Case report

Early interstitial ectopic pregnancy: A case report

C Banagala[a], **D S Weerasekera**[b]

Keywords: interstitial ectopic pregnancy, surgical management, medical management

A 28-year-old woman in her first pregnancy attended a routine antenatal visit at 7 weeks and 2 days of amenorrhea. She did not have abdominal pain or pervaginal bleeding. Her past medical and surgical history was not significant.

A transvaginal scan failed to show an intrauterine pregnancy. Both ovaries were observed and appeared normal (Figure 1, 2).

Her serum beta hCG concentration was 3671 mIU/ml and the repeat value after 48 hour was 4906 mIU/ml.

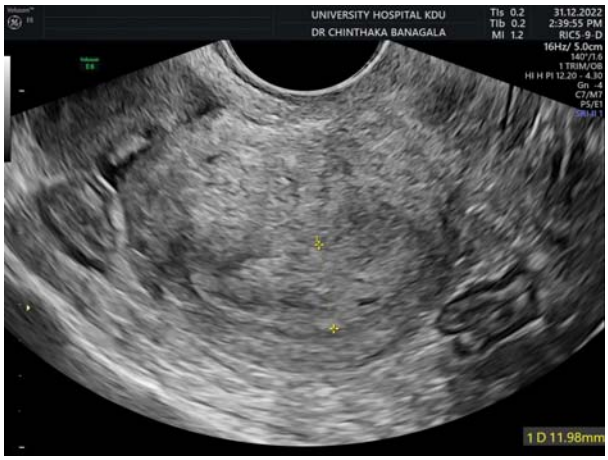

Figure 1. **Empty uterine cavity.**

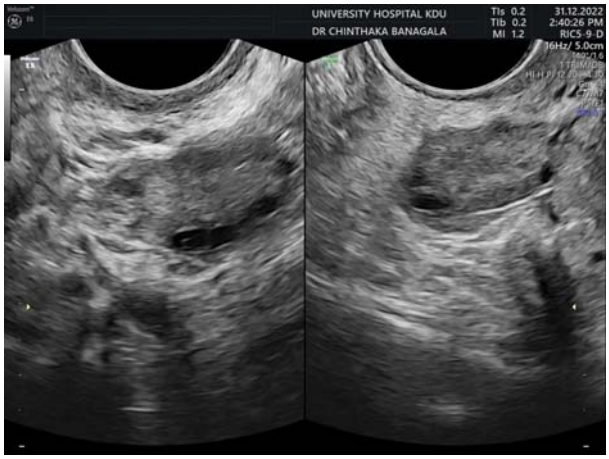

Figure 2. **Both ovaries appeared normal.**

Sri Lanka Journal of Obstetrics and Gynaecology 2023; **45:** 186-189

DOI: https://doi.org/10.4038/sljog.v45i4.8095

[a] *Senior Lecturer in Obstetrics and Gynaecology, Kotelawala Defence University, Sri Lanka.*
[b] *Professor of Obstetrics and Gynaecology, Kotelawala Defence University, Sri Lanka.*

Correspondence: CSMB, e-mail: chin.maithri@gmail.com

https://orcid.org/0000-0003-1872-3648

Received 21st June 2023
Accepted 31st December 2023

72 hours after, a repeat ultrasound was done with a high-resolution machine which showed, a pseudo sac inside the endometrial cavity and a vascular hyperechoic lesion close to the right cornua of the uterus (Figure 3). Around this increased vascular structure, a rim of myometrium was observed (Figure 4).

Figure 3. **Hyperechoic mass in right cornua.**

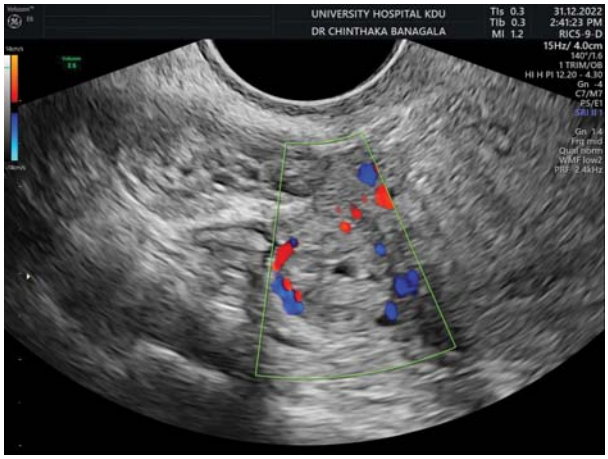

Figure 4. **Increased vascularity in the suspected area.**

Patient developed painless per vaginal bleeding and her beta hCG value increased to 7048 mIU/ml. It was decided to perform a laparoscopy, and this revealed a right-sided interstitial ectopic pregnancy without a hemoperitoneum (Figure 5). Both ovaries and the left fallopian tube appeared normal.

Figure 5. **Right side interstitial ectopic pregnancy.**

Diluted vasopressin was injected and right sided cornual resection was performed along with right side salpingectomy. EBL was minimal. On post operative day two beta hCG value was 1148 mIU/ml.

Discussion

Interstitial ectopic pregnancy is a rare type of ectopic pregnancy, but it is still a cause of significant maternal morbidity and mortality in the first and second trimesters. Interstitial pregnancy (IP) occurs when the ectopic pregnancy implants in the interstitial part of the fallopian tube which is approximately 0.7mm wide and 1-2cm long. Interstitial ectopic pregnancies account for 2-6.8% of all ectopic pregnancies[1].

Interstitial pregnancy remains one of the most difficult types of ectopic pregnancies to diagnose preoperatively[2]. Most interstitial ectopic pregnancies remain asymptomatic until cornual rupture, which can lead to shock and hemoperitoneum than other forms of ectopic pregnancies[3]. This patient was also asymptomatic even at a serum beta hCG value of 7048 mIU/ml.

High-resolution ultrasound machines are of paramount importance in identifying asymptomatic patients with IP. Ultrasound criteria to diagnose IP[4] are,

1. Empty uterine cavity.
2. Products of conception/gestational sac located laterally in the interstitial (intramural) part of the tube and **surrounded by less than 5 mm of myometrium** in all imaging planes.
3. The **'interstitial line sign'**, which is a thin echogenic line extending from the central uterine cavity echo to the periphery of the interstitial sac[8].

This patient had an empty uterine cavity along with products of conception located laterally in the interstitial

portion of the tube with a thin rim of myometrium surrounding it. The interstitial line sign was not observed clearly. In doubtful situations, three-dimensional ultrasound or MRI scans can be helpful[5]. Interstitial pregnancies traditionally have been treated by cornual resection or hysterectomy. Early ultrasound diagnosis of interstitial ectopic pregnancies not only reduces morbidity associated with cornual rupture but also allows less invasive surgical or medical management options to be used.

While ruptured interstitial ectopic should be considered an emergency and should be managed with open surgery, an unruptured interstitial ectopic pregnancy can be managed either expectantly, medically or surgically. Expectant management is only suitable for haemodynamically stable women with low or significantly falling beta hCG levels[6]. Medical management with systemic or local methotrexate has shown success rates of around 80-90%. However, if the initial beta hCG value is more than 9000 IU/L, surgical treatment is indicated[7]. This patient had rapidly rising beta hCG values, and therefore we decided to perform a laparoscopy rather than opting for medical management.

Early diagnosis opens new avenues for conservative treatment by laparoscopy[8]. A laparoscopic approach should only be attempted if the surgeon is skilled in advanced laparoscopic techniques.

Two main surgical approaches are corneal resection and cornuostomy. Since it is a relatively rare condition, limited evidence on management is based on case series and expert opinions. Although the surgical outcomes in conservative versus radical treatment were similar in terms of successful removal of ectopic pregnancy, blood loss and major complications[9,10] cornual resection is associated with increased rates of uterine rupture and scar dehiscence in future pregnancies[11].

Salpingostomy/cornuostomy is appropriate for gestations of less than 3.5 cm[12], whereas cornual excision is recommended for gestations of more than 4 cm[13]. Cornuostomy excises the interstitial pregnancy while preserving uterine architecture. Cornuostomy is considered to cause less tubal damage than cornual resection and may have less complications in future pregnancies however there is limited evidence.

During surgery, blood loss can be minimized by injecting diluted vasopressin[8,11] or applying pursestring sutures[14]. In this patient, a cornual mass of around 4 cm was identified and cornual excision was performed after vasopressin injections.

Conclusion

A routine viability scan around 7-8 weeks of gestation may help to identify an early interstitial ectopic pregnancy. A high degree of suspicion is needed to diagnose interstitial ectopic pregnancies at an early stage. The use of high-resolution ultrasound should be encouraged to increase sensitivity.

Once an asymptomatic unruptured interstitial ectopic pregnancy is suspected, the decision to use either medical or surgical approach should be based on the value of serum beta hCG, rate of beta hCG change, size of the lesion and availability of medical or surgical facilities and expertise.

For interstitial ectopics of more than 4cm, surgical management with cornual resection is recommended, however it is associated with adverse future pregnancy outcomes. Laparoscopic cornuostomy and medical management with methotrexate should be considered for smaller unruptured interstitial pregnancies.

References

1. Jermy K, Thomas J, Doo A, Bourne T. The conservative management of interstitial pregnancy. BJOG: An International Journal of Obstetrics and Gynaecology 2004; 111(11): 1283-8.
2. Rastogi R, Meena GL, Rastogi N, Rastogi V. Interstitial ectopic pregnancy: A rare and difficult clinicosonographic diagnosis. Journal of Human Reproductive Sciences 2008; 1(2): 81.
3. Maliha WE, Gonella P, Degnan EJ. Ruptured interstitial pregnancy presenting as an intrauterine pregnancy by ultrasound. Annals of Emergency Medicine 1991; 20(8): 910-12.
4. Lin EP, Bhatt S, Dogra VS. Diagnostic clues to ectopic pregnancy. Radiographics 2008; 28(6): 1661-71.
5. Filhastre M, Dechaud H, Lesnik A, Taourel P. Interstitial pregnancy: role of MRI. European Radiology 2005; 15: 93-5.
6. Brincat M, Bryant-Smith A, Holland TK. The diagnosis and management of interstitial ectopic

pregnancies: a review. Gynecological Surgery 2019; 16(1): 2.

7. Cassik P, Ofili -Yebovi D, Yazbek J, Lee C, Elson J, Jurkovic D. Factors influencing the success of conservative treatment of interstitial pregnancy. Ultrasound in Obstetrics and Gynecology 2005; 26(3): 279-82.
8. Lau S, Tulandi T. Conservative medical and surgical management of interstitial ectopic pregnancy. Fertility and Sterility 1999; 72(2): 207-15.
9. Lee MH, Im SY, Kim MK, Shin SY, Park WI. Comparison of laparoscopic cornual resection and cornuotomy for interstitial pregnancy. Journal of Minimally Invasive Gynecology 2017; 24(3): 397-401.
10. Cucinella G, Calagna G, Rotolo S, Granese R, Saitta S, Tonni G, Perino A. Interstitial Pregnancy: A 'Road Map' of Surgical Treatment Based on a Systematic Review of the Literature. Gynecologic and Obstetric Investigation 2014; 78(3): 141-9.
11. Liao CY, Tse J, Sung SY, Chen SH, Tsui WH. Cornual wedge resection for interstitial pregnancy and postoperative outcome. Australian and New Zealand Journal of Obstetrics and Gynaecology 2017; 57(3): 342-5.
12. Tulandi T, Vilos G, Gomel V. Laparoscopic treatment of interstitial pregnancy. Obstet Gynecol 1995; 85: 465-7.
13. Grobman WA, MP Milad. Conservative laparoscopic management of a large cornual ectopic pregnancy. Hum Reprod 1998; 13: 2002-4.
14. Cucinella G, Rotolo S, Calagna G, Granese R, Agrusa A, Perino A. Laparoscopic management of interstitial pregnancy: the "purse-string" technique. Acta Obstetricia et Gynecologica Scandinavica 2012; 91(8): 996-9.