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CASE REPORT

Case Report of an Undisturbed Ectopic Pregnancy with Very High Human Chorionic Gonadotrophin (β-hCG)

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Abstract

This is a case report of a patient with an undisturbed ectopic pregnancy and very high levels of human chorionic gonadotrophin (β-HCG). The patient presented to the emergency room at 9+1 weeks of gestation with mild abdominal pain and vaginal bleeding. She had an obstetric history of two previous cesarean section deliveries. On presentation, her human chorionic gonadotropin (β-HCG) measured to be 26,530 mIU/ml, and after 18 hours, the β-HCG level was 25,660 mIU/ml. An ultrasound scan revealed no evidence of intrauterine pregnancy, a left ovarian cyst measuring 2.86 cm x 2.17 cm, and the presence of a mixed mass near the ovary measuring 3.92 cm x3.62 cm. The patient was diagnosed with a left tubal ectopic pregnancy and was taken for an immediate laparoscopy. Intraoperatively, the left tubal ectopic pregnancy was undisturbed and measured about 4-5 cm involving more than half of the fallopian tube. The mixed mass, along with the left fallopian tube, was removed as a whole.

Keywords: Abdominal pain, Cesarean Section, Ectopic-pregnancy, Laparoscopy, Tubal pregnancy, Ultrasonography

Introduction

An ectopic pregnancy is any pregnancy implanted outside of the endometrial cavity. In the United Kingdom, the incidence is approximately 11/1000 pregnancies, with an estimated 11,000 ectopic pregnancies diagnosed each year. The incidence of ectopic pregnancy in women attending early pregnancy units is 2–3%.[1]Unfortunately, it is associated with mortality. About six maternal fatalities were reported between 2006 and 2008.[2]

Ectopic pregnancy is a gynecological complication that occurs in approximately 1–2% of all pregnancies and is an important cause of morbidity in women.[3] It could be a life-threatening event.

Tubal localization accounts for 95–99% of ectopic pregnancies. Other localizations such as ovarian, cervical, cornual, and abdominal implants are rarely seen.[4] In the past decades, the management of ectopic pregnancy was revolutionized by the development and continuous improvement of

transvaginal ultrasonography (TVUS), which, together with the implementation of the Beta human chorionic gonadotropin (β-hCG) assay, allows early diagnosis of ectopic pregnancy with the prevention of complications.[5] As a consequence, the clinical presentation of ectopic pregnancy has changed from a life-threatening disease, necessitating emergency surgery, to a benign condition in almost asymptomatic women for whom non-surgical treatment options are also available.[6]

Treatment with methotrexate (MTX) in stable ectopic pregnancies is now a safe alternative instead of surgery.

Prior ectopic pregnancy and prior genital surgery were strongly associated with ectopic pregnancy in women followed in German gynecological practices. Psychiatric diseases had an additional impact on the risk of ectopic pregnancy.[3]

Risk factors for ectopic pregnancy in Germany: a retrospective study of 100,197 patients

Ectopic pregnancy is associated with fallopian tube damage, pelvic inflammatory disease (PID) or salpingitis, history of tubal surgery, previous ectopic pregnancy, in utero diethylstilbestrol (DES) exposure, and history of assisted reproductive technologies (ART). The two most commonly reported sexually transmitted infections (STIs), chlamydia and gonorrhea, cause the majority of primary salpingitis, a substantial portion of PID cases, and is a recognized risk factor for ectopic pregnancy.[7]

A majority of tubal ectopic pregnancies could be visualized on transvaginal ultrasound.

Pelvic sonography plays a pivotal role in diagnosing ectopic pregnancy and its location. An early diagnosis is crucial to prevent catastrophic outcomes and initiate prompt and appropriate treatment.

Tubal ring sign in tubal pregnancy is a hyperechoic ring surrounding an extrauterine gestational sac.[8]

Case presentation

This is a case of a 35-year-old woman who presented to the emergency department at 9 +1 weeks of gestation with amenorrhea, lower abdominal pain, and vaginal bleeding. Her obstetric history revealed spontaneous conception in this pregnancy and two previous cesarean section deliveries. The patient otherwise has no other known pre-existing conditions.

On examination, the patient was vitally stable, and there was mild lower abdominal tenderness and mild vaginal bleeding. A departmental ultrasound scan revealed a left ovarian cyst measuring 2.86 cm x 2.17 cm with a mixed mass near the ovary was noted measuring 3.92 cm x 3.62 cm, as shown in Figure 1.

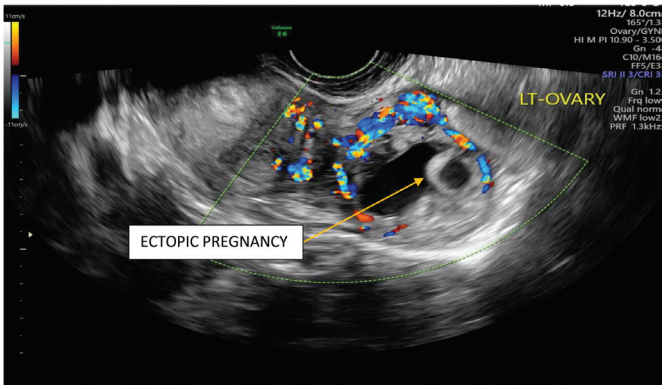

Figure 1: Ultrasound picture of ectopic tubal pregnancy

No intrauterine gestational sac was identified, and there was no fluid in the pouch of Douglas, as shown in Figure 2.

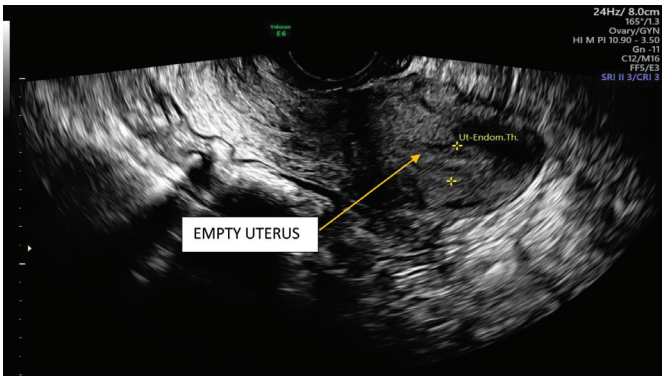

Figure 2: Ultrasound picture showing an empty uterus

The serum beta-human chorionic gonadotrophins (β-hCG) was measured to be 26,563 mIU/ml on presentation and then repeated after 18 hours it was measured to be 25,660 mIU/ml.

A diagnosis of ectopic tubal pregnancy was confirmed. The patient was counselled for possible salpingectomy, and the patient consented for a laparoscopy , was reviewed by an Anesthetist as preoperative assessment Intraoperatively, the

mixed mass was discovered to be an undisturbed, intact left tubal ectopic pregnancy involving almost more than half the length of the fallopian tube, as shown in Figures 3 & 4. Therefore, a left-sided salpingectomy was subsequently performed. The right fallopian tube and rest of the pelvis were assessed to be normal.

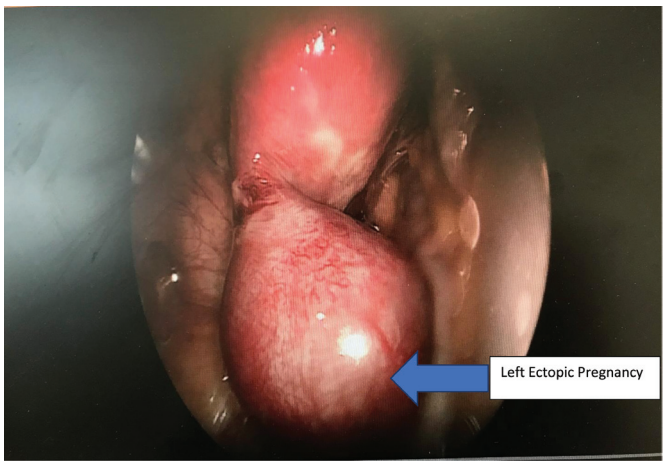

Figure 3: Laparoscopic view of ectopic beside uterus

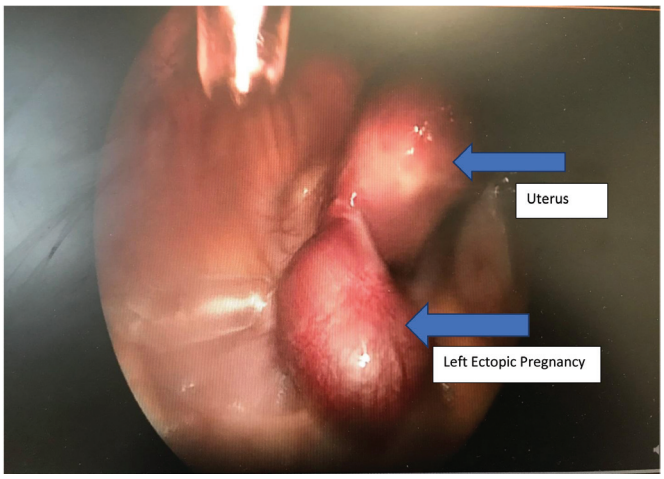

Figure 4: Another laparoscopic view of ectopic beside uterus

Post-operatively, the β-hCG levels dropped to 5,827 mIU/ml. The patient was debriefed regarding her condition and her future prospects of fertility. The patient was discharged home in stable condition along with a weekly follow-up until her β-hCG dropped.

In March 2020, the patient presented to the obstetrics and gynecology clinic at eight weeks of gestation, which was confirmed on routine abdominal ultrasound to be a viable intrauterine pregnancy. In September 2020, the patient had an uneventful caesarian section and gave birth to a healthy baby.

Discussion

Ectopic pregnancy is a fatal emergency condition. It is one of the top leading causes of maternal mortality in the first trimester and accounts for 10–15% of all maternal deaths.[9] Ectopic pregnancy is the leading cause of maternal morbidity and mortality worldwide.[9]

Primary care physicians must maintain a high index of suspicion as clinical presentations vary widely from being asymptomatic to exhibiting hemodynamic compromise. Commonly, the patient presents with abdominal pain, amenorrhea, and sometimes vaginal bleeding. The patient may have an atypical presentation or even be asymptomatic in the earlier stages.[10]

Specific signs of ectopic pregnancy include pelvic tenderness, adnexal tenderness, abdominal tenderness, cervical motion tenderness, pallor, abdominal distension, enlarged uterus, systemic shock, or collapse. Ectopic pregnancies can present atypically as breast tenderness, gastrointestinal symptom, dizziness, fainting or syncope, shoulder tip pain, urinary symptoms, the passage of tissue, rectal pressure, or pain on defecation or can present with abdominal or pelvic pain, amenorrhea, missed menstrual cycles, vaginal bleeding with or without clots.[11]

The remainder will initially be classified as Pregnancy of unknown location (PUL). Not all ectopic pregnancies initially classified as a PUL are 'missed' on the initial scan. Some of these ectopic pregnancies are just too small and too early in the disease process to be visualized on the initial ultrasound examination.

- The majority of tubal ectopic pregnancies are visualized on transvaginal ultrasound, which has reported sensitivities of 87.0–99.0% and specificities of 94.0–99.9% for the diagnosis of ectopic pregnancy.[12]An adnexal mass, moving separately to the ovary, with an empty gestational sac (sometimes described as a 'tubal ring' or 'bagel sign') **or**
- A complex, inhomogeneous adnexal mass, moving separately to the ovary

- An empty uterus **or**
- A collection of fluid within the uterine cavity (sometimes described as a pseudo-sac)[2]

Serum beta-human chorionic gonadotrophin (β-hCG) levels are useful for planning the management of an ultrasound-visualized ectopic pregnancy.[1]

In a Case report of twin ectopic pregnancy by Martin *et al*., the patient was hemodynamically stable, and physical examination found only mild tenderness in the right iliac fossa on deep palpation, without any evidence of peritonism. The serum β-hCG was 11,870 units/L with an intact fallopian tube, it was managed surgically & a histopathology report confirmed twin tubal ectopic pregnancy.[13]

Cases of large ectopic pregnancies, other than the fallopian tube, have been previously published, which are accommodating and more distensible for a developing fetus.[10] However, there is sparse literature on large tubal ectopic pregnancies.

There are not many publications detailing a tubal pregnancy of over ten weeks, although the diagnostic techniques have grown by leaps and bounds over time.

In 2019, the previous largest ruptured tubal pregnancy was reported by Kim and his team, where a 39-year-old woman presented with several fainting attacks, abdominal pain, and vaginal bleeding. Her beta-human chorionic gonadotropin (β-HCG) level was 55,713 mIU/ml. Ultrasound showed a right adnexal mass, fetus corresponding to 13 weeks of gestation. Emergency laparoscopic surgery was performed.[10]

In a single case report presented by Elmoheen A and Waleed Salem *et al.*, with the largest tubal ectopic pregnancy reported in the 14th week of gestation, the patient's beta-human chorionic gonadotropin (β-HCG) level was 56,748 mIU/ml. The biparietal diameter (BPD), corresponding to 14 weeks and 2 days. The surgical pathology report confirmed the ectopic tubal pregnancy.[10]

In another case report by Yuan M *et al.*, a rare case of spontaneous asymptomatic unilateral dichorionic-diamniotic twin tubal pregnancy was observed in a 32-year-old Chinese woman, gravida 5, para 2, with serum β-human chorionic gonadotropin (β-hCG) level was 13,414 mIU/mL and ultrasound revealed left tubal twin pregnancy of 6 weeks gestation. Transvaginal ultrasound and laparoscopy suggested the twins were dichorionic and diamniotic.[15]

Most of the cases with very high β-hCG levels are either twin ectopias or with advanced gestational age of more than ten weeks, although we could not identify any direct relationship of β-hCG with the gestational age of ectopic pregnancy. This case is unique as it was with an intact ectopic pregnancy accompanied with high β-hCG with mild symptoms only.

Different treatment options for ectopic pregnancy include expectant, medical, and surgical management dependent on strict management criteria as well as close follow-ups.[1]

Early intervention carries a significantly better prognosis. Surgical interventions can be avoided if management begins before tubal rupture and cardiovascular compromise. Hence, it cannot be over-emphasized that the early diagnosis is of paramount importance.

Conclusion

The overall rate of ectopic pregnancy continues to rise. Early recognition of the signs and symptoms of ectopic pregnancy is paramount to achieve positive patient outcomes. Initiation of timely medical or surgical management is critical for a reduction in morbidity and mortality and is also important for preserving the success rate of future pregnancies. Despite the substantial increase in incidence, ectopic pregnancy remains a challenging diagnosis in the emergency department setting. Therefore, skilled sonographic evaluation of the pelvis in a patient with suspicion for ectopic pregnancy is invaluable.

Author contributions

All authors share equal effort contribution towards (1) substantial contribution to conception and design, acquisition, analysis, and interpretation of data, (2) drafting the article and revising it critically for important intellectual content, and (3) final approval of the manuscript to be published.

Ethics approval

It was approved by the Research and Ethics committee, King Hamad University Hospital, Bahrain.

Conflict of Interest

Nil

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