

Case Report

Enigma of the unusual pelvic mass: Lessons learnt

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ABSTRACT

Ruptured ectopic pregnancy (EP) is one of the common complications of early pregnancy. We are presenting a case of unruptured EP which presented as an ovarian mass on ultrasonography. Chronic ectopic pregnancies are very rare presentations that can present as hematosalpinx and can pose diagnostic challenges in cases with misleading clinical history and absent acute abdomen signs. In such cases, magnetic resonance imaging can be a problem-solving tool and can identify pathology, and helps in the prompt management of pathology.

Keywords: Chronic ectopic pregnancy, Ectopic pregnancy, Mimicking ovarian mass, Ultrasonography, Magnetic resonance imaging

INTRODUCTION

Diagnosis of acute ruptured ectopic pregnancy (EP) is straightforward and is usually associated with a classical history of amenorrhea, pelvic pain and vaginal spotting, positive urine test, hemorrhagic ascites, and hemodynamic instability prompting urgent surgical intervention. Unruptured ectopic pregnancies are rare presentations, and clinical history may be misleading and can pose diagnostic challenges. We are presenting ultrasonography (USG) and magnetic resonance imaging (MRI) of such rare presentation.

CASE REPORT

A 27-year-old woman, gravida 1, para 1, abortion 0, presented with irregular bleeding for 2 months. There was no history of amenorrhea, no history of the acute abdomen, or use of any contraceptives. On examination, right fornix fullness was noted with no localized abdominal tenderness, guarding, or rigidity. On investigation, her Hb was 5 gm%, serum beta-hCG level – 595 IU/mL, serumCA-125 – 72.8 U/mL, and alpha-fetoprotein – 2.4 ng/ml.

USG of the pelvis revealed a complex heteroechoic adnexal lesion with no internal vascularity. There was no evidence of peripheral vascularity. Endometrial thickness was 5 mm with no evidence of any gestation sac or blood products. USG findings showed an adnexal lesion with no associated ascites [Figure 1]. In view of borderline elevated beta-hCG and CA 125 levels, MRI was ordered to characterize the lesion. MRI revealed a dilated tortuous distended tubal structure in the right adnexa, suggestive of a dilated fallopian tube. Contents of the tube showed heterogeneous signal intensity on T2, and hyperintense signal on T1 images with no fat suppression on FAT SAT images (not shown in images), representing blood products. Diffusion restriction was noted

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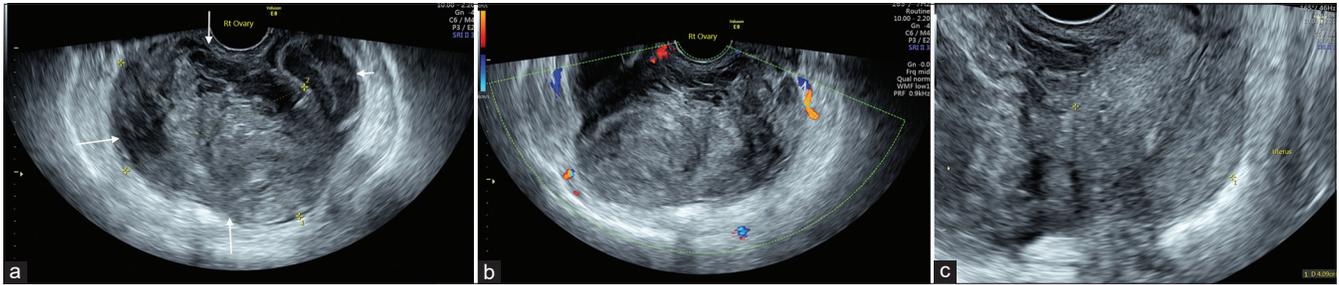


Figure 1: Sonography (TVS) gray scale images of the pelvis show a well-defined heteroechoic right adnexal lesion (white arrows, a) seen adjacent to the right ovary (short white arrow). There was no demonstrable internal or peripheral vascularity within the lesion in the Doppler study (b). The uterus appears normal in morphology with endometrium thickness measuring up to 6 mm (c).

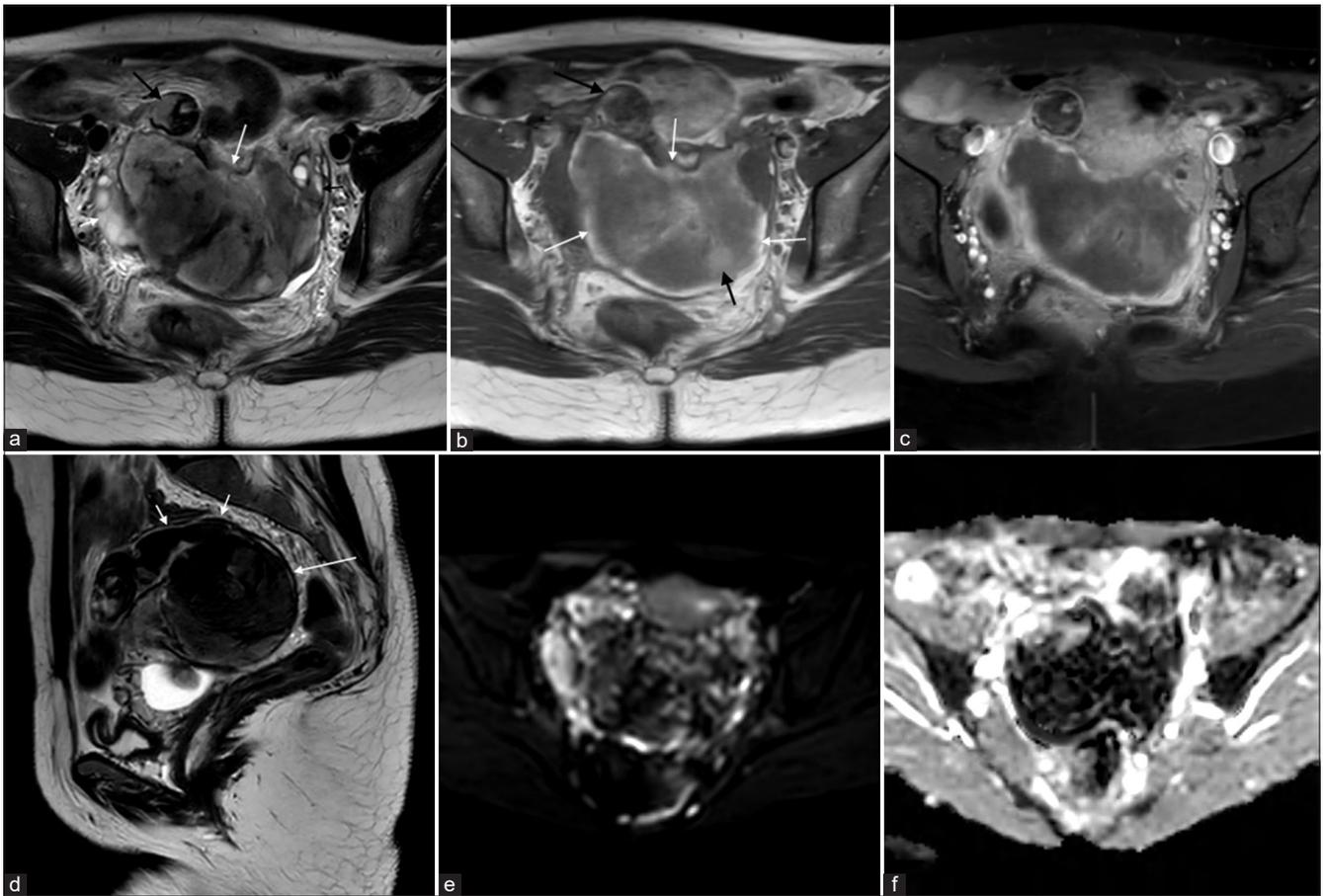


Figure 2: Multi-sequence MR imaging of the pelvis shows a complex sausage-shaped adnexal lesion (white arrows in a and b) showing mixed signal intensity on T2-weighted axial images (a). It is crossing midline and extended into the left adnexa. A dilated tortuous tubular structure is seen adjacent to the lesion showing layering of signal intensity on T2 images (black arrow, a). T1-weighted axial image (b) shows hyperintense areas (black arrows) within and periphery of the lesion. Axial T1-weighted FAT-SAT image after IV gadolinium administration (c) through lesion shows minimal peripheral enhancement and no internal enhancement. The right ovary (short white arrow, a) and left ovary (short black arrow, a) are seen adjacent and adherent to the lesion. No free fluid is seen in the pelvis. A dilated tortuous tubular structure (short white arrows, a) is seen in the right adnexa on T2-weighted sagittal image (d) likely to represent dilated fallopian tube. It is more distended in the region of the ampulla (long white arrow) and shows variable signal intensity. Axial diffusion-weighted image (DWI) (e) with B value of 800 and apparent diffusion coefficient map (ADC) (f) through the pelvis show mixed signals on DWI and diffuse low signals within on ADC image in the adnexal lesion.

within the lesion. Post-contrast images showed minimal peripheral enhancement. No internal enhancement is shown.

Both ovaries were seen separately from the lesion with the right ovary showing few simple cysts [Figure 2].

DISCUSSION

EP results from abnormal implantation of blastocyst outside the endometrium. Tubal EP (TEP) is the most common form of EP with the ampulla being the most common site.^[1] Chronic EP is a result of minor ruptures leading to subclinical hemodynamic insults. These events lead to episodes of leaking blood and gestation tissue into the peritoneum over a period of time. In few cases, ruptured ectopic may be contained locally to form a tubal hematoma without tubal rupture.^[2]

A TEP usually appears as a thick-walled cystic area typically showing a tubal ring sign, a very specific sign, on Doppler imaging. The absence of color Doppler flow does not exclude an ectopic.^[1] Various adnexal pathologies may present as an adnexal mass with the hemorrhagic component. In some cases, adnexal mass with the absence of classical sociological findings of an EP requires further investigation with an MRI, to establish a diagnosis.^[3]

Heterogeneous mass, hematosalpinx, hemorrhagic ascites, and tubal wall enhancement are common MRI features of TEP. GS-like component frequently contains foci of acute hemorrhage characterized as regions of intermediate to high signals on T1-weighted images.^[4] Ruptured TEP is often associated with hemorrhagic ascites which shows high signals on T1-weighted images. If the tube ruptures on the antimesenteric border side, then hemorrhagic ascites extends into the peritoneal cavity.^[1] Enhancing tree-like solid components representing fetoplacental tissues within a hemorrhagic mass may also be seen.^[5] Chronic EP rarely presents as an isolated hematosalpinx as seen in our case.

The dilated fallopian tube appears as a fluid-filled tubular structure arising in the region of the uterine cornua and occupying the adnexa. Unless the fallopian tube is fluid-filled or surrounded by fluid, it is not usually visualized on routine imaging. Incompletely effaced mucosal and submucosal plicae present as multiple incomplete folds or septae which is a characteristic feature of the dilated fallopian tube. These folds can be completely effaced in the overdistended fallopian tube.^[2] Tubal contents in a simple hydrosalpinx show a low signal on T1 and a high signal on T2 images, whereas hematosalpinx shows high signal intensity on T1 and T1 fat-suppressed images. The chronic presentation may be associated with pelvic adhesions involving the bowel, bladder, and ureter as an inflammatory reaction to pelvic hematoma.^[2,6]

Identifying both ovaries separately from the lesion avoid misdiagnosing it as a multicystic ovarian tumor. One of the common causes of hematosalpinx is tubal endometriosis and it is often associated with the presence of endometriotic

Table 1: Differential diagnoses for tubo-ovarian mass lesions.

Differential diagnoses list

Tubal endometriosis
Ectopic pregnancy
Pelvic inflammatory disease/tubo-ovarian abscess
Tubo-ovarian torsion
Tubal carcinoma

ovarian cysts showing T2 shading, features of adenomyosis in the junctional zone of the uterus, and the presence of T1 hyperintense pelvic deposits.^[7] Whereas, fallopian tube malignancy typically presents as a complex cystic solid enhancing adnexal mass.^[5] Whereas, a tubo-ovarian abscess shows diffusion restriction with peripheral enhancement. The main feature of tubo-ovarian torsion is ovarian enlargement due to venous/lymphatic engorgement, edema and hemorrhage with associated free pelvic fluid, reduced or absent vascularity, and a twisted dilated tubular structure corresponding to the vascular pedicle.^[8] Differential diagnosis is shown in [Table 1].

Our patient underwent an uneventful laparoscopic right salpingectomy and adhesiolysis. Histopathology confirmed TEP. Timely management of EP reduces maternal mortality and improves fertility.

Either salpingotomy or salpingectomy is a treatment option available for an unruptured EP, where contralateral fallopian tube is healthy. Salpingotomy by laparoscopy has the advantage of shorter recovery time and fewer complications compared to salpingectomy by laparotomy but may be less likely to remove all the trophoblastic tissue. In practice, the choice of surgical option is influenced by surgeons' experience and the patient's own preferences.^[9]

Hematosalpinx in a woman with no intrauterine gestational sac and elevated beta-hCG levels, irrespective of the presence or absence of a clearly identifiable extrauterine gestational sac should raise a high possibility of an EP. Chronic EP can present as hematosalpinx and can pose diagnostic challenges in cases with misleading clinical history and absent acute abdomen signs.

CONCLUSION

Hematosalpinx can be due to various underlying pathologies. Careful pre-operative and intraoperative evaluation aids in correct diagnosis and helps in avoiding inappropriate treatment, such as hysterectomy with salpingo-oophorectomy. MRI proves a problem-solving tool in clinically stable patients, where further clarity of diagnosis is warranted.

MCQs

1. What is first line of imaging investigation in diagnosis of ectopic pregnancy?
 - a. CT scan
 - b. MRI pelvis
 - c. Transvaginal ultrasound
 - d. Combination of b and c.

Answer Key: c

2. What are causes of hematosalpinx?
 - a. Endometriosis
 - b. Tubal ectopic pregnancy
 - c. Pelvic inflammatory disease
 - d. Fallopian tube carcinoma
 - e. All of the above.

Answer Key: e

3. Which of the following sonographic signs observed in acute ectopic pregnancy?
 - a. Tubal echogenic ring sign
 - b. Ring of fire sign
 - c. pseudogestational sac sign
 - d. All of the above.

Answer Key: d

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

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