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Case Report

Cornual Ectopic Pregnancy: A rare case report

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A R T I C L E I N F O

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A B S T R A C T

Introduction: Ectopic pregnancy, defined as the implantation of a blastocyst outside the uterine cavity, primarily occurs in the fallopian tubes, accounting for 96% of cases. Cornual or interstitial ectopic pregnancies, which occur in the upper segment of the fallopian tube near the uterine corner, are less common, representing only 7.3% of ectopic pregnancies. Due to the absence of a submucosal layer in the fallopian tubes, the fertilized ovum can penetrate through the epithelial layer into the muscularis, potentially causing tubal rupture. Risk factors for ectopic pregnancies include previous ectopic pregnancies, pelvic inflammatory disease (PID), tubal surgeries, and the use of assisted reproductive technologies or certain contraceptive methods. Method: A 35-year-old female, Gravida 3 Para 2, with a history of two previous term vaginal deliveries and no known pelvic infections or reproductive treatments, presented with 5+3 weeks of amenorrhea, lower abdominal pain for one week, general weakness, and vomiting. Diagnostic workup included a urine pregnancy test and a series of ultrasounds. An initial abdominal ultrasound identified a simple ovarian cyst but no focal uterine lesions. Emergency transvaginal ultrasound revealed a hyperechoic lesion in the left adnexa, with associated hemoperitoneum and a "ring of fire" appearance indicative of an ectopic pregnancy. Laboratory tests showed elevated serum beta-HCG levels and moderate anemia. An exploratory laparotomy confirmed a ruptured cornual ectopic pregnancy and hemoperitoneum, leading to a left cornual resection and salpingectomy. Conclusion: The diagnosis of a ruptured cornual ectopic pregnancy was confirmed through imaging and surgical exploration. The patient experienced significant hemoperitoneum but responded well to surgical intervention and postoperative care. Post-surgery, the patient's recovery was uneventful. The patient was advised on future pregnancy management to minimize risks associated with uterine rupture and potential subsequent ectopic pregnancies. This case highlights the importance of considering cornual ectopic pregnancy in differential diagnoses, particularly when presented with atypical symptoms and imaging findings.

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Introduction

Following fertilisation and transit of the embryo through the fallopian tube, the blastocyst normally implants itself in the endometrial lining of the uterine cavity. Implantation of blastocyst anywhere else is termed an Ectopic Pregnancy (1). The most common site for implantation of an ectopic pregnancy is the fallopian tube (96%). Out of them, only 7.3% are Cornual implantations (2).

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As the fallopian tubes are devoid of a submucosal layer, the fertilised ovum invades through the epithelial layer. The zygote lies near the muscularis layer and the layer is hence quickly invaded by the proliferating trophoblast. This, hence, could lead to rupture of the fallopian tube.

Most noted risk factor is an abnormal tubal pathology. This could be due to a prior ectopic pregnancy, tubal infection, tubal reconstruction surgery and other pelvic infections. Studies have reported a near 10.5% chance of recurrent ectopic pregnancies in a woman who has had a prior ectopic pregnancy. (3) Another study (Weström L et al.) has documented that history of even one episode of PID in a woman may increase the risk of ectopic pregnancy by 5 to 7 times. (4) In the recent years, with the increasing use of assisted reproductive technologies for the treatment of Infertility, there has been increasing in ectopic pregnancy rates (5). Another notable cause includes the use of contraception that more effectively target and prevent Intrauterine, more specifically intracavitary implantation such as tubal sterilisation, intrauterine devices, and progestin-only contraceptives. (5)

Patients with ectopic pregnancy most commonly present with history of amenorrhoea, followed by vaginal bleed with lower abdominal pain, the classical triad of an unruptured ectopic pregnancy (1). With a ruptured tubal ectopic, the severity of the lower abdominal pain increases and is classically explained by patients as a sharp, stabbing

or tearing pain. (1) This is also commonly associated with some degree of vaginal bleed. Ruptured tubal ectopic leads to hemoperitoneum and the symptoms associated with hypovolemic shock is also seen. Palpation of the abdomen reveals tenderness. Gentle bimanual examination can reveal fornicial mass and tenderness.

l However, an interstitial or cornual ectopic can be a challenge to diagnose. The cornual end of the tube has the capacity to expand more than other parts of the tube. Thus, the symptomatology of such patients is vague and have low sensitivity and low specificity. These women could remain asymptomatic for several weeks and tend to present at the later part of first trimester with tubal or uterine rupture. Hence, Interstitial ectopics are associated with life threatening complications and a 2 to 5 % mortality rate. (6)

Diagnosis of the condition is based on a combination of symptoms, serum beta Hcg levels and transvaginal sound. If an eccentric implantation of gestational sac is noted at the level of the fundus of the uterus, cornual ectopic must be considered as a differential diagnosis. (7)
Medical or surgical management maybe tired but it is dependent on the hemodynamic stability of the patient and the establishment of diagnosis of ruptured or unruptured ectopic. (8)

Case Presentation

A 35-year-old Gravida 3 Para 2 Living 2, presented to the outpatient department of Obstetrics and Gynaecology of BLDE(DU) Shri B M Patil Medical College Hospital and Research Centre, Vijayapura with complaints of one and half months of amenorrhoea (5+3 weeks as per her last menstrual period) followed by pain abdomen for the past one-week, generalised weakness for one day and history of one episode of vomiting on the morning of admission.

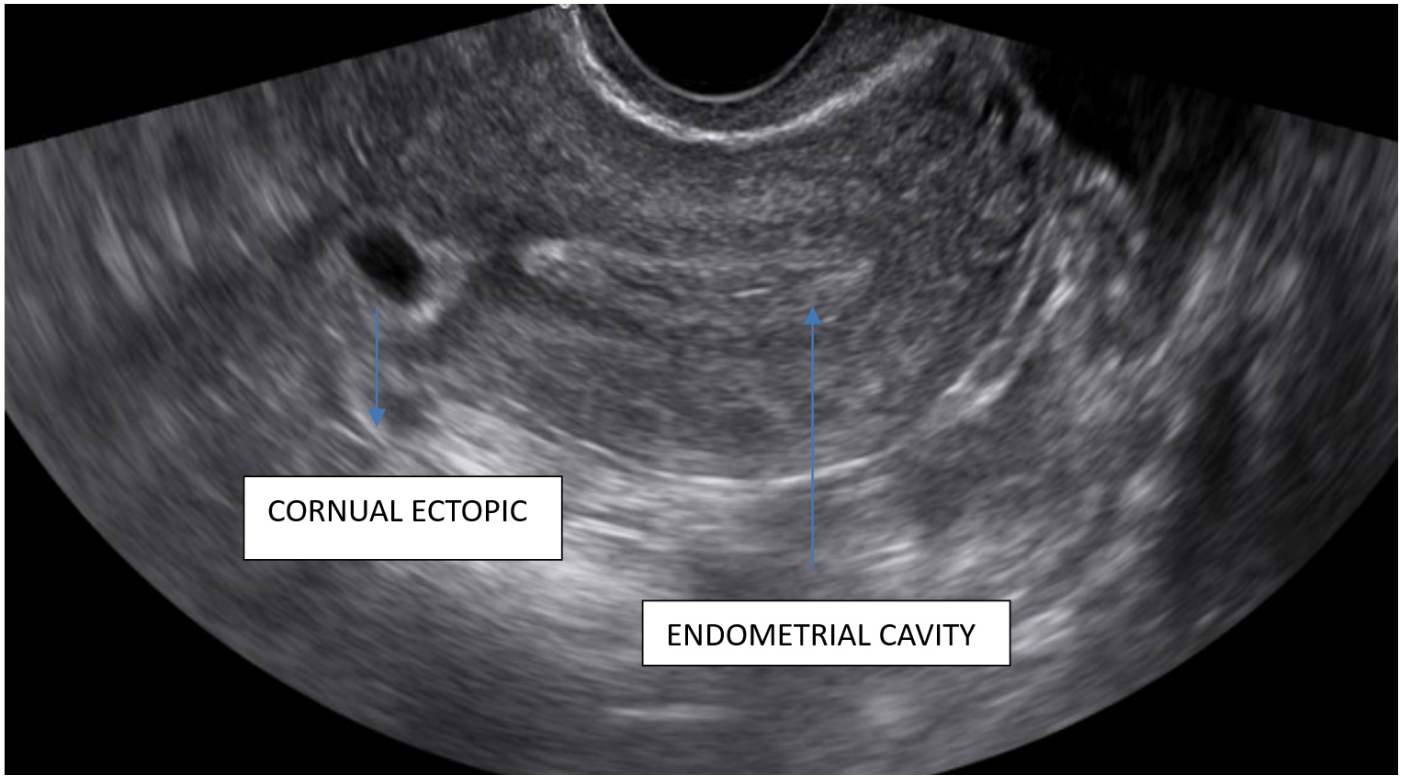
Pain started around one week prior to admission, was insidious in onset, progressively increased in intensity. It was diffuse in nature, present mainly over the lower abdomen. Patient also complained of one episode of vomiting on the day of admission which contained food particles, non projectile, non-bilious and non-blood tinged.

Patient has been married for 6 years and all were spontaneous conception and had term vaginal delivery. Her antenatal and postnatal period in the prior pregnancies were uneventful. No history of any surgeries in the past. She did not have any history of infertility and has not undergone any reproductive assisted techniques. She gives no prior history of symptoms that is reflective of pelvic inflammatory disease. No other significant history in the past.

At the timeof presentation, vital signs of the patient were normal and maintaining saturation at room air. Pallor was noted. On examination, abdomen was tense on palpation with diffuse tenderness all over the lower abdomen. Urine pregnancy test was positive. Patient had brought with her an abdominal ultrasound performed around 5 days prior, which showed an anteverted uterus of normal size, with no evidence of focal lesion in the myometrium, normal endometrium. A 37 x 44 mm right simple ovarian cyst was detected.

An emergency transvaginal ultrasound was performed which revealed a well-defined hyperechoic lesion in the left adnexa of about 3.1 x 2.8 x 2.8 cm, with an internal cystic component measuring 1.2 x 0.8 cm showing hyperechoic component with? intra amniotic haemorrhage; Colour doppler showed a “ring of fire” appearance. Probe tenderness was noted over the left adnexa. The scan also revealed hemoperitoneum. An incidental Right ovarian simple cyst was also detected measuring 3.7 x 3 cm. (Fig-1)

Fig 1– Ultrasound image of Cornual pregnancy



Complete hemogram sent showed moderate anaemia with a haemoglobin of 7.9 gm%. Peripheral smear showed normocytic normochromic anaemia. Serum Beta HCG was 18998 mIU/mL(on admission).

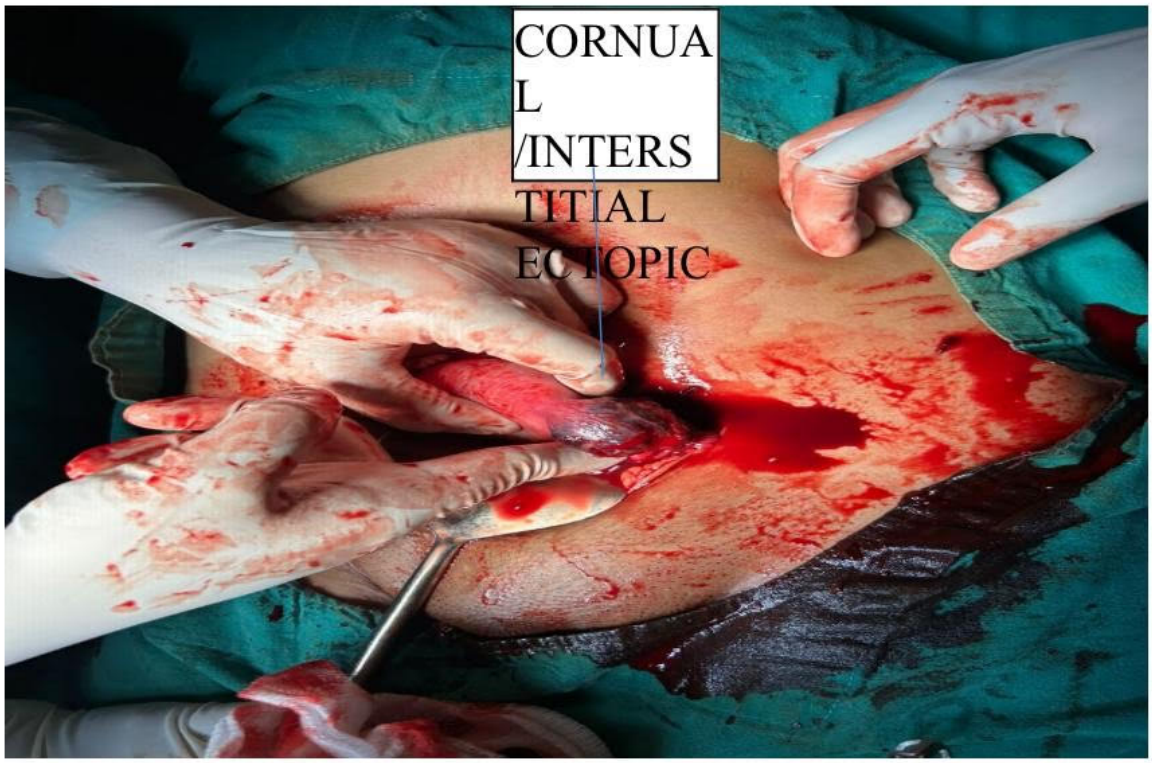
Decision for Exploratory Laparotomy was taken and performed under Spinal Anaesthesia. Intraoperatively, hemoperitoneum was confirmed and around 300grams of clots were removed. Uterine fundus was identified and on exteriorizing the uterus, ruptured ectopic pregnancy was noted in the cornua of the left fallopian tube, measuring around 4 x 4 cm. Right ovarian simple cyst of about 2 x 2 cm was found. Left cornual resection and left Salpingectomy was done (Fig-2). Patient was shifted to the Intensive Care Unit post operatively.

She was transfused two unit of PCV and 4 units of FFP. Routine post operative antibiotics and analgesics were given. Serum Beta HCG(after 48 hours)was 1709mIU/mL and haemoglobin at the time of the discharge was 10.5 gm%. She was discharged on Post operative day 7 and the hospital stay was uneventful.

At the time of discharge, patient and her family were counselled about the need for spacing before her next pregnancy and the need for comprehensive management in her future pregnancies due to the increased risk of uterine rupture.

She was also counselled about the possibility of subsequent ectopic pregnancies and possible requirement of elective caesarean sections for future deliveries so as to reduce the risk of uterine rupture during labour.

Fig. 2– Left Ruptured Cornual Ectopic Pregnancy



Methods

This case has been reported in line with SCARE Criteria.

Discussion

We present an interestingand a diagnostically challenging case of a cornual ectopic pregnancy.

Cornual ectopic pregnancies are the rarest of tubal pregnancies, which initially were thought to be only about 2 to 4%, but now are seen to make about 7.3% of them. (2) The cornual part of the tube is the proximal segment that is present within the muscular wall of the uterus. An interstitial or cornual ectopic refers to a pregnancy that is developing outside the uterine cavity, but with a gestational sac that is embedded into the cornual part of the Fallopian tube, which is surrounded by a layer of myometrium. The importance of a Cornual pregnancy is that it is usually diagnosed at a later period of gestation. The unique location of the implantation of the sac can often mask the symptoms of an ectopic pregnancy. (9-11) This is, hence, responsible for almost a seven-fold increase in the rate of mortality, as they have a higher tendency to rupture and bleed more. (12) While the maternal morbidity rate due to ectopic pregnancy is on a decreasing trend because of earlier diagnosis and more skilled management, the mortality rate for a cornual pregnancy is 2 to 2.5% because of misdiagnosis of such pregnancies as Intra uterine pregnancies. (13-14)

One of the commonest causes for ectopic pregnancy is the alteration and disruption of normal anatomy of the fallopian tube by several factors such as infection, surgery, congenital anomalies, or a prior ectopic pregnancy. Previous pelvic or abdominal surgeries also raises the risk of a future ectopic pregnancy. (7) Another unique factor that can increase risk of cornual ectopic is an Ipsilateral Salpingectomy. (15) However, our patient had none of these risk factors.

The usual presentation of a woman with an ectopic pregnancy is pain abdomen and/or vaginal bleeding. (16) In our case, the patient presented with a diffuse lower abdominal pain which started around one week prior to presentation which progressively increased in intensity.

On ultrasonography, the important finding of an interstitial pregnancy is that it extra endometrial. As the period of gestation increases, a bulge might be seen at the interstitial region, which is not connected to the endometrial cavity. Most often, there will be no myometrium found surrounding a part of the gestational sac. This part of the tube is usually evaluated in a transverse plane, at the level of the fundus of the uterus; the appearance is that of a thin echogenic line lying between the lateral part of the endometrium and the serosa of the uterus. Interstitial pregnancies maybe mistaken for an intrauterine pregnancy as they could be seen as partially implanted in the endometrium. A way to correctly diagnose this is to identify the thin myometrial mantle (<5 mm). (17)

Coming to the management, the two mainstays remain medical and surgical management. While medical method of management is preferred, a surgery is unavoidable if any of the following persists – (a) A hemodynamically unstable patient, (b) when methotrexate use is contraindicated (c) signs and symptoms that are indicative of an impending or ongoing rupture, (d) if foetal cardiac activity is present, with serum Beta HCG > 5000 mIU/mL, or EP > 4 cm in length. (18)

While the preferred surgical management is a laparoscopic cornuostomy as it has the advantage of less tubal damage and better pregnancy outcomes in the future, it has the drawback of requiring a surgeon skilled in laparoscopy and is generally preferred in an advanced gestational age and or an ectopic sac size > 4 cm in diameter. Cornual Resection is usually an effective, and safe procedure and can be performed by Laparoscopy or Laparotomy. (19-20) In our setting, Laparotomy was the chosen procedure due to resource limited facilities.

Conclusion

The lack of suspicion and the advanced age at presentations of this condition, especially with vague symptoms can cause a delay in diagnosis and early and timely management of the Interstitial pregnancy, thus leading to potentially fatal outcomes of interstitial pregnancies.
Hence, the key or prevent such catastrophes is to keep in mind this possibility while evaluating patients, especially ones with such vague first trimester abdominal pain.

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