

# Ovarian Ectopic Pregnancy Managed Medically : A Case Report

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## ABSTRACT

**Background :** Ovarian ectopic pregnancy is a rare type of ectopic pregnancy, but incidence is increasing. I present a case that was medically managed.

**Case Presentation:** A 22-year-old woman came with amenorrhea for six weeks, abdominal pain. Her general condition was good and her vital signs were normal. She felt tenderness on abdominal examination. Ultrasonography showed an ectopic gestational sac in right ovary. The final diagnosis was ovarian ectopic pregnancy and she was successfully treated with methotrexate. After administration of methotrexate her beta hCG was negative and subsequent sonographic examination was normal.

**Conclusion:** Ovarian ectopic should be kept in mind during assessment of ectopic pregnancy.

## KEY WORDS

Ectopic pregnancy; Ovarian ectopic; Ovarian pregnancy; Ultrasound.

## INTRODUCTION

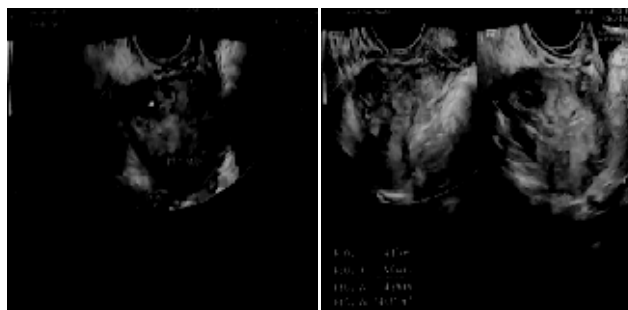
Ovarian ectopic pregnancy is a rare form of ectopic pregnancy which is implanted within the ovarian parenchyma either completely or partially.<sup>1</sup> It occurs in 0.5% to 1% of ectopic gestations, or one in 7000 to 40,000 live births.<sup>2</sup> However, Only 82 case reports were identified by a recent systematic review from the literature between 2011 and 2022.<sup>1</sup> Although this is a potentially life-threatening event, the pathophysiology is not yet understood. Here we report a case of ovarian ectopic in a 22-year-old lady. The purpose of this report is to draw attention to early detection and feasible medical management of ovarian ectopic pregnancy.

## CASE PRESENTATION

A 22-year-old lady, primae gravida, came with a history of 6 weeks of amenorrhea and abdominal pain in OPD consultation at Islami Bank Hospital, Agrabad, Chattogram on July 2023. Prior to the symptoms, she had a regular menstrual cycle. Her vital signs, including

blood pressure of 110/70 mm of Hg, a pulse rate of 80 beats/minute, were all within normal limits. A physical examination showed minimal tenderness in all sides of her abdomen with an increase in left iliac fossa on deep palpation. speculum examination revealed mild spotting and tenderness over the left fornices.

Ultrasound (USG) revealed an empty uterine cavity with an ectopic gestational sac (5.8 mm) and yolk sac seemed to be inside her right ovary (Volume 54 cc) and were identified close to the midline, which correlated with her 6 weeks of amenorrhea. The fetal heartbeat was not clearly audible. Minimal free fluid was noted in pouch of Douglas. Her left ovary seemed to be normal. Her beta human Chorionic gonadotropin (hCG) was 1161.33 mIU/ml.



**Figure 1** USG showing gestational sac in right ovary

Her condition was diagnosed as ovarian ectopic pregnancy. Injection Methotrexate 1mg/kg was given intramuscularly after proper counselling, along with injection folinic acid. She was stable and her beta hCG on day 4 was 179.38 mIU/ml. Thus, her beta hCG level gradually dropped and her symptoms significantly improved. Her subsequent ultrasound findings revealed normal study (Figure 2).

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**Figure 2** USG after treatment showing disappearance of gestational sac

## DISCUSSION

Ovarian ectopic pregnancy is one of the rarest ectopic pregnancies. The incidence ranges from one per 2,100 to one per 60,000 pregnancies.<sup>3</sup> It may occur when an ovum is fertilized and is retained within the ovary.<sup>4</sup> It may result from secondary implantation or of failure of follicular extrusion. Extrafollicular pregnancies may be interstitial, cortical, superficial, or juxtafollicular.<sup>5</sup> It may rarely be part of a heterotopic pregnancy or of a twin ovarian pregnancy.<sup>4</sup> Theories on the causation include ovum liberation delay, tunica albuginea thickening, tubal dysfunction, and intrauterine devices for birth control.<sup>6</sup> There has been a recent concern of increase in the incidence due to better diagnostic modalities, wider use of contraceptive IUD, ovulatory drugs, and assisted reproductive techniques such as in vitro fertilization, embryo transfer and empty follicle syndrome.<sup>7</sup>

Ovarian pregnancy may occur without any risk factors; however, a strong association of ovarian pregnancies with intrauterine devices has been identified. Other risk factors are assisted reproductive technologies, endometriosis and pelvic inflammatory disease.<sup>4</sup> However, some aspects are unexpected, such as ovarian pregnancies in contralateral ovary as the corpus luteum, similar to the observations of contralateral tubal pregnancies.<sup>2</sup>

Typical presentations are lower abdominal pain, menstrual irregularities as in other ectopic conditions and corpus luteum cyst. Diagnosis may be made using the Spiegelberg criteria which include: presence of the gestational sac in the region of the ovary, the ectopic pregnancy is attached to the uterus by the ovarian

ligament, ovarian tissue in the wall of the gestational sac is proved histologically, and the tube on the involved side is intact.<sup>6</sup> This distinguishes primary ovarian pregnancies from other ectopic pregnancies in which the ovary is secondarily involved.<sup>3</sup>

Most ovarian pregnancies are diagnosed in the first 8 weeks of pregnancy, however, some occur before a missed period and some are diagnosed as late as after 44 weeks of gestation.<sup>2</sup> The early diagnosis of ovarian ectopic pregnancy is important as it is associated with higher maternal morbidity compared to other ectopic pregnancies. However, it is often difficult to diagnose ovarian ectopic pregnancy by USG. It may be due to the relative rarity of this condition and the lack of expertise in detecting it. Moreover, the differential diagnosis between OEP and TEP can be difficult and is rarely made on B-mode imaging alone without utilizing color Doppler and palpation of pelvic organs with the ultrasound probe.<sup>8</sup> Sometimes the presence of corpus luteum cysts and hemorrhagic cysts makes the sonographic diagnosis of an ovarian pregnancy difficult.<sup>3</sup> The echogenicity of the corpus luteum is either equal to or less than the ovarian parenchyma, while the tubal ring of ectopic pregnancy is more echogenic. Due to the diagnostic difficulty, it is still detected mostly at emergency surgery. Often it is operated with a misdiagnosis of ruptured tubal ectopic pregnancy or hemorrhagic corpus luteum.<sup>7</sup> An elevated beta hCG levels may indicate a prediagnosis.<sup>6</sup>

Ovarian ectopic pregnancy is more likely than tubal ectopic to contain an embryo and to present with severe hemoperitoneum. As the ovary is highly vascularized, ovarian ectopic pregnancies are prone to rupture and bleeding.<sup>6</sup> A recent study compared ovarian and tubal ectopic and found that ovarian ectopic was more likely to present with abdominal pain without vaginal bleeding, contain an embryo with cardiac activity and have severe hemoperitoneum on ultrasound.<sup>8</sup> Occasionally, an ovarian pregnancy can result in choriocarcinoma.<sup>9</sup>

Medical and conservative therapies have been suggested to stop ovarian tissue loss, pelvic adhesions, and to maintain the patient's fertility.<sup>6</sup> A recent systematic review showed that medical treatment was attempted in 8 (7.2%) women without specific criteria of HCG concentrations, pelvic masses or fetal cardiac activity. Hyperosmolar glucose was given in one case in the lesion. Methotrexate was injected either locally or intramuscularly and was successful in five cases. In

2 cases it failed and surgical treatment was needed.<sup>2</sup> However, if the pregnancy is advanced majority will need surgery and a positive correlation was found between gestational age and surgery by laparotomy, and with less conservative surgery and more adnexectomies.<sup>2</sup> Other medical managements include administering mifepristone to patients with conditions identified by transvaginal USG, administering parenteral prostaglandin F2a and administering MTX to patients with non-ruptured conditions identified by laparoscopy.<sup>6</sup>

### LIMITATION

Based on a single case report and absence of long term follow up the findings cannot be generalized.

### CONCLUSION

Ovarian ectopic pregnancy is rare and can be associated with high morbidity and adverse consequences for future fertility. We have shown that in a dedicated early pregnancy setting, it can be detected on ultrasound scan at the initial visit, facilitating optimal medical treatment and reducing the risk of blood transfusion and oophorectomy. Especially for young patients, it is important to consider the preservation of fertility.

### RECOMMENDATION

In the era when use of intrauterine devices, ovulatory drugs and assisted reproductive techniques are increasing, there is a possibility of an increase in the incidence of ovarian ectopic pregnancy. So ovarian ectopic pregnancy should be kept in mind as a possibility. Thus, early medical treatment or laparoscopy can decrease the risk of complications such as rupture, secondary implantation, hemorrhagic shock and maternal mortality.

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### INFORMED CONSENT

Written informed consent was obtained from the patients and patients guardian for publication of the Case Report.

### DISCLOSURE

The author declared no competing interest.

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