Case Report

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Ovarian Ectopic Pregnancy: A Rare Case Report

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ABSTRACT

Ovarian ectopic pregnancy is rare and constitutes around 3% of all ectopic pregnancies. Its presentation is similar to tubal ectopic pregnancy and is difficult to diagnose based on the presentation and ultrasound findings. Here, we describe one such case which we encountered in our practice. Primigravida patient at early gestation presented with vaginal spotting and pain in lower abdomen. She was suspected as ruptured ectopic pregnancy based on examination and ultrasound findings. Immediate laparotomy was performed and patient was diagnosed to have ruptured ovarian pregnancy intraoperatively. Partial ovariotomy was performed and the case was successfully managed. Histopathology confirmed the diagnosis. Surgery is the mainstay of definitive diagnosis and treatment. Identifying these cases early is imperative as such patients can collapse suddenly and there are high chances of maternal morbidity and mortality.

Keywords: Ovarian Ectopic Pregnancy; Ultrasound Findings; Histopathology; Maternal Morbidity and Mortality.

INTRODUCTION

Ectopic pregnancy is the most common gynecological emergency which can lead to pregnancy related deaths in the first trimester. In this entity, the implantation and development of the ovum occurs outside the uterus.[1] 95% of all ectopic pregnancies occur in the tube and remaining 5% can occur in the ovary, cervix and abdomen.[1] Ovarian ectopic pregnancy is the most common non tubal ectopic pregnancy and the incidence varies between 0.5-3%.[2] It poses diagnostic challenges and is usually confirmed on surgery and proven on histopathology.[2]

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CASE REPORT

Twenty nine years primigravida in her eighth week of gestation presented with vague pain in lower abdomen more on the right side for the last three days. The pain was dull in nature and not radiating to the back and thighs. She also gave history of vaginal spotting for eight days. On examination, patient was conscious, oriented but severe pallor was present with mild tachycardia and hypotension. On abdominal examination, she had mild tenderness in right iliac fossa and there was

left forniceal fullness and tenderness on per vaginal examination. The hematological and biochemical tests were within normal limits except hemoglobin being 6.8 grams. Patient was resuscitated with crystalloid solutions and an urgent ultrasound was done which was suggestive of complex right tubal mass lesion with moderate free fluid in pelvis suggestive of hemoperitoneum. Her vitals started deteriorating even with all the resuscitative measures. Patient and her relatives were counselled about her condition, further management and associated risks. She was immediately taken up for emergency laparotomy in view of ruptured ectopic pregnancy in hypovolemic shock. Intraoperatively, moderate hemoperitoneum was noted. Bilateral fallopian tubes were intact but there was breech in the continuity of right sided ovarian tissue. Chorionic villi were evacuated from the ovarian tissue and partial ovariotomy was performed on the right side. Two units of blood followed by three doses of intravenous iron sucrose were given to the patient. Her post operative period was uneventful and she was discharged on the fifth post-operative day. Histopathological examination confirmed the intra-operative diagnosis of ovarian ectopic pregnancy.

DISCUSSION

St. Maurice reported the first case of ovarian ectopic pregnancy in 1682.[3] The estimated prevalence of ovarian ectopic pregnancy since then is found to be in the range from 1:7000 to 1:70,000.[4]

The pathophysiology of ovarian ectopic pregnancy is implantation of the fertilized ovum over the surface of the ovary. In primary ovarian ectopic, the ovum gets fertilized in the follicle only, before it is expelled from the ovary. The secondary ovarian ectopic occurs when the fertilized ovum is regurgitated from the fallopian tube and implanted in the stroma.[5] Many theories are proposed to describe these implantation abnormalities which include ovum liberation delay, thickening of the tunica albuginea, tubal dysfunction and intra-uterine contraceptive devices.[4]

The various risk factors include advanced maternal age and parity, pelvic inflammatory diseases, sexually transmitted infections, prior pelvic surgery, previous history of ectopic pregnancy, history of insertion of intrauterine contraceptive devices and assisted reproductive techniques.[6] Our patient had no such associated risk factors which was also seen in the report published by Zahra *et al*.[10]

The incidence of this dreadful complication is on rise due to the development in assisted reproductive technology which is reported to be 6% of all in-vitro fertilization ectopic pregnancies. Ovarian ectopic pregnancy following fresh, cryopreserved and donor embryos have also been reported. Hasegawa *et al.* reported one such unique case where ovarian ectopic was diagnosed in a surrogate after day 5 fresh blastocyst transfer.[7] The increased incidence post in-vitro fertilization procedures can be attributed to usage of higher volume of culture media, high levels of estrogen and progesterone, scars on ovarian surface caused by oocyte retrieval, increased vascularity after ovarian stimulation, high numbers of transferred embryos or blastocysts.[7] It has also been observed that high estrogen levels affect the normal physiology of the fallopian tube including the impairment of the protein secretion and frequency of the ciliary motion which hampers embryonic motility and implantation leading to increased likelihood of implantation outside the uterine cavity.[8]

More than 90% of ovarian ectopic pregnancies rupture before the end of first trimester and lead to complications like hemorrhage and hypovolemic shock. Such patients present in emergency and may have a history of pain in abdomen, bleeding per vaginum and syncopal attack. The patients who visit earlier may be asymptomatic or present with usual pregnancy symptoms of nausea, vomiting and constipation with history of amenorrhoea.[6]

Though the clinical picture may arise the suspicion of ectopic pregnancy but ultrasound plays an important role in specific diagnosis. Transvaginal ultrasound demonstrates an adnexal mass or cyst on or within the ovary which cannot be separated from the ovary even on applying pressure via the probe. Colour Doppler may show a hyper vascular rim-ring of fire sign. Yolk sac or embryo may be seen rarely. Mild to moderate fluid in pelvis is seen in cases of ruptured ovarian ectopic pregnancy.[9] In cases where patients are hemodynamically stable and ultrasound diagnosis is not certain, serial beta hCG levels with repeat ultrasound can be performed until the diagnosis is established.

Till 1800's, medical management was the norm to manage the ectopic pregnancy but it led to almost 60% of maternal mortality. The first successful surgery was performed in USA in 1759.[4] At present, surgical management forms the mainstay of treatment, laparoscopy being considered as the gold standard. Wedge resection of the ovary, partial oophorectomy or salpingo-oopherectomy is

performed followed by histopathology to confirm the diagnosis. Preoperative and intraoperative diagnosis is challenging and is often confused in cases with ruptured corpus luteal cyst, ruptured hemorrhagic cyst or ruptured tubal ectopic pregnancy.[6]

In 1878, Spiegelberg established four criteria to diagnose ovarian ectopic pregnancy which is still being practiced. These include[10]

1. Gestational sac is located in the ovary.
2. Ectopic pregnancy is attached to the uterus with the ovarian ligament.
3. Ovarian tissue is present in the gestational sac and proven histologically.
4. The fallopian tube along with fimbriae of the involved site is intact.

Following is the new diagnostic criteria set by Sergent *et al.* in 2002[5]

1. Serum beta hCG ≥ 1000 IU/L and empty uterine cavity on transvaginal ultrasound.
2. Confirmation of ovarian involvement on ultrasound during surgical exploration with either bleeding or visualization of chorionic villi or atypical cyst on the ovary.
3. Fallopian tubes are normal and intact.
4. Serum beta hCG not detected after the treatment.

Fessehaye et al reported an interesting case of chronic ovarian ectopic pregnancy which was misdiagnosed initially and patient had undergone manual vacuum aspiration for missed abortion on the basis of thickened endometrium on ultrasound. The patient then presented with minimal vaginal bleeding for 2 months post procedure, ultrasound was repeated which was suggestive of 9x9 cms left adnexal mass with a nonviable fetus. Laparotomy followed by left ovariotomy was performed and diagnosis was confirmed on histopathology.[2]

The role of medical treatment is not so well established for ovarian ectopic pregnancy though reports on successful management of such cases with methotrexate are available. Literature also reveals cases where methotrexate is directly injected in the gestational sac under ultrasound guidance. The use of methotrexate offers the advantage of preserving the ovary and avoiding the post surgical adhesions formation although it can be used in cases where the criteria of medical management are fulfilled.[5] Birge *et al.* reported a successful management of ovarian ectopic pregnancy diagnosed by transvaginal scan in a woman at 6 weeks gestation. She was given a single dose of methotrexate and was followed with beta hcg levels which returned to normal within 3 weeks of the injectable dose.[1]Al-Dabal *et al.* also reported a case of ovarian ectopic pregnancy after ICSI which was diagnosed on ultrasound and was managed medically after a joint decision and counselling the patient. As the fall in beta hCG levels was not significant, repeat dose of methotrexate was given to the patient but eventually the patient landed up with the emergency surgery as there was rupture of the ectopic gestation.[8]

CONCLUSION

Ovarian ectopic pregnancy, though rare, can land up in a near-miss situation. It can pose a serious threat to life of a women and hence any clinical suspicion should never be neglected. Ultrasound assessment by a skilled professional and close monitoring will ensure early diagnosis which is crucial to mandate treatment that helps in preserving as much fertility as possible along with reducing the maternal morbidity and mortality.

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