CASE REPORT

Cornual ectopic pregnancy: laparoscopic management step by step

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SUMMARY

Cornual (interstitial) ectopic pregnancy is an uncommon type of ectopic pregnancy which is located in the interstitial part of the fallopian tube. It accounts for 2%–4% of all ectopic pregnancies. Cornual pregnancies often pose a diagnostic and therapeutic challenge with a significant high morbidity and mortality as a result of massive intraperitoneal bleeding. A case of unruptured cornual ectopic pregnancy in a patient with abnormal uterine bleeding is reported which was successfully managed laparoscopically.

BACKGROUND

Cornual ectopic pregnancy is an uncommon variety of ectopic pregnancy which is located in the interstitial part of the fallopian tube. It often poses a diagnostic and therapeutic challenge to the obstetrician.¹ It is seen in 1/2500–1/5000 of all pregnancies and 2%–4% of all ectopic pregnancies. Despite the availability of modern diagnostic modalities including transvaginal ultrasonography, there is a difficulty in the early diagnosis because of its location. Majority of the times, these patients present with massive intraperitoneal bleeding and haemorrhagic shock leading to high mortality as compared with other tubal ectopic pregnancies.² A case of unruptured cornual ectopic pregnancy in a patient with abnormal uterine bleeding is reported which was successfully managed laparoscopically.

CASE PRESENTATION

A 40-year-old multiparous female (para three and two miscarriages) presented with 1-year history of irregular cycles and scanty menses in her last periods. Previous deliveries were full term normal

vaginal delivery and there was a history of two miscarriages followed by curettage. There was no history of any medical disorder or drug intake or any contraceptive use. On general physical examination, vitals were stable. Abdominal examination revealed soft abdomen with no guarding or tenderness. Speculum examination showed normal cervix and vaginal examination revealed enlarged uterus of 8–10 weeks size, mobile with no mass or tenderness in bilateral fornices. Her urine pregnancy test done, in view of scanty menses, was positive.

INVESTIGATIONS

Pelvic ultrasonography revealed a normal-sized uterus with endometrial thickness of 6.0 mm. An irregular anechoic area with surrounding echogenic area giving suspicion of a gestational sac was seen in the left cornua of the uterus (figures 1 and 2). Bilateral adnexa were normal with no free fluid in abdomen. MRI pelvis showed an irregular gestational sac in the left cornua of uterus projecting into the endometrial cavity with normal right cornu and endometrial cavity (figures 3 and 4). Her serum beta-human chorionic gonadotropin (hCG) came to be 15 000 IU/mL. Thus, provisional diagnosis of cornual ectopic pregnancy was made and she was planned for laparoscopy.

TREATMENT

On laparoscopy (figure 5), left cornua was enlarged (4×4 cm) with mild blue discoloration. The adjoining left tube was normal. Right tube and ovary were also normal. Laparoscopic resection of left cornual end along with left fallopian tube was done after injecting vasopressin (20 U diluted in 100 mL saline) into the uterus around the ectopic site followed by suturing of the cornual end with barbed sutures (figure 6 and video 1). Surgical duration was 1 hour and blood loss was 50 mL. Tubal ligation of the right side was performed after patient's consent. Histopathological examination confirmed the ectopic trophoblastic tissue.

OUTCOME AND FOLLOW-UP

Postoperative course was uneventful and the patient was discharged on second postoperative day. Her follow-up beta-hCG came to normal after 2 weeks.

DISCUSSION

Cornual ectopic pregnancy occurs when the embryo implantation occurs in the interstitial portion of the fallopian tube which is 0.7 mm in diameter and

Figure 1 Transvaginal ultrasound with colour Doppler imaging showing a gestational sac in left cornual region.

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Figure 2 Three-dimensional ultrasound image showing the left cornual location of the gestational sac.

1–2 cm in length. Mortality in cornual ectopic pregnancies is reported to be seven times higher than those with other tubal ectopic pregnancies and can be as high as one in 50 women.² The terminology of cornual pregnancy remains ambiguous as it also indicates the location of pregnancy within the cavity in one of the two ‘horns’ of a bicornuate uterus. Typical symptoms of an interstitial pregnancy are the classic signs of ectopic pregnancy, namely, abdominal pain and vaginal bleeding which were not present in this patient. Haemorrhagic shock is found in almost a quarter of patients which was prevented in this patient because of high degree suspicion and early laparoscopy. Assisted reproductive technologies, previous salpingectomy or any other tubal surgery, rudimentary horn, history of reproductive tract infection, previous tubal pregnancy and proximal intratubal adhesions are the factors associated with the increased incidence of cornual ectopic pregnancy.^{3,4} Ultrasonographic criteria for the cornual ectopic pregnancy includes a gestational sac separate from the uterine cavity, an empty uterine cavity and thin zone of endometrium (less than 5 mm) around the gestational sac. Also an echogenic line is seen in the central endometrial cavity which extends till the gestational sac.⁴ MRI can be used

Figure 3 Coronal images of MRI pelvis showing an irregular gestational sac in the left cornu of uterus projecting into the endometrial cavity. Right cornu is normal.

Figure 4 T2 axial images of MRI pelvis showing an irregular gestational sac in the left cornu of uterus projecting into the endometrial cavity.

when it is important to distinguish between an interstitial and angular pregnancy. Although medical treatment can be tried but in advanced cornual pregnancies with very high hCG levels as in this case, methotrexate is generally ineffective.^{5,6} Successful management of cornual ectopic pregnancy includes early ultrasonographic diagnosis, laparoscopic resection and suturing of the uterine cornua.

MaCrae *et al* presented a series of 11 patients of cornual ectopic pregnancy which were managed by laparoscopic cornual resection.⁷ Tinelli *et al* also reported successful laparoscopic management in three cornual pregnancies including one with haemoperitoneum.⁸ Thus, choice of treatment is largely dependent on the clinical situation and expertise. Immediate surgical intervention is required in case of ruptured cornual pregnancy is an emergency either by laparotomy or laparoscopy. Surgical methods to remove the ectopic pregnancy site includes cornuostomy (incision of the cornua with removal of the pregnancy, cornual evacuation), resection of the cornual area or a cornual wedge resection, typically combined with an ipsilateral salpingectomy. Blood loss during surgery can

Figure 5 Laparoscopic image showing left cornual ectopic pregnancy with normal left fallopian tube and left ovary.

Figure 6 Resected left cornual end with left tube.

be minimised by injecting vasopressin around the ectopic site.⁹ There are concerns regarding uterine rupture in this scarred uterus in future pregnancy; thus, caesarean delivery is recommended by some authors to avoid uterine rupture during labour which was found to be as high as 30%.¹⁰ It is very important to monitor the future pregnancy by serial ultrasonography to ensure its proper location and the repaired surgical area remains intact. Patients with conservative surgical therapy are at risk for development of a persistent ectopic pregnancy due to the presence of deeply embedded surviving trophoblastic tissue. Thus, the monitoring of hCG levels is indicated postoperatively until they become undetectable in

these cases. Selective uterine artery embolisation had also been used to manage cornual pregnancies. Patients with a history of ectopic pregnancy in the past are generally at higher risk for a recurrence; however, there are no specific data for patients with cornual pregnancy.

Learning points

- Cornual ectopic pregnancy is rare but an emergency situation.
- One should keep a high index of suspicion in case of positive beta human chorionic gonadotropin and empty uterine cavity with unilateral bulge at one cornual end.
- It can be managed laparoscopically if diagnosed early specially in unruptured state.

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Video 1 Laparoscopic management of cornual ectopic pregnancy

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