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A CASE OF CORNUAL ECTOPIC PREGNANCY SUCCESSFULLY TREATED BY LAPAROSCOPY

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Abstract

Cornual pregnancy is a rare type of ectopic pregnancy where the embryo implants in the junction between the fallopian tube and the uterus. Only 2% to 3% of all tubal pregnancies are cornual.

Uterine rupture may occur in up to 20% of the cases of cornual pregnancy that progress beyond 12 weeks of amenorrhea, resulting in massive hemorrhage due to high vascularity in this region through the branches of the uterine artery.

Despite the availability of modern diagnostic modalities including transvaginal ultrasonography, there is difficulty in the early diagnosis because of its location. We present a case of unruptured cornual ectopic pregnancy in a 40-year- old woman with amenorrhea of 7 weeks.

In our case, the diagnosis was made early and laparoscopic cornuostomy with removal of the gestational sac and ipsilateral salpingectomy were performed, followed by laparoscopic repair of the cornuostomy incision.

Hemostasis was achieved with electrocoagulation. This caused minimal hemorrhage without intraoperative and postoperative complications.

Keywords: cornual pregnancy, ectopic pregnancy, transvaginal ultrasonography, laparoscopic cornuostomy.

Introduction

The incidence of ectopic pregnancy among women who visit an emergency service during the first trimester with vaginal bleeding, abdominal pain, or both, ranges from 6 to 16% [1].

Clinical symptoms of ectopic pregnancy frequently appear 6 to 8 weeks after the last normal menstrual period. Clinical manifestations can develop later if the pregnancy is not localized in the fallopian tube.

Cornual pregnancy is a rare type of ectopic pregnancy in which the embryo implants in the junction between the fallopian tube and uterus [2]. The terms such as "interstitial" and "cornual" pregnancy are frequently used synonymously [3], but actually they describe two different entities. Cornual implantation describes those implanted in the upper and lateral uterine cavity and interstitial describes those implanted within the proximal intramural portion of the fallopian tube. Only 2% to 3% of all tubal pregnancies are either interstitial or cornual [4].

Uterine rupture may occur in up to 20% of the cases of cornual pregnancy that progress beyond 12 weeks of amenorrhea [5], resulting in massive hemorrhage due to high vascularity in this region through the branches of the uterine artery [6].

Interstitial and cornual pregnancies have a mortality rate of 2–2.5% and this is 20% of all deaths due to ectopic pregnancies [7,8].

The risk factors for cornual and interstitial pregnancy are similar to those for ectopic pregnancy in general, including pelvic inflammatory disease, previous pelvic surgery and the use of assisted reproductive technologies [9].

Ultrasonographic criteria for the cornual ectopic pregnancy include a gestational sac separated 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 [10]. Despite the availability of modern diagnostic modalities including transvaginal ultrasonography, it is difficult to make an early diagnosis because of its location.

These patients often present with massive intraperitoneal bleeding and hemorrhagic shock leading to a high mortality compared with other tubal ectopic pregnancies [11].

Case report

We present a case of a 40-year-old patient with two previous pregnancies. The first delivery was spontaneous and the second one was with caesarean section due to a fetus in a pelvic presentation, 5 years ago. The other anamnesis was negative.

The first examination was made 9 days before hospitalization due to amenorrhea of 6 weeks, mild pain in the lower parts of the abdomen and vaginal spotting. On transvaginal ultrasonography, no gestational sac was detected, and free peritoneal fluid was not present.

Hematological parameters were within reference ranges, but the value of β-HCG was 776 IU/L.

During the following days, the patent was in good condition. Serum β-HCG values were constantly increasing (1080 IU/L...1938 IU/L).

On the day of hospitalization, the value of β-HCG was 2559 IU/L. Hematological parameters: hematocrit 0.36, hemoglobin 121 g/L, white blood cells 13.99. Biochemical parameters were in reference ranges. On transvaginal ultrasonography we detected a gestational sac with an embryo with positive cardiac action, located in the area of the uterine right horn [Figure 1].

Endometrium was thin (3 mm). There was no effusion in the pouch of Douglas. Bimanual examination showed a slightly enlarged uterus and it was not painful.

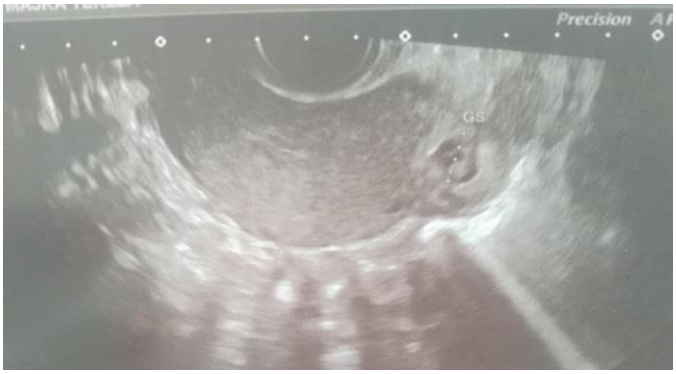

Figure 1. Ultrasonographic presentation of cornual pregnancy

The patient was prepared and the next day laparoscopy was performed. A uterus with cystic formation on the right horn (cornual pregnancy) was visualized intraoperatively [Figure 2].

The fallopian tubes and ovaries had a normal appearance. Cornuostomy with removal of the gestational sac and ipsilateral salpingectomy were performed, followed by laparoscopic repair of the cornuostomy incision. Hemostasis was achieved with electrocoagulation [Figure 3].

This caused minimal hemorrhage, without intraoperative complications.

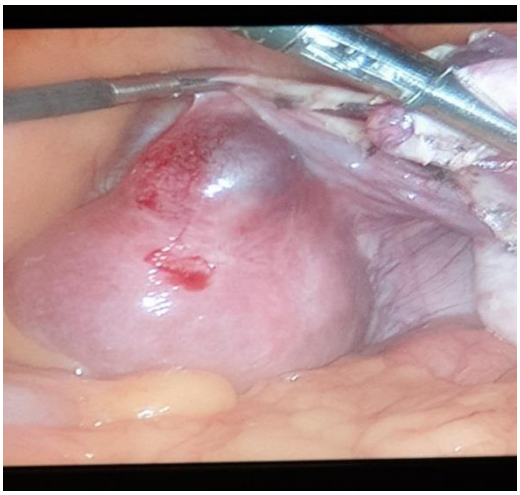

Figure 2. Uterus with cystic formation on the right horn (cornual pregnancy)

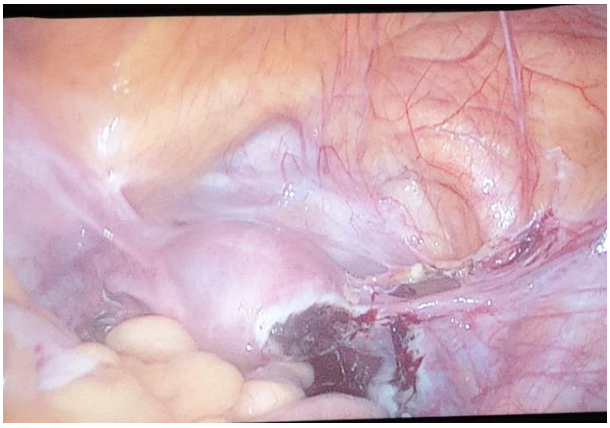

Figure 3. Hemostasis was achieved with electrocoagulation

The postoperative course was uneventful and the patient was discharged on the third postoperative day. The beta HCG value on the 3rd postoperative day was 301 IU/L and negative after 2 weeks. Histopathological examination confirmed the presence of ectopic trophoblastic tissue.

Discussion

Early diagnosis of interstitial/cornual pregnancy before the uterine rupture is still difficult. Failure to diagnose ectopic pregnancy before rupture limits the treatment options and increases morbidity and mortality.

Cornual pregnancy diagnosis can be made with ultrasonography and human chorionic gonadotropin hormone (hCG) testing [12]. Three-dimensional ultrasound and 4-dimensional volume contrast imaging are useful if the precise location of a pregnancy is unclear, such as in this pregnancy [13–15].

The traditionally described treatment for this type of pregnancy is laparotomy with cornual resection or hysterectomy which is associated with high complication rates and increased morbidity [16]. With the advancement of minimally invasive surgery these techniques have been tried: laparoscopic cornual

resection, laparoscopic cornuostomy, hysteroscopic removal of interstitial ectopic tissue, unilateral uterine artery ligation [17].

Medical methods such as systemic methotrexate, ultrasound-guided methotrexate, laparoscopic-guided methotrexate (or potassium chloride) or systemic methotrexate, followed by selective uterine artery embolization are safe and highly effective treatment for cornual pregnancy and hence that surgery can be avoided [18].

The diagnosis prior to rupture is important in cornual/interstitial pregnancy in order to hold the chance of preserving the fertility by appropriate methotrexate treatment before rupture occurs [19].

In our case, the diagnosis was made early and laparoscopic cornuostomy with removal of the gestational sac and ipsilateral salpingectomy were performed. It was followed by laparoscopic repair of the cornuostomy incision.

In the subsequent pregnancy, there is a concern regarding uterine rupture because of the weakened myometrial scar. This concern exists for both interstitial pregnancies treated surgically and those treated with chemotherapeutic measures [20].

Uterine rupture at the site of prior laparoscopic cornuostomy after vaginal delivery of a full-term healthy neonate has been reported [21], thus caesarean delivery is recommended to avoid uterine rupture during labor which was found to be as high as 30% in the cases where cornual wedge resection was made [22].

Conclusion

Cornual pregnancy is rare, but has a high maternal morbidity and mortality, so an early diagnosis should be made to avoid complications. More detailed examination by transvaginal ultrasonography may contribute to accurate localization and diagnosis.

In unruptured cases, especially in nulliparous women, non-surgical treatment (with methotrexate) is preferred. The surgical treatment should be made with a minimally invasive approach, if possible. In our case, the diagnosis was made promptly and it was accurate, so the patient was adequately treated with a minimally invasive surgical method without complications.

The ultrasonographical monitoring of the future pregnancy is very important to ensure its proper location and the repaired surgical area remains intact.

References

1. Murray H, Baakdah H, Bardell T, Tulandi T. Diagnosis and treatment of ectopic pregnancy. CMAJ. 2005;173(8):905–12.
2. Choi Y, Eun D, Choi J, et al. Laparoscopic cornuotomy using a temporary tourniquet suture and diluted vasopressin injection in interstitial pregnancy. Fertil Steril. 2009;91(5):1933–7.
3. Arleo EK, DeFilippis EM. Cornual, interstitial, and angular pregnancies: clarifying the terms and a review of the literature. Clin Image 2014;38:763–70.
4. Malinowski A, Bates S. Semantics and pitfalls in the diagnosis of cornual/interstitial pregnancy. Fertil Steril. 2006;86(6):1764.e11–14.
5. Soriano D, Vicus D, Mashiach R, et al. Laparoscopic treatment of cornual pregnancy: a series of 20 consecutive cases. Fertil Steril. 2008;90(3):839–43.
6. Divry V, Hadj S, Bordes A, et al. Case of progressive intrauterine twin pregnancy after surgical treatment of cornual pregnancy. Fertil Steril. 2007;87:190.e1–3.
7. Molinaro T, Barnhart K. Ectopic pregnancies in unusual locations. Semin Reprod Med. 2007;25(2):123–30.

8. Tang A, Baartz D, Khoo S. A medical management of interstitial ectopic pregnancy: a 5-year clinical study. Aust N Z J Obstet Gynaecol. 2006;46(2):107–11.
9. Dagar M, Srivastava M, Ganguli I, et al. Interstitial and cornual ectopic pregnancy: conservative surgical and medical management. J Obstet Gynaecol India. 2018, 68:471-6.
10. Ackerman TE, Levi CS, Dashefsky SM, et al. Interstitial line: sonographic finding in interstitial (cornual) ectopic pregnancy. *Radiology* 1993;189:83–7.
11. Moawad NS, Mahajan ST, Moniz MH, et al. Current diagnosis and treatment of interstitial pregnancy. Am J Obstet Gynecol 2010;202:15–29.
12. Sargin MA, Tug N, Ayas S, Yassa M. Is Interstitial Pregnancy Clinically Different From Cornual Pregnancy? A Case Report. J Clin Diagn Res. 2015 Apr; 9(4): QD05–QD06.
13. Chou MM, Tseng JJ, Yi YC, et al. Diagnosis of an interstitial pregnancy with 4-dimensional volume contrast imaging. Am J Obstet Gynecol. 2005;193(4):1551–3.
14. Tanaka Y, Mimura K, Kanagawa T, et al. Three-dimensional sonography in the differential diagnosis of interstitial, angular, and intrauterine pregnancies in a septate uterus. J Ultrasound Med. 2014;33(11):2031–5.
15. Singh N, Tripathy R, Mala YM, Batra A. Diagnostic Dilemma in Cornual Pregnancy-3D Ultrasonography may Aid! Journal of Clinical and Diagnostic Research. 2015;9(1):QD12–13.
16. Vicino M, Loverro G, Resta L, et al. Laparoscopic cornual excision in a viable large interstitial pregnancy without blood flow detected by color Doppler ultrasonography. Fertil Steril. 2000;74(2):407–9.
17. Damario MA, Rock JA. Ectopic pregnancy. In: Rock JA, editor. Te Linde's Operative Gynaecology. 10th ed. New Delhi: Wolters Kluwer Health/Lippincott Williams and Wilkins; 2008. pp. 816–7.
18. Fritz MA, Speroff L. Ectopic pregnancy. In: Fritz MA, editor. Clinical Gynecological Endocrinology and Infertility. 8th ed. New Delhi: Wolters Kluwer Health/Lippincott Williams and Wilkins; 2011. p. 1410.
19. Basha A, Amarin Z. Cornual pregnancy treated with methotrexate. J Obstet Gynaecol. 2013;33(5):531–2.
20. Tulandi T, Al-Jaroudi D. Interstitial pregnancy: results generated from the Society of Reproductive Surgeons' Registry. Obstet Gynecol. 2004;103(1):47–50.
21. Su CF, Tsai HJ, Chen GD, et al. Uterine rupture at scar of prior laparoscopic cornuostomy after vaginal delivery of a full-term healthy infant. J Obstet Gynaecol Res. 2008;34(4 Pt 2):688–91.
22. Liao CY, Tse J, Sung SY, et al. Cornual wedge resection for interstitial pregnancy and postoperative outcome. Aust N Z J Obstet Gynaecol 2017;57:342–5.