Case Report

Ultrasound Findings of Heterotopic Pregnancy in IVF Conceived Patients-Dual Case Report and Mimickers

Surabhi Akodiya¹, Neha Agrawal², Sunita Purohit³, Poonam Yadav⁴

¹DNB Resident, ²³Consultant, Department of Radio-diagnosis, ⁴Consultant, Department of Obstetrics and Gynecology, SDM Hospital, Jaipur, Rajasthan, India

INTRODUCTION

A heterotopic pregnancy is a rare complication of pregnancy, in which both extra-uterine and intrauterine gestation occurs simultaneously. The reported incidence is 0.6-2.5/10,000 pregnancies. There is a significant increase in the incidence of heterotopic pregnancy in women undergoing assisted reproduction techniques such as in vitro fertilization (IVF) and gamete intra-fallopian transfer (GIFT) with reported incidence of approximately 1%-3%.¹

CASE DESCRIPTION

Case 1: A 35-year old woman, primigravida presented at 7 weeks 4 days gestational age with lower abdominal pain, vaginal bleeding and vomiting. Her current pregnancy was the result of in vitro fertilization (IVF). An outpatient ultrasound at 6ª week reported two intrauterine gestational sacs with cardiac activity in one of them. Patient was hypotensive (Blood Pressure-100/70 mm of Hg) and tachycardiac (130 beats per minute) and was having abdominal distension.

Image Findings: USG was performed by transabdominal and transvaginal route. Two intrauterine gestation sacs were seen, one of which was a viable embryo of 7 weeks 4 days along with yolk sac whereas another was a small gestation sac showing small fetal pole and yolk sac without cardiac activity. Bilateral ovaries were bulky and few large follicles were seen. Significant free fluid was seen in peritoneal cavity. On careful examination, a heterogeneously echogenic mass lesion was noted in right adnexal region in between right ovary and uterus.

Case 2: A 41-year-old woman, primigravida presented at 8 weeks 4 days gestational age with vaginal bleeding and lower abdominal discomfort. Her current pregnancy was also the result of IVF. Previous USG done at 6ª week reported single live intrauterine embryo with normal cardiac activity. Patient was haemodynamically stable.

Image Findings: USG was performed by transabdominal and transvaginal route. Single intrauterine gestation sac with live embryo of 9 weeks was seen.

Figure 1a: Pelvic ultrasound with transabdominal approach showing a live intrauterine conception.

Figure 1b: Intra uterine gestation sac with faintly visualized fetal pole.
Another gestation sac was seen in left adnexal region between the uterus and left ovary showing yolk sac and fetal pole of gestation age 7 weeks 2 days. No cardiac activity was seen in it.

**DIAGNOSIS**

In view of patient's clinical condition and history, there is high suspicion of triplet heterotopic pregnancy with ruptured right tubal ectopic pregnancy in the first case. USG guided diagnostic paracentesis was done and blood was obtained. In second case, there was heterotopic pregnancy with unruptured left ectopic pregnancy. Patient was taken to operation theatre for surgery and laparoscopic ectopic removal with salpingectomy was performed in both these cases.

**DISCUSSION**

In women undergoing infertility treatment, careful evaluation of the adnexa is crucial even if an intrauterine pregnancy is documented. It is important to keep in mind that serum beta hCG level is not a reliable criterion in combined gestations.

Ultrasonography especially through transvaginal approach provides an important aid in diagnosis. Similar to natural conception, the majority (82%) of heterotopic pregnancies following assisted reproductive technology are tubal in location. The most common finding in a tubal pregnancy is an adnexal mass separate from the ovary, with increased specificity when it moves independently from the ovary or contains a yolk sac or living embryo with demonstrable cardiac activity. The second most common sign of a tubal pregnancy is the tubal ring sign. Peripheral hypervascularity associated with the hyperechoic ring has been referred to as a “ring of fire”. However, this finding is also commonly seen with a corpus luteum cyst.
Heterotopic pregnancy is diagnosed in most cases only after clinical signs develop and half of the cases are admitted for emergency surgery following rupture. Ultrasound diagnosis of heterotopic pregnancy in women undergoing infertility treatment is particularly challenging for several reasons. Intrauterine pregnancy with hemorrhagic corpus luteum can simulate heterotopic pregnancy or ectopic gestation both clinically and on sonography. Ascites is often present following assisted reproduction techniques, especially in the setting of ovarian hyperstimulation syndrome. Stimulated ovaries are enlarged, which obscure an ectopic pregnancy and hemorrhagic ascites may result from rupture of a corpus luteum cyst. Although most of the reported heterotopic pregnancies have singleton intrauterine pregnancies and twin, triplet, and quadruplet heterotopic pregnancies have been rarely reported.

CONCLUSION

Heterotopic pregnancies are generally diagnosed later than other ectopic pregnancies (following rupture in 50% of cases). In women undergoing infertility treatment, careful evaluation of the adnexa is crucial even if an intrauterine pregnancy is documented.

A heterotopic pregnancy, though extremely rare, should be kept in mind even if an intrauterine pregnancy is diagnosed and can still result from natural conception, and one needs extra efforts to look for heterotopic pregnancy. The high index of suspicion is to ensure for early and timely diagnosis and management since a timely intervention can result in a successful outcome of intrauterine pregnancy and prevent tubal rupture and hemorrhagic shock which can be fatal.

REFERENCES


**Corresponding Author**

Dr Neha Agrawal, Consultant, Department of Radio-diagnosis, SDM Hospital, Bhawani Singh Marg, Jaipur, Rajasthan, India.

email: nehadeepak2005@gmail.com