Unusual presentation of more common disease/injury

Laparoscopic management of interstitial pregnancy with automatic stapler

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Summary

A 36-year-old woman was referred by general practitioner to the early pregnancy unit with pelvic pain in her seventh week of pregnancy. She had a transvaginal ultrasound. Unruptured live twin tubal ectopic pregnancy was diagnosed on. Diagnostic laparoscopy revealed an unruptured left interstitial ectopic pregnancy. The interstitial tubal pregnancy was removed by laparoscopic automatic stapler with minimal blood loss. The patient had an uneventful recovery to health.

BACKGROUND

Interstitial pregnancy is very uncommon. It is associated with maternal mortality and morbidity due to haemorrhage. Traditionally, this pregnancy is managed medically with methotrexate or surgically with laparotomy with cornual wedge resection or hysterectomy.

We present a case of interstitial twin pregnancy managed with laparoscopic automatic stapler. This is one of the few cases published in literature in which automatic stapler has been used to remove interstitial pregnancy. The use of automatic stapler provides good haemostasis and less operating time.

CASE PRESENTATION

A 36-year-old woman (gravida 5, para 2) in her seventh week of pregnancy was referred to our hospital for a suspected ectopic pregnancy. She presented with pelvic pain. Transvaginal ultrasound showed an empty uterus and adjacent to, but separate from, the left ovary there was an ectopic pregnancy seen with gestational sac measuring 25 mm with a crown rump length (CRL) of 8.3 mm; in addition to this was a second gestational sac with a CRL of 4.3 mm with the presence of heart beat was noted in both pregnancies (scans 1–3). Her serum human chorionic gonadotropin (HCG) level was 16 740 IU/l. The diagnosis

Scan 1 Empty endometrial uterine cavity with thickened endometrium on transvaginal ultrasonography.

Scan 2 Left twin ectopic pregnancy on transvaginal ultrasonography.

of an unruptured left twin ectopic pregnancy without haemoperitoneum was confirmed. Management options were discussed. Due to presence of fetal, heart surgical treatment for management of ectopic was offered.¹

INVESTIGATIONS

- ▶ Transvaginal ultrasound
- ▶ Blood investigations include full blood count (haemoglobin (Hb) was 12.3)
- ▶ Serum HCG
- ▶ Normal renal function tests

DIFFERENTIAL DIAGNOSIS

Confirmed live ectopic pregnancy

TREATMENT

A left interstitial ectopic was found at diagnostic laparoscopy (figures 1 and 2). The fimbrial, infundibular, isthmic and ampullary parts of the fallopian tube were normal (figures 2 and 3). The tube was exposed with an articulated forceps and left salpingectomy was performed with bipolar coagulation and mechanical transection of tissue

Scan 3 Left twin ectopic pregnancy on transvaginal ultrasonography.

Figure 1 Interstitial left ectopic pregnancy noted at laparoscopy.

(Enseal; Ethicon Endo Surgery Inc, Cincinnati, Ohio, USA). Resection of the interstitial ectopic was done with an automatic stapler with excellent haemostasis (Echelon Flex Endopath 60; Ethicon Endo Surgery Inc, Cincinnati, Ohio, USA) (figures 4–6). The interstitial pregnancy was removed with the (Endopouch retriever; Ethicon Endo Surgery Inc, Cincinnati, Ohio, USA) system. No local injection, to aid haemostasis, at the corneal resection site was performed before surgery. Saline wash out was performed before closure. From incision to umbilical closure, the procedure took 25 min, and the total blood loss during the operation was 100 ml.

OUTCOME AND FOLLOW-UP

She had an uneventful postoperative recovery. She was discharged 24 h after the procedure.

At 1-week follow-up, she was clinically well. Her HCG level was 273 IU/ml and transvaginal ultrasound revealed empty uterus and no free fluid in pelvis.

At 2 weeks, her HCG level was 37 mIU/ml. The HCG was at pre-pregnancy level at 3 weeks.

Histology confirmed the presence of chorionic villi in the fallopian tube. There was no myometrium seen at

Figure 2 Interstitial left ectopic pregnancy with normal fimbrial, infundibular, ampullary and isthmic parts of fallopian tube.

Figure 3 Interstitial left ectopic pregnancy with normal fimbrial, infundibular, ampullary and isthmic parts of fallopian tube.

histology suggesting the efficacy of automatic stapler for treatment of interstitial pregnancy.

DISCUSSION

Interstitial ectopic pregnancy is implanted in the interstitial portion of the fallopian tube that originates at the tubal ostium and traverses the muscular wall of the uterus. This portion is 1–2 cm in length and 0.7 mm in diameter. As this is a relatively thick section of the tube, it has a higher capacity to expand before rupture in comparison to distal tubal portions (eg, isthmic, ampullary or infundibular); therefore, interstitial pregnancies could remain asymptomatic until late in gestation before a catastrophic haemorrhage. The risk of bleeding is increased by the vascular anastomosis of ovarian and uterine vessels in this region.² At surgery, there is a potential risk of removing some myometrium while taking away the interstitial pregnancy resulting in weakening of this area in subsequent pregnancies.

Interstitial pregnancies account for only 2–4% of tubal pregnancies or approximately 1 in 2500–5000 live births.³

Interstitial pregnancy is often mistakenly referred to as a cornual pregnancy. The term ‘Cornual pregnancy’ should

Figure 4 Interstitial ectopic removed by automatic stapler (Echelon Flex Endopath 60- Ethicon).

Figure 5 Interstitial ectopic removed by automatic stapler (Echelon Flex Endopath 60- Ethicon).

be used only in a pregnancy within a non-communicating horn of a bicornuate uterus.⁴

Laparotomy with cornual wedge resection or hysterectomy had been the traditional treatment for interstitial pregnancy. Various techniques for treatment have been advocated including methotrexate injection, cornuostomy, salpingostomy and the use of EndoLoop (Ethicon, Cincinnati, Ohio, USA) for small cornual pregnancies. Laparoscopic suturing has been applied in many reports to achieve haemostasis.⁵

However, good laparoscopic technique will ensure reduced blood loss, less postoperative pain, quick recovery, shorter hospital stay and reduce risk of thromboembolism.⁵

Selective uterine artery embolisation has also been used for treatment.⁶

Many interstitial pregnancies are diagnosed during surgery, either because ultrasonography was not performed in the first trimester or because the ectopic pregnancy was not identified as interstitial pregnancy on ultrasonography.

Systemic methotrexate treatment is an acceptable first-line treatment for unruptured asymptomatic interstitial pregnancy. Methotrexate is a folinic acid antagonist that interferes with DNA synthesis in the rapidly proliferating

trophoblast. Advantages include avoidance of a surgical scar on the uterus and other associated risks with surgery. However, risks include multiple dosages, subsequent cornual rupture and life-threatening haemorrhage. The most important prognostic factor for methotrexate success in ectopic pregnancy is the initial HCG level. The safety of methotrexate treatment for interstitial pregnancy depends on very careful follow-up and the ability to perform prompt surgery if required. Contraindications for methotrexate treatment include ruptured ectopic pregnancy, haemodynamic instability and hypersensitivity to methotrexate.

It appears that methotrexate therapy is a reasonable first-line therapy for the treatment of the asymptomatic patient with an unruptured interstitial pregnancy that was diagnosed by ultrasound, early in the first trimester. Success rates of 80% or more has been reported in various case series. Although a few studies on the single-dose regimen resulted in a comparatively high success rate, most of the studies that support the use of methotrexate in interstitial pregnancy used a multidose regimen. The time from treatment to complete resolution in successful cases could range from 19 to 129 days.

A meta-analysis for systemic methotrexate for ectopic pregnancies showed that the single-dose protocol was associated with a significantly greater chance of failed medical management than the use of the multiple-dose regimens.⁷

In this case, methotrexate was not offered as per Royal College of Obstetricians and Gynaecologists (RCOG) guideline owing to live ectopic pregnancy.¹

In this case, patient can have vaginal delivery as there was no myometrium removed with this surgical intervention resulting in weakening of this area in subsequent pregnancies. However, no data is available for mode of delivery after laparoscopic treatment of interstitial pregnancy with automatic stapler.

There are three case reports published of uterine rupture in pregnancy after treatment of interstitial pregnancy. However, there are number of uneventful pregnancies that have also been reported including isolated cases of successful vaginal delivery. But the effects of surgical management on the future strength of the cornual myometrium remain unknown, especially after formal cornual excision or wedge resection. Typically, a caesarean delivery should be planned at term before the onset of labour.²

There is no available long-term data on fertility outcomes after laparoscopic management of interstitial ectopic pregnancy.²

Laparoscopic treatment of ruptured interstitial pregnancy with automatic stapler is also possible if it is accomplished promptly and competently in haemodynamic stable patient.⁶

Laparoscopic automatic stapler (Ethicon Echelon Flex Endopath Stapler) is designed to deliver optimal system-wide compression by combining a precision-machined anvil with three-point gap control. This provides uniform, consistent staple formation for haemostasis in a wide range of tissue thicknesses. Endocutters are used to cut and staple tissue in a variety of surgical procedures, including bariatric, thoracic, colorectal, gynaecologic, urological and general surgery.

Figure 6 Uterus after removal of left interstitial ectopic pregnancy with automatic stapler.

The use of an automatic stapler in the management of interstitial pregnancy provides excellent haemostasis, less operating time, minimal cutting of the myometrium, which is important for future pregnancies.

Learning points

- Interstitial pregnancy is not a cornual pregnancy.⁴
- Novel treatment of interstitial pregnancy.

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Competing interest None.

Patient consent Obtained.

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