ORIGINAL RESEARCH PAPER

Gynaecology

KEY WORDS: Ovarian pregnancy, ultrasonogram, histopathological examination, Corpus luteal cyst

# OVARIAN ECTOPIC PREGNANCY A DIAGNOSTIC DILEMMA CASE REPORTS

**Selvi D*** DGO M.S. OG (PG) Department of Obstetrics and Gynaecology, Shri Sathya Sai Medical College And Research Institute, Ammapettai, Kancheepuram District, Tamilnadu, 603108. *Corresponding Author

**Pushpa Kotur** M.D. DGO Department of Obstetrics and Gynaecology, Shri Sathya Sai Medical College And Research Institute, Ammapettai, Kancheepuram District, Tamilnadu, 603108.

**ABSTRACT**

Ovarian pregnancy is very uncommon type of ectopic pregnancy which accounts for 1/7000-1/40,000 i.e., 0.15%-3% of ectopic pregnancy[1].The incidence is increased due to assisted reproductive techniques[2], IUCD usage and increased incidence of PID. The pre-operative diagnosis of ovarian pregnancy is very difficult. The diagnosis of ovarian pregnancy can be made only intra-operatively. Management of ovarian pregnancy is always surgical. Different surgical methods were used based on the extent of damage to the ovarian tissue. It is also difficult to differentiate it from ruptured corpus luteal cyst during laparotomy. Two cases presented here had same clinical features of ectopic pregnancy which was diagnosed as ovarian ectopic pregnancy during laparotomy and sent for HPE. But HPE report was different in both, one as ovarian pregnancy and other as ruptured corpus luteal cyst. Hence the final diagnosis of ruptured ovarian pregnancy or ruptured corpus luteal cyst could be made only by HPE.

## INTRODUCTION

It is observed that the incidence of ectopic pregnancy is increased from 1:150 to 1:40 pregnancies since last two decades. Reason quoted for increased incidence are, increased incidence of PID, tubectomy failures and tuboplasty, increased use of IUCD, ART techniques and endometriosis in recent years. The commonest site of implantation of ectopic pregnancy is tube which accounts for 97% of ectopic pregnancies. The most uncommon type of ectopic pregnancy is ovarian pregnancy which accounts for 0.5%- 3% of ectopic pregnancies. For diagnosis of ectopic pregnancy in early weeks of pregnancy and in suspected cases of ectopic pregnancy the transvaginal sonography is one of the most important diagnostic tool as it is more sensitive (88% sensitivity) as compared to transabdominal sonography (77%sensitivity). Early diagnosis of ovarian pregnancy is more important as rupture of ovarian pregnancy is more common during early weeks of pregnancy and may cause torrential bleeding and hemoperitoneum. Corpus luteal cyst is highly vascularized structure thin walled functional which supports pregnancy upto12 weeks of pregnancy and may rupture occasionally. Usually blood loss is self- limited, rarely ends up in fatal hemoperitoneum.

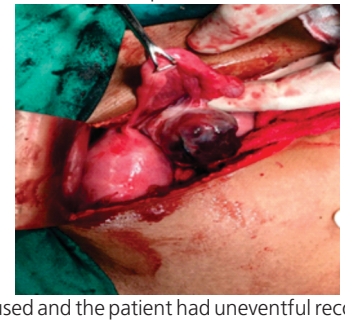
Since the clinical features of ruptured corpus luteal cyst or endometrial cyst resemble that of ruptured ovarian ectopic pregnancy, these conditions always pose diagnostic dilemma for the clinician. Similar dilemma we had in the two cases presented here. Both the above-mentioned cases were presented with the similar clinical features viz. with acute abdomen, vomiting and positive urinary pregnancy test. Both the cases had similar USG

findings suggestive of ectopic pregnancy having hemoperitoneum and with absence of intrauterine gestational sac. However, it is difficult to differentiate between primary ovarian pregnancy from ruptured corpus luteal cyst even on laparotomy. Only HPE can confirm the diagnosis.

## CASE 1.

A 22-year-old, unmarried girl got admitted with the complaints of severe lower abdominal pain and vomiting for past two days. On enquiring about her last menstrual period, she revealed that although she has regular cycles, this time she gave a history of missed cycle for 15 days. Clinically her vitals were stable and systemic examination did not reveal significant findings.

On investigation although her urinary pregnancy test was positive, on USG abdomen her uterus was of normal size with no evidence of intrauterine gestational sac. However, the endometrial thickness was 1.4 cm and the right ovary was enlarged to 7.6 cm x 3.6 cm, and had heterogenous echogenic pattern without any cystic component with internal vascularity. USG also showed presence of free fluid in POD. With these USG findings the diagnosis of ruptured right tubal ectopic pregnancy was made and proceeded for emergency laparotomy. Intra-operative findings on laparotomy were, both tubes were normal with hemoperitoneum (approximately 800-1000ml of blood). Left ovary was normal, right ovary was enlarged hemorrhagic and there was bleeding from its surface which shows the evidence of ruptured ectopic pregnancy in the right ovary. Right oophorectomy was carried out since entire ovary was hemorrhagic and the bleeding was profuse. The specimen was sent for histopathological examination. In this case we were unable to preserve even a minimal part of ovarian tissue even though she was an young unmarried girl. Post operatively two units of compatible whole blood



was transfused and the patient had uneventful recovery.

**Fig.1.1 Intra-op picture of ovarian pregnancy (case 1)**

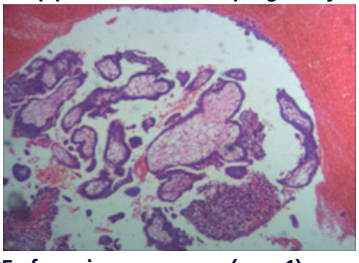


**Fig. 1.2 HPE of ovarian pregnancy (case 1)**

The specimen sent for HPE was reported as ovarian tissue with chorionic villi lined with syncytiotrophoblast and cytotrophoblast suggestive of ruptured right ovarian ectopic pregnancy.

## CASE 2.

A 22-year-old woman, primigravida with 6 weeks of amenorrhea, came to casualty with severe lower abdominal pain, vomiting and giddiness. On examination she was very pale and had moderate degree of tachycardia with blood pressure of 90/ 60 mm of Hg. She had severe tenderness in the lower abdomen and also on per

vaginal examination there was tenderness on cervical movement. On investigation her urinary pregnancy test was found to be weekly positive. USG abdomen and pelvis showed free fluid in the peritoneal cavity suggestive of hemoperitoneum. The size of the uterus was normal with no evidence of intra-uterine gestational sac and with endometrial thickness of 1cm. Left ovary was enlarged to 6 cm x 5 cm and the right adnexa appeared normal. The patient was proceeded for emergency laparotomy.

On laparotomy, the intra-operative findings were uterus, right ovary and bilateral tubes appeared normal. There was hemoperitoneum with 1000ml of blood. Although left side tube was normal, left ovary was enlarged and showed evidence of rupture with oozing over its surface. Most of the ovarian tissue was healthy with only minimal part subjected to tissue damage. Hence, the removal of the damaged part was carried out by wedge resection of the left ovary by preserving the rest of the normal ovarian tissue and the sample was sent for histopathological examination. Two units of blood was transfused post- operatively. Post-operative period was uneventful and she had normal menstrual cycle from the next day of surgery. On follow up with USG after one week there was no intra uterine gestational sac.

HPE report of the specimen i.e., wedge resection of the left ovary, showed ovarian tissue with corpus luteal cyst with no evidence of chorionic villi.

**Fig. 2.1 Intra-op Finding Of Ruptured Corpus Luteal Cyst (case 2)**

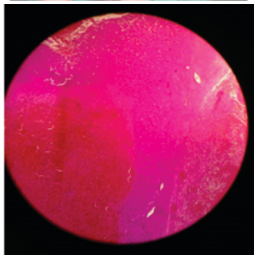


**Fig. 2.2 Hpe Of Ruptured Corpus Luteal Cyst (case 2)**

## DISCUSSION

Ovarian pregnancy, the most uncommon type of ectopic pregnancy, like any other ectopic pregnancy, can present with similar clinical features viz. Acute abdominal pain with or without vaginal bleeding, vomiting and giddiness. Hence, clinically diagnosis of ovarian ectopic pregnancy cannot be differentiated from tubal pregnancy. Other conditions like ruptured corpus luteal cyst or endometriotic cyst also present with similar clinical features. It is still a dilemma to differentiate between an ovarian ectopic pregnancy and a ruptured corpus luteal cyst, in early weeks of pregnancy. Even during surgery, it is difficult to identify an ovarian ectopic pregnancy from ruptured corpus luteal cyst or endometrial cyst. It has always been remained as a challenge for the clinician to differentiate these conditions clinically. It is difficult to arrive at the diagnosis in-spite of better advent of USG (with more advanced 3D, 4D USG)

Spiegelbergs[4,] had formulated four criteria to fulfil the diagnosis of primary ovarian pregnancy. They are: 1.the affected side tube and fimbria should be normal and intact with separate ovaries. 2.Gestational sac should occupy the affected ovary, 3.The affected ovary should be connected to the uterus by utero-ovarian ligament, 4. Histopathological examination demonstration of the ovarian tissue with gestational sac in the wall. However, sometimes the tissue damage is so much that even on laparotomy it is difficult to look for 'Spigelberg's criteria and only histopathological examination confirms the diagnosis.

The two cases presented here had similar diagnostic dilemma. Based on clinical features and USG findings both cases were subjected for laparotomy with the diagnosis of ectopic pregnancy. On laparotomy although both cases fulfilled Spigelberg's criteria, on histopathological examination only first case was ovarian ectopic pregnancy whereas second one turned out to be a ruptured corpus luteal cyst.

Rupture of corpus luteal cyst during pregnancy is very rare complication which may lead to hemoperitoneum. Raised -hCG levels along with USG findings of hemoperitoneum and enlarged ovarian mass with intrauterine gestational sac is diagnostic of ruptured corpus luteal cyst. The causes of ovarian ectopic pregnancies are not clear. The various hypothesis are:1.Delay of ovum liberation, 2.Thickening of tunica albuginea, 3.Tubal dysfunction, 4.Intrauterine contraceptive device.

Artificial reproductive techniques, intra uterine contraceptive device, endometriosis, pelvic inflammatory diseases are the various risk factors described for ovarian ectopic pregnancies[5]. But PID is mainly associated with tubal ectopic pregnancy unlike that with ovarian ectopic pregnancy[6]. Although intrauterine contraceptive device prevents uterine and tubal pregnancies it does not prevent ovarian pregnancy. Hence ovarian ectopic pregnancies are commonly associated with IUCD's users[7]. In Case No. 1, the unmarried primigravida did not have any high-risk factors. In this case it can be hypothesized that this primary ovarian pregnancy might be as a result of intrafollicular fertilization and failure of ovum extrusion after follicular rupture.

Imaging modalities like USG is commonly used to diagnose ovarian ectopic pregnancy along with serum -hCG. Sonographic criteria is used to diagnose tubal pregnancy from non- tubal pregnancy[8]. Absence of intrauterine gestational sac and visualization of the gestational sac in the ovary gives the diagnosis of ovarian ectopic pregnancies.

Comstock et al[5] reviewed six cases of ovarian pregnancy and in five out of six cases a specific common ultrasonographic feature was observed. A hypoechogenic ring was seen on/within the surface of the ovary. Only one of these contained a yolk sac. The patient in which this finding was not seen, was found to have rupture of ovarian ectopic pregnancy at the time of surgery. Ruptured corpus luteal cyst and ovarian pregnancy, both have a ring-like appearance on USG, but in the majority of cases, a corpus luteal cyst appears less echogenic than the ovary itself. This is in contrast to an ovarian ectopic pregnancy in which the ring-like structure appears more echogenic than the ovary.

The treatment of the ovarian ectopic pregnancy depends upon the age and fertility status of the patient. In the Case No. 1, even though patient was young unmarried primigravida we have to resort to oophorectomy as there was extensive damage of the ovarian tissue. However, we could save major part of the ovary in the Case No. 2 by carrying out wedge resection of the ovary since the damage to the ovarian tissue was minimal[9]. The final diagnosis in both the cases were confirmed only after histopathological report.

## CONCLUSION

Although ovarian pregnancy is a rare condition, nowadays the condition is not uncommon due to raising trends of artificial reproductive techniques, tubal reconstructive surgeries and endometriosis. However it is difficult to diagnose during the preoperative period in-spite of good imaging modalities, and blood investigations. Hence I conclude by saying that final diagnosis of ovarian ectopic pregnancy is only by histopathological examination.

**CONFLICT OF INTEREST:** NONE

**SOURCE OF FUNDING**: NIL

## REFERENCES:

1. Itoh H, Ishihara A, Koita H. Ovarian pregnancy: report of four cases and review of literature. Pathol Int. 2003; 53(11):806-09
2. Salas Valien JS, Reyero Alvarez MP.Ectopic ovarian pregnancy. An Med Interna. 1995;12(4): 192-24.
3. M.Lubner, C.Menias, C.Rucker et al, Blood in the belly: CT findings of hemoperitoneum, Radiographics,vol.27,no.1,pp 109-125,2007.View at Publisher-View at Scopus .
4. Kraemer B, Kraemer E, Guengoer E, Juhasz- Boess I. Ovarian ectopic pregnancy; diagnosis, treatment, correlation to Carnegie stage 16 and review based on a clinical case. Fertil Steril 2009; 92:392.e13–15.
5. Cornstock C, Huston K, Lee W. The ultrasonographic appearance of ovarian ectopic pregnancies. Obstet Gynecol.2005;105:42-5
6. Bernabei A, Morgante G, Mazzini M, Guerrini E, Fava A, Danero S. simultaneous ovarian and intrauterine pregnancy: Case report. Am J Obstet Gynecol. 1992;167:134-5. Doi: 10.1016/S0002-9378(11)91646-9.
7. Lehfeldt H, Tietze C, Gorstein F,Ovarian pregnancy and the intrauterine device. Am J Obstet Gynaecol. 1970;108(7):1005-9
8. Kirk E, Bourne T. Diagnosis of ectopic pregnancy with ultrasound, BestPractice & Research Clinical Obstetrics and Gynaecology. 2009;2(4):125-29
9. Hüseyin Cengiz, Cihan Kaya, Murat Ekin, Hakan Güraslan, Hediye Dağdeviren, Levent Yasar. Ovarian Ectopic Pregnancy: Association with Intrauterine Contraceptive Device. Cukurova Medical Journal.2013; 38520-24