**, since SET significantly reduces the incidence of multiple pregnancies.

Its incidence is known to be 1 in 8,000 to 30,000 in spontaneous conceptions increasing to a rate of 0.2% to 1% in gestations after assisted reproductive technologies.

Case reports show that twins following SET can also be dizygotic and may be the result of a natural conception occurring during the SET.¹

We encountered a case of heterotopic pregnancy after a SET which may be due to coincidental natural pregnancy during in vitro fertilization.

CASE PRESENTATION

- 28-year old, married for 3 years and was trying to get pregnant.
- She underwent Intrauterine Insemination which failed hence proceeded with In Vitro Fertilization with a day-5 SET.
- At 7 5/7 weeks age of gestation by last menstrual period, she was asymptomatic and transvaginal ultrasound was done for fetal viability which showed heterotopic pregnancy. Twin A, Intrauterine Pregnancy 7 weeks and 2 days Age of Gestation by Crown Rump Length measured 0.97 cm with good cardiac activity. Twin B, Ectopic Pregnancy consider abdominal attachment 7 weeks and 4 days Age of Gestation by Crown Rump Length measured 1.10 cm with good cardiac activity.

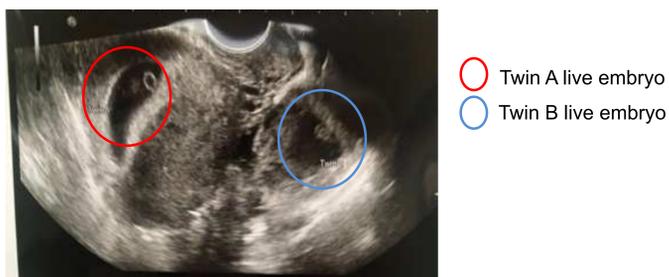


Figure 1: Ultrasound showing heterotopic pregnancy

- Separate and medial to the right ovary is a distinct complex gestational sac like structure containing a yolk sac (0.40cm) and a fetal pole with very good cardiac activity (labeled as Twin B). Normal ovaries with corpus luteum on the left. No free fluid in the cul de sac. (Figure 1).
- Under laparoscopy, the right fallopian tube was cystically enlarged measuring 8 x 4 x 4 cm with dilatation at the ampullary segment measuring 3.5 x 2 x 2 cm without any point of rupture (Figure 2). She underwent laparoscopic salpingectomy, right with adhesiolysis.

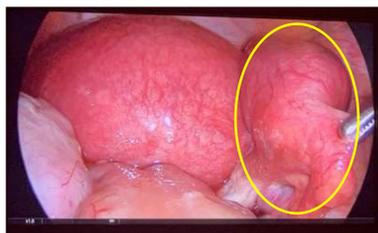


Figure 2: Gross image of dilated right fallopian tube

- On cut section of the mass, it revealed blood clots and placental like tissues within with note of embryo at the distal segment measuring 1 x 0.5 x 0.5 cm (Figure 3). The right ovary was grossly normal measuring approximately 2 x 2 cm. The left fallopian tube was grossly normal with free fimbriated ends. The left ovary measures 5 x 2 x 3 cm with corpus luteum measuring 2.5 x 1 cm.
- Histopathological findings showed Ectopic Tubal Pregnancy, Right. Fetus Crown Rump Length is 1.2 cm.



Figure 3: Gross picture of the embryo (1.2 cm) from the right fallopian tube

CASE DISCUSSION

Nearly 95 percent of ectopic pregnancies are implanted in the various segments of the fallopian tube. The ampulla is the most frequent site (70%), followed by isthmic (12%), fimbrial (11%), and interstitial tubal pregnancies (2%) (Bouyer, 2002). The remaining 5% of non-tubal ectopic pregnancies implant in the ovary, peritoneal cavity, cervix, or prior cesarean scar. Occasionally, a multifetal pregnancy contains one conceptus with normal uterine implantation that coexists with one implanted ectopically.

The natural incidence of these heterotopic pregnancies approximates 1 per 30,000 pregnancies (Reece, 1983). However, with assisted reproductive technology (ART), there is an increased incidence to 9 in 10,000 pregnancies (Perkins, 2015). Rarely, twin tubal pregnancy with both embryos in the same tube or with one in each tube has been reported (Eze, 2012; Goswami, 2015).³

Despite the fact that IVF allows direct transfer of embryos into the uterine cavity with the complete bypass of the fallopian tubes, extrauterine pregnancies are more common following IVF than natural conceptions and have been a well-recognized complication of IVF since the first occurrence reported in 1976 (Steptoe and Edwards, 1976).

The increased incidence of ectopic pregnancies following IVF remains inadequately explained, and strategies to decrease the risk of ectopic pregnancy are limited.

Choosing a day-5 embryo transfer, where feasible, was suggested as a method to reduce the incidence of ectopic pregnancy (Milki and Jun, 2003).

While the current results did not demonstrate a statistically significant difference in ectopic pregnancy risk following day-5 compared with day-3 embryo transfer, given the limited statistical power, they do not exclude the possibility that there is a clinically meaningful association between risk of ectopic pregnancy and day of embryo transfer.¹

Recently, there was a retrospective cohort study which indicated that at least 1 in 10 twin births following single embryo transfer were dizygotic and likely the result of a concurrent natural conception. The incidence of dizygotic twins in a frozen SET cycle is higher than in a fresh SET cycle, approaching about 1% of all pregnancies after frozen SET. This is because the frozen SET cycle has a greater chance of spontaneous ovulation than a fresh SET. Frozen SET in natural cycles is a favored method for women with normal ovulatory menstrual cycles because the natural cycle protocol does not require exogenous hormones.⁵

In our case, it was a frozen SET that was performed on the 17th day in a natural cycle and our patient engaged in sexual intercourse after their assisted reproductive technology treatment.

OUTCOME

Patient had unremarkable prenatal course thereafter and eventually delivered via spontaneous vaginal delivery to a term, cephalic, live, baby girl, 37 weeks by Ballard's Score, appropriate for gestational age with birth weight of 2845 grams, APGAR score 9,9 and birth length of 49 cm.

CONCLUSION

The ideal outcome of IVF is a singleton pregnancy after SET, because multiple gestations have a higher risk of maternal and fetal morbidities. There is evidence to suggest that sexual intercourse assists the implantation of the SET provoking release of prostaglandins and growth factors. However, this benefit must be weighed against the risk of dizygotic twins and even heterotopic pregnancies, and couples should be counselled as to the advantages and disadvantages.⁶

Surgical management, either laparotomy or laparoscopy, is a feasible treatment modality for heterotopic pregnancy. To those patients with unstable hemodynamic situation or with any signs indicating rupture of the ectopic pregnancy, emergency laparotomy is strongly recommended to rescue the patient. Laparoscopic surgery is only suitable for those heterotopic pregnancy patients with stable hemodynamic situation. Surgical techniques of removal of the ectopic pregnancy mass include salpingectomy, salpingostomy, cornual resection, oophorectomy, and even total abdominal hysterectomy. Surgical management in comparison with expectant management gains the advantage of complete removal of the ectopic pregnancy mass, however there might be a risk of abortion of the intrauterine pregnancy.

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