



HEMOPERITONEUM AND THE HIDDEN CULPRIT: THE OVARIAN ECTOPIC

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ABSTRACT

Ovarian pregnancy is a rare type of non-tubal ectopic pregnancy. Ovarian ectopic pregnancy incidence after natural conception ranges from 1: 2000 - 60000 deliveries and accounts for 3% of all ectopic pregnancies. It's possible association with contraceptive devices, IUCD's, endometriosis, PID (pelvic inflammatory disease), previous ectopic pregnancies, previous tubal surgeries, tuber sterilization, use of ovulation induction agents and the use of assisted reproductive techniques. Clinical features of ovarian ectopic pregnancy mimics tubal ectopic pregnancy but ultrasound features mimics hemorrhagic cyst of ovary or corpus luteum cyst hence confusing the diagnosis. Accurate diagnosis can be made by spiegelberg criteria followed by histopathological examination. Management includes conservative laparoscopic surgeries includes ovarian wedge resection, aspiration of the product of conception and coagulation at the implantation site however in cases with profuse intraperitoneal bleeding and oophorectomy or salpingo-oophorectomy may be necessary to achieve homeostasis. Here is the case reports of different patients the we encountered in our clinical practice of 2 years. 3 patients of different age group and different parity presented with amenorrhoea and positive UPT test with pain abdomen. Surgical intervention was done in all these patients.

KEYWORDS : ectopic pregnancy, endometriosis, PID (pelvic inflammatory disease), spiegelberg criteria, ovarian ectopic, laparotomy.

INTRODUCTION.

Ovarian ectopic pregnancy is a rare variant of ectopic implantation. It occurs when implantation of the fertilized egg occurs in ovary¹. There are two types of ovarian ectopic pregnancy, one is the primary and other is secondary. Primary occurs due to ovulation dysfunction while a secondary from secondary implantation in ovarian stromal tissue after tubal abortion or tubal perforation. It generally ends with rupture before the end of first trimester because of increased vascularity of ovaries and the surface cortex of ovarian tissue is thin that lacks elasticity hence an intact gestational sac on the ovary is rarely seen in clinical practice². In true ovarian pregnancy, the ova is fertilized while it is in the graafian follicle or in the processes of leaving the follicle. The pregnancy then develops within a capsule of ovarian tissue alongside it. Ovarian ectopic can be diagnosed if 4 clinical criteria are met as described by a spiegelberg criteria:

- 1) the ipsilateral tube is intact and distinct from the ovary,
- 2) the ectopic pregnancy occupies the ovary,
- 3) the ectopic pregnancy is connected by the utero-ovarian ligament to the uterus,
- 4) ovarian tissue can be demonstrated histopathological amid the placental tissue.

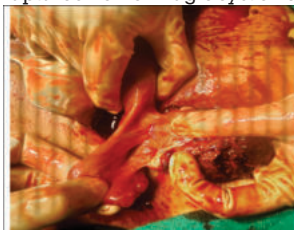
The risk factor for ectopic ovarian pregnancy are contraceptive devices, IUCD use, endometriosis, pelvic inflammatory disease, previous ectopic pregnancy, previous tubal surgeries, tubal sterilization, pelvic adhesion, intrauterine surgery, use of ovulation induction agents and the use of assisted reproductive techniques. Management being surgical intervention.

Case History

Case :I

A 27-year-old P1L1 came with complain of pain in lower abdomen for two days. Her last menstrual period was 45 days back, her periods were regular with bleeding for four to five days, bleeding at every 26 to 28 days. Her first pregnancy was three years back delivered by vaginal delivery. She did not

report any intrapartum or postpartum complication in last pregnancy. She did not give history of any contraceptive use or history of pelvic inflammatory disease or any medical history of tuberculosis. Patient was conscious and well oriented, but pallor was present. Pulse was 110 beats per minute regular, blood pressure was 102/70 mmofHg. On abdominal examination, guarding and tenderness was present in lower abdomen. On speculum examination, vagina was pale and culdocentesis was positive. On per vaginal examination, uterus was anteverted, uterine size could not be assessed due to the tenderness. There was cervical motion tenderness and fullness in the left fornices. On investigation, her urinary pregnancy test (UPT) was positive. Hemoglobin was 8.5g/dl, her total leukocyte count was 10,000/mm³ and platelet count was 2 lakh/mm³. Blood group was A positive and ultrasonography report from outside suggested 93 x 54 mm ruptured hemorrhagic cyst of left side.



Pic showing left sided ovarian ectopic pregnancy while left sided tube appears normal



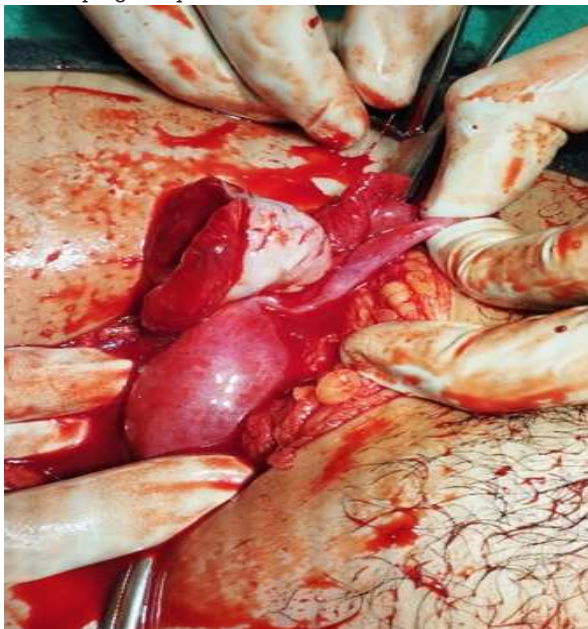
Pic showing 93 x 54 mm ruptured ectopic showing blood clots

She was also carrying a CT scan report showing 65 x 48 x 55 mm size heterogeneous hypodense lesion with internal cystic component noted in left adnexa abutting left lateral uterine wall with moderate localized hematoma. Provisional diagnosis of ruptured ovarian ectopic pregnancy was made. Exploratory laparotomy was done which revealed hemoperitoneum of about 200 CC and clots of approximately 200 CC were removed. Uterus was normal in size and both

tubes were found to be normal. Right side ovary was normal and on left side ruptured ovarian ectopic pregnancy was seen. left sided oophorectomy done. Sample sent for histopathological examination. Patient had an uneventful post operative period. One-unit PRBC transfused postoperatively. Patient was discharged on 5th post operative day. Grossly, brown hemorrhagic tissue was received on histopathological examination. Cross section shows ovarian tissue along with chorionic villi surrounded by syncytiotrophoblast and cytotrophoblast along with areas of hemorrhage and vascular congestion.

Case :2

A 22-year-old primi-gravida with amenorrhea of 41 days present in emergency department with complain of pain abdomen for one day. There was no history of any bleeding per vagina, fever or vomiting. She was married for 1.5 years, and her previous menstrual cycle were regular with average flow. There was no any history of any contraceptive uses. In this present pregnancy was conceived spontaneously and her urinary pregnancy test was positive at home. On examination, she was afebrile with pallor and her pulse was 100 beats per minute and the blood pressure was 100 /60 mm of Hg. On per abdominal examination, it showed tenderness over the lower abdominal. On per vaginal examination, uterus was normal size. There was cervical tenderness motion along with right fornices fullness and left fornices was normal. On investigation, her hemoglobin was 9 g/dl, total leukocyte count were 10,100/l and platelet count were 1.3 lakhs/l. Blood group was O positive. Ultrasound report suggested, uterus of size 72 x 32 x 31 mm, mild fluid collection was present in the pouch of Douglas and there was a right tubo-ovarian mass lesion noted. On trans-vaginal ultrasound, a hyperechoic lesion in the right adnexal lesion measures around 39 x 35 mm suggestive of ectopic pregnancy. Emergency laparotomy was done. The right ovary was enlarged which was about 4 x 4 cm appeared to be ruptured and there was a visible oozing from the surface of the ovary. The hemoperitoneum was about 200 ml. Right side oophorectomy was done as ovary can't be preserved and the tissue was sent for histopathological examination. The postoperative period was uneventful and the patient was discharged on the 5th post operative day. Gross examination, there was a 4 x 4 cm grayish brown ovary with blood clots attached to it. Microscopic examination suggested areas of haemorrhage, trophoblastic villi embedded within the ovarian parenchyma which was confirmatory of primary ovarian pregnancy.



Pic showing bulky right ovary with oozing from ruptured site

Case 3:

35 years old P4L4 presented to our emergency department with acute pain abdomen and features of shock. She gave a history of amenorrhea of 1.5 month. We did urinary pregnancy test which was positive. Patient was in shock and was severely anemic. Her hemoglobin was 5g/dl while her pulse was 130 beats per minute and blood pressure was 70/50 mmofHg. Tenderness was present all over the abdomen. On per vaginal examination, uterine size could not be assessed properly and in left fornices tenderness was present. There was also cervical motion tenderness, external OS was closed. Diagnosis of ruptured ectopic pregnancy was made, and exploratory laparotomy was done. Intraoperatively hemoperitoneum of around 1.5 liters of blood/clots were seen and there was left ovarian ruptured ectopic with bleeding and adhesion was present between ovary and omentum. left sided salpingo-oophorectomy was done and endometrial curttage were done to rule out heterotrophic pregnancy. Right sided tubal ligation was done. Post op period was uneventful. She was transfused with total 4 units PRBC. She was discharged on 8th post operative day. The tissue was sent for histopathological examination. On gross examination, fallopian tube was measured which was 2 cm long but there was no evidence of rupture, the ovary measured 4.5 x 4.5 x 3 cm and showed an area of rupture of 3 centimeter. On histopathological examination, the ovary showed chorionic villi embedded in ovarian parenchymal tissue with surrounding hemorrhage. The fallopian tube was edematous and congested, the lumen was filled with fresh blood and there was no evidence of gestational sac in tubes.



Pic showing left sided ruptured ovarian ectopic adherent with omentum

DISCUSSION

An ectopic pregnancy is a pregnancy that is outside normal uterine cavity. Most common site of ectopic pregnancy being fallopian tube, others are ovary, abdomen, cervix or cesarean scar. Ovarian pregnancy is a rare type of ectopic pregnancy¹. A recent systematic review² identified only 82 case reports of Ovarian Ectopic Pregnancy in the international literature between 2011 and 2022³. Its pathogenesis remains unclear. Risk factor for ovarian pregnancy include prior use of

intrauterine devices, artificial reproductive techniques, concurrent endometriosis, pelvic adhesion and intrauterine surgeries while pelvic inflammatory disease remains unclear. Intrauterine device prevents uterine implantation but do not provide protection against ovarian implantation.⁴ A study showed the strong association of IUD as a risk factor of ovarian pregnancy thus IUD reduces uterine implantation by 99.5%, tubal implantation in 95% and they have no effect on ovarian location.⁵

There are different theories regarding ovarian ectopic

1) it may be due to the interface in the release of ovum from ruptured follicle, malfunctioning of the tubes and the inflammatory thickening of tunica albuginea,

2) reflux of the conceptus following a normal fertilization from the uterus,

3) assisted reproductive technique has also increased the rate⁶ of ovarian ectopic mainly due to

A) application of ovulation is stimulating drugs can induce increase sex hormone secretion by the ovaries therefore increase contractile sensitivity of uterine smooth muscle and interfering with fallopian tube function and zygote moves retrograde to the ovary

B) embryo may get implanted in the ovary by the path of egg retrieval

C) may be due to large volume of cultural medium injected into the uterus during transplantation⁷.

4) presence of intrauterine contraceptive device (IUCD) leads to changes in the prostaglandin synthesis that increases tubal motility leading to implantation in the ovary itself.

The sign and symptom of ovarian pregnancy are similar to the tubal pregnancy, triad of amenorrhea, pelvic pain and with or without per vaginal bleeding⁸ but it may be confused with ruptured hemorrhagic cysts or chocolate cyst. Ultrasonography confirms the diagnosis as corpus luteal cyst that usually has thinner wall which are less echogenic than the endometrium whereas hemorrhagic cyst has fine internal lace like pattern. In many cases, there may not be the history of amenorrhea that may be because patient get confused with uterine shredding as menstrual bleed. Rupture of ovarian ectopic in first trimester is usual. One study identified 75% (9/12) OEPs preoperatively, but the article focused on surgical management with little information on how the preoperative diagnosis was made⁹. Confirmatory diagnosis is often made intra-operatively supported histological reports of the sample. A correct diagnosis of ovarian pregnancy during surgery is only possible in 28% of the cases, because it is difficult to differentiate from a haemorrhagic corpus luteum intraoperatively^{4,10}.

Diagnosis of such disease is being made by clinical examination, patient's history supported by radiological investigations.

Several surgical techniques are there in which ovarian wedge resection, enucleation of the products of conceptus from the ovary, trophoblast curettage with coagulation or hemostatic suture of the bed with total ovarian conservation. Patel et al showed that the most surgical treatment of ovarian ectopic pregnancy consists on wedge resection and oophorectomy¹¹.¹². Surgical excision of the ectopic pregnancy, while preserving the ovary, is ideal. Ovarian wedge resection is sometimes necessary in larger, more advanced pregnancies, while oophorectomy should be reserved as a last resort when faced with uncontrollable bleeding.

For ruptured ectopic pregnancy, surgery is the main treatment. laparoscopy is the standard treatment in the management of hemodynamically stable patient with ovarian ectopic pregnancy while in patient with massive abdominal bleeding laparotomy is done. Prompt surgical intervention is required, with the trend moving away from laparotomy towards

laparoscopy¹³. In all our patients oophorectomy was done and we couldn't save the affected ovary. Conservative treatment especially for unruptured ectopic pregnancy is methotrexate or prostaglandin therapy is still in controversial¹⁴.

CONCLUSION

Although ovarian ectopic pregnancy is a rare condition but by careful evaluation it can be diagnosed. The close differential diagnosis are hemorrhagic ovarian cyst, a corpus luteum cyst, tubal ectopic pregnancy. Once the ovarian pregnancy is ruptured, a massive hemorrhage can lead to severe complications hence only early detection and implementation of treatment reduce serious complications. Treatment of almost all known ovarian ectopic pregnancy have been surgical. Also, case reports have described successful methotrexate therapy. Even though ovarian ectopic pregnancy is commonly managed surgically still no problem is noticed in case of subsequent future pregnancy.

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