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Case report

Hysteroscopic removal of cesarean scar pregnancy after methotrexate treatment failure

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ABSTRACT

A 35-year-old woman with persistent vaginal bleeding and a history of prior cesarean delivery was diagnosed with cesarean scar pregnancy (CSP) by transvaginal ultrasonography at 7 weeks of gestation. The patient was initially treated with a single dose of systemic methotrexate (MTX) injection. However, both follow-up β-hCG levels and transvaginal ultrasonography had shown evidence of ongoing pregnancy. Finally, she was treated with hysteroscopic resectoscope, by which the gestational tissue was removed completely. No intra-operative or post-operative complication occurred. Serum β-hCG level returned to normal limit four weeks after the surgery. In our experience, systemic MTX injection provides an alternative choice of treatment for carefully selected women with CSP, and hysteroscopic removal of CSP, which offers good prognosis, can serve both as the initial treatment and as the rescue management after a failed MTX treatment attempt.

Introduction

The incidence of cesarean scar pregnancy (CSP) is about 1 in 2000 pregnancies, which represents 6.15% of all ectopic pregnancies in women with a prior cesarean delivery.[1] Recently, more attention has been given to this rare form of ectopic pregnancy due to the increase in overall cesarean delivery rate and the improvement of earlier diagnosis by high-resolution transvaginal ultrasonography. Current management modalities include medical treatment with methotrexate (MTX) and the surgical procedures laparatomy, laparoscopy, or hysteroscopy.[2] Nevertheless, there is no standard protocol regarding the treatment of CSP at present. In this report, we describe a patient with CSP diagnosed by transvaginal ultrasound who was initially treated with systemic MTX but eventually received hysteroscopic surgery after the failure of medical treatment.

Case report

A 35-year-old woman, gravida 2, para 1, underwent cesarean delivery 3 years previously, and her other past history was unremarkable. This time, she was pregnant at 7 weeks of gestation and visited our hospital for persistent vaginal spotting. Transvaginal sonogram showed no intrauterine pregnancy but a gestational sac measuring 2.5 × 1.5 cm at the previous cesarean scar defect suggested the diagnosis of CSP (Fig. 1A). Her serum human chorionic gonadotropin (β-hCG) level was 34,313 mIU/mL. Medical treatment with a single dose of MTX, 85 mg, was injected intramuscularly. Despite the medical treatment, follow-up serum β-hCG levels had shown an increase on the 3rd and 6th day after MTX injection (60,713 mIU/mL and 75,528 mIU/mL, respectively). Transvaginal sonography was performed again on the 9th day and the gestational sac was enlarged to 3.5 × 3.0 cm (Fig. 1B). Therefore, hysteroscopic surgery was arranged on the 10th day. A continuous-flow 26F hysteroscopic resectoscope (Karl Stortz GmbH & Co., Tuttlingen, Germany) with a 90-degree wire loop electrode was introduced under the guidance of transabdominal ultrasound. The operative finding revealed a large cesarean scar defect embedded with gestational tissues and blood clots. The resection was performed using 80 W of cutting current followed by 100 W of coagulating current created by an Aspen Excalibur (Aspen Labs, Englewood, CO, USA) electrosurgical generator. The gestational tissue was cut piece by piece and it was removed completely, along with other necrotic debris and blood clots (Fig. 2). The base of the defect was inspected thoroughly to ensure that there were no remnants of chorionic villous tissue. Then, electrocauterization for hemostasis was performed by a metallic roller-ball attached to the

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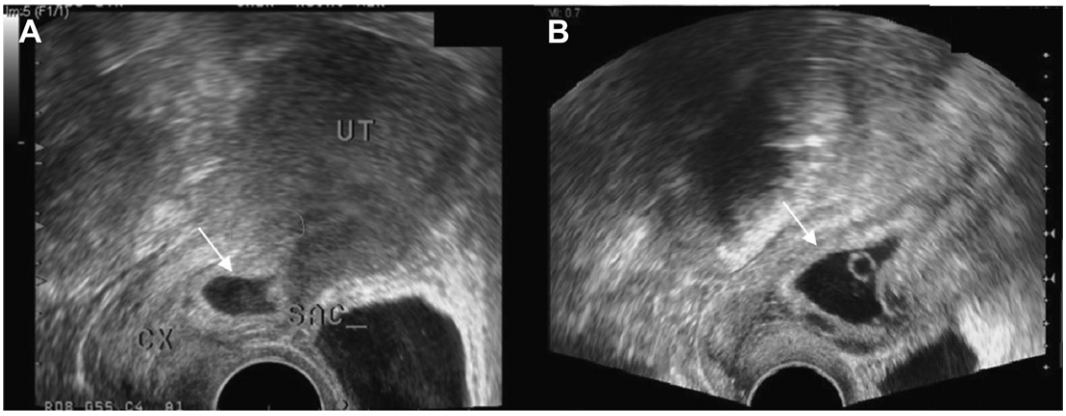

Fig. 1. (A) Transvaginal sonography showing a 2.5 × 1.5 cm gestational sac (arrow) over the previous cesarean scar defect before methotrexate (MTX) injection, which increased to (B) 3.5 × 3.0 cm after 9 days despite MTX injection (arrow).

resectoscope. The length of the surgical procedure was 36 minutes and the estimated blood loss was less than 20 mL. No perforation or other complications occurred during the operation. The postoperative course was uneventful and she was discharged on the 2nd day after the surgery. Her serum β-hCG level returned to within normal limits 4 weeks later.

Discussion

CSP is an infrequent type of ectopic pregnancy with an incidence of 1:1800–1:2216 pregnancies. Treatment options include medical treatment with local or systemic MTX injection and surgical treatment via hysteroscopy or laparoscopy.[2] Currently, there is not enough evidence to favor one specific treatment over another. Treatment should be individualized and several conditions must be considered: hemodynamic stability, size of gestational sac, serum β-hCG level, and preservation of fertility. Patients suitable for MTX treatment should be hemodynamically stable, with low β-hCG level (<5000 mIU/mL), compliant to receive regular follow-ups, and without renal or hepatic dysfunction.[1]

In one study, the failure rate of a single systemic MTX injection was demonstrated to be as high as 12 out of 21 cases requiring additional doses of MTX or surgical intervention.[3] Another study showed that hysteroscopy following a failed MTX treatment attempt offers advantages over local injection of MTX to the gestational sac.[4] However, a hysteroscopic approach requires an experienced operator who is skillful at manipulating hysteroscopic instruments and familiar with the orientation of the uterine cavity.[5] Furthermore, it is indicated only for the CSP that grows inwardly towards the uterine cavity. In the case of a pregnancy that grows between the abdominal cavity and the bladder, a laparoscopic approach may be the choice.[6]

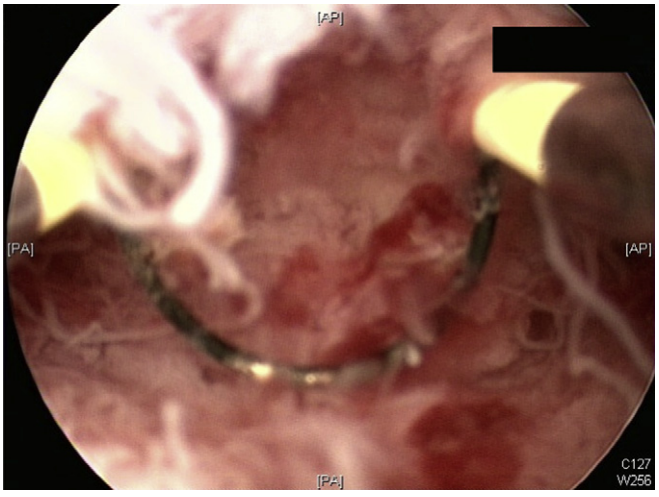

Fig. 2. Transcervical hysteroscopic resection of gestational tissue piece by piece.

In this report, systemic MTX treatment was given initially because the patient was hemodynamically stable with no contraindication to MTX injection. Nevertheless, hysteroscopic removal of CSP was performed due to the failure of MTX treatment. The insertion of the resectoscope and the resection of gestational tissue were performed under the guidance of transabdominal ultrasound. A recent study showed that real-time ultrasound guidance during a hysteroscopic surgery resulted in a trend towards reducing the uterine perforation rate.[7] Laparoscopically assisted operative hysteroscopy was also shown to possess the advantages of mobilization of the bladder, skeletonization of the uterine vessels, immediate detection of uterine and/or bladder perforation, and rapid management of hemorrhage.[8] To prevent massive bleeding, bilateral uterine artery ligation by laparoscopy or uterine artery embolization (UAE) may be performed at the beginning of the procedure.[9] In the case of persistent bleeding after the removal of gestational tissue, intrauterine gauze compression or Foley tamponade may be tried initially.[4] Hysterectomy is reserved as the last resort when other managements have failed to cease the bleeding. In the case of a deeper implantation into the scar defect, laparoscopic surgery is preferred for both resection of the gestational tissue and repair of the defect to prevent the risk of uterine rupture in subsequent pregnancies.[5]

In conclusion, systemic MTX injection is an alternative treatment for carefully selected women with CSP, and hysteroscopic removal of CSP provides good prognosis both as an initial treatment and as management after failed MTX treatment.

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