

Diagnosis and management of cervical ectopic pregnancy

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ABSTRACT

Cervical ectopic pregnancy (CP) is a rare condition with an incidence of less than 0.1% of all ectopic pregnancies. It is associated with a high morbidity and mortality potential. Timely intervention is required to preserve fertility and avoid the need for a hysterectomy. A case of CP is reported and the challenges in the diagnosis and management are discussed.

KEY WORDS: Cervical ectopic pregnancy, magnetic resonance imaging, transabdominal ultrasound, transvaginal ultrasound

INTRODUCTION

Cervical ectopic pregnancies (CPs) account for less than 1% of all pregnancies, with an estimated incidence of one in 2500 to one in 18,000.^[1,2] In the past, CP was associated with significant hemorrhage and was treated presumptively with hysterectomy. Improved ultrasound resolution and earlier detection of these pregnancies has led to the development of more conservative treatments that attempt to limit morbidity and preserve fertility. Given the rarity of the condition, even today, the most effective method of its management is under investigation. A case of CP is presented here, highlighting the successful diagnosis, management and challenges of this rare condition.

CASE REPORT

A 32-year-old woman, para 1, presented with mild pain abdomen and slight bleeding per vaginum for 5 days. Other relevant history included amenorrhea of 8 weeks' duration with a positive urine pregnancy test, following which she had vaginal bleeding for 12 days. She assumed that she had complete abortion and did not seek medical advice. When spotting resumed 3 weeks later, she presented to the hospital. Her previous menstrual cycle was regular. She had one child conceived through intrauterine insemination (IUI) and delivered by lower segment uterine section (LSCS) 3 years back.

There was no history of contraceptive use. She refused a vaginal examination.

Transabdominal and transvaginal ultrasonography (TVS) examination revealed a ballooned-out cervical canal with a gestational sac of 4.7 cm × 4.1 cm [Figure 1] and an empty uterus with thickened endometrium [Figure 2], respectively. The sac contained a fetus with a crown rump length of 2.33 cm, corresponding to 9 weeks' gestation [Figure 3] with the presence of cardiac activity [Video 1]. A presumptive diagnosis of CP was made. Magnetic resonance imaging (MRI) was used to confirm the diagnosis of CP and to rule out uterine scar pregnancy. The findings on MRI included a typical hour-glass configuration of the uterus with thickened endometrium, a ballooned-out cervix containing the gestational sac with fetal pole and closed internal os [Figure 4]. Thus, the diagnosis of CP was confirmed.

Single-dose intramuscular methotrexate 50 mg was administered the next day and manual vacuum aspiration (MVA) was performed on the third day. Cervical tamponade was performed with a Foley catheter, with its bulb inflated with 30 mL normal saline. At 4 weeks' follow-up, the patient was asymptomatic with a review TVS showing organized blood clot measuring 3.3 cm × 2.4 cm in the cervical canal [Figure 5]. Six weeks after the procedure, the patient resumed her

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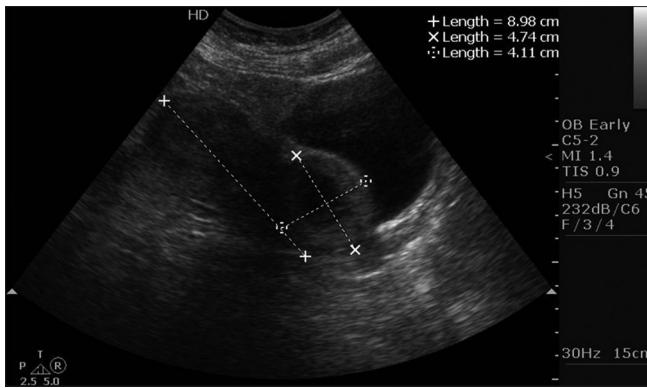


Figure 1: Transabdominal ultrasound section showing the typical hour-glass configuration of the uterus that measures 8.98 cm with a ballooned-out cervical canal containing a gestational sac measuring 4.7 cm × 4.1 cm

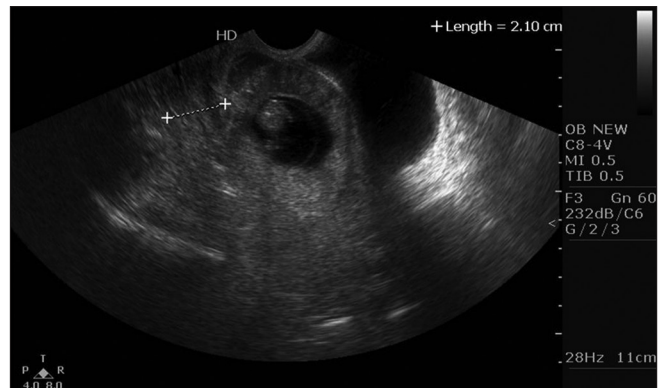


Figure 2: Transvaginal ultrasound section showing a thickened endometrium measuring 2.1 cm

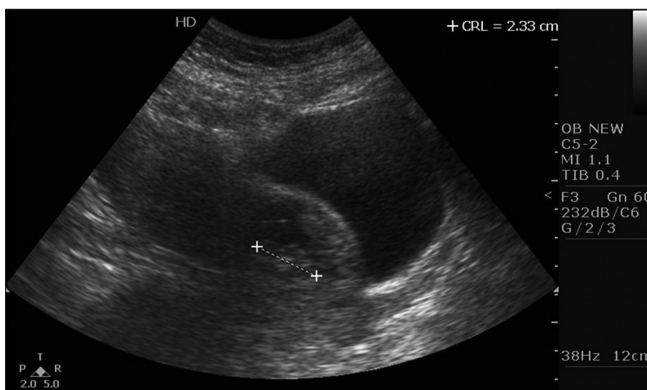


Figure 3: Transabdominal ultrasound section showing the fetal pole with a crown rump length of 2.33 cm

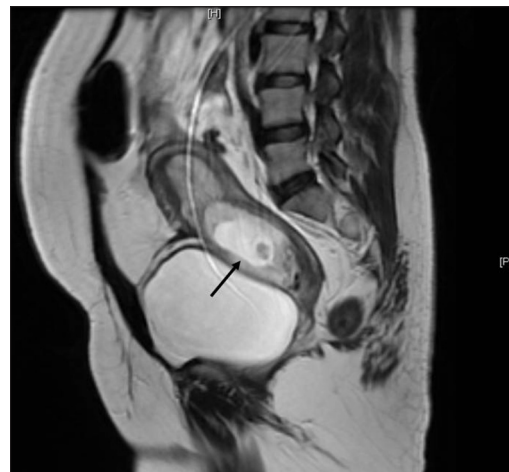


Figure 4: T2-weighted sagittal section of the pelvis showing a gestational sac with fetal pole in the cervix (arrow) and hour-glass configuration of the uterus



Figure 5: Review transvaginal ultrasound scan at 4 weeks showing absence of fetal parts with an organized blood clot measuring 3.3 cm × 2.4 cm

periods and the review scan showed a resolving blood clot measuring 2.6 cm × 1.3 cm.

DISCUSSION

CP results due to implantation of a fertilized ovum in the endocervical canal below the level of internal os with a

reported incidence of less than 0.1% of all pregnancies.^[1,2] Even with advanced diagnostic modalities and reduction in current maternal mortality rates, CP remains a life-threatening condition.^[3] Although predisposing factors like endometrial damage after curettage or chronic endometritis, leiomyoma, intrauterine devices, *in vitro* fertilization and primary embryo anomaly are implicated in the pathogenesis of CP, the rarity of the condition has prevented any retrospective studies, and the association of CP with all these factors remains weak.^[4,5]

Treatment options for CP may be divided into five categories:^[1]

1. Tamponade with Foley catheter: Use of a Foley catheter, placed gently past the external os, followed by inflation of the bulb with 30 mL saline has been used mostly after other techniques (e.g., curettage), result in hemorrhage. Tamponade with packing is not very useful
2. Reduction of blood supply: This may be undertaken by cervical cerclage, vaginal ligation of cervical arteries, uterine artery ligation, internal iliac artery ligation and angiographic embolization of the cervical, uterine or

internal iliac arteries. This is usually done in preparation for surgical therapy like curettage, or along with chemotherapy, as a conservative treatment modality aimed at preserving future fertility. Embolization is primarily used as a “rescue” therapy when profuse bleeding follows other conservative methods like chemotherapy

3. Surgical excision of trophoblast: Curettage and hysterectomy are the classic methods for surgical excision of trophoblast tissue. Curettage is the age-old fertility preserving method, but risks hemorrhage. Therefore, it has been used in conjunction with mechanical methods like cervical artery ligation and tamponade. Primary hysterectomy may still be the preferred modality of treatment in intractable hemorrhage, second trimester or third trimester diagnosis of CP and possibly to avoid emergency surgery and blood transfusion in a woman not desirous of fertility. In a review, 100% of CP beyond 12 weeks’ gestation ultimately required hysterectomy
4. Intra-amniotic feticide: Ultrasound-guided intra-amniotic instillation of potassium chloride and/or methotrexate has been used as a conservative approach for the management of CP. Both these procedures require skill and expertise
5. Systemic chemotherapy: The most commonly used agent is methotrexate, used in a single dose or multiple doses, with or without folinic acid. However, methotrexate may be associated with bone marrow suppression, gastrointestinal disturbances and elevation of hepatic transaminases. Recently, a combination of laparoscopy-assisted uterine artery ligation followed by hysteroscopy local endocervical resection to remove CP has been described as a fertility-preserving alternative therapy.^[6]

In clinically stable patients, if ultrasound measurements show no cardiac activity and the gestational period is less than 9 weeks, systemic methotrexate may be tried.^[1] Gestational period more than 9 weeks with the presence of cardiac activity demonstrated on ultrasound in a clinically stable patient may require addition of intra-amniotic potassium chloride in addition to systemic methotrexate.^[1] Second or third trimester diagnosis may warrant hysterectomy. In a hemorrhaging patient, the treatment options are tamponade with Foley balloon, large vessel ligation or angiographic embolization with hysterectomy reserved for intractable bleeding.^[1] Often, more than one method is usually tried in the termination of CP.^[1]

Treatment with methotrexate chemotherapy of patients with either viable or nonviable CP at <12 weeks’ gestation carries a high success rate (>91%) for preservation of the uterus.^[7] Although intra-amniotic instillation of potassium chloride has been advocated in the presence of cardiac activity, the procedure requires a high level of skill and

familiarity and is associated with the risk of hemorrhage.^[1] Therefore, in our case, we chose to manage the patient with systemic methotrexate followed by MVA and cervical tamponade as this was the least invasive modality.

It is important to distinguish among CP, cervical abortion and uterine scar pregnancy. In 2002, the following guidelines were laid down for ultrasound diagnosis of an ectopic pregnancy within a cesarean scar:^[8] (a) an empty uterine cavity and cervical canal, (b) development of the gestational sac in the anterior portion of the lower uterine segment and (c) absence of a healthy myometrium between the bladder and the gestational sac. Although her history included IUI, which is a risk factor for CP,^[9] and we could rule out cervical abortion due to the presence of cardiac activity, it was difficult to exclude the possibility of uterine scar pregnancy because of previous LSCS.

The specificity of three-dimensional (3D) ultrasound imaging has been reported to be better than two-dimensional (2D) scans as the 3D image incorporates an additional coronal section that is not possible with 2D imaging.^[10] Because we did not have a 3D scan facility, we used MRI to confirm the diagnosis of CP, as tissue characterization is better with MRI when compared with ultrasound, especially in doubtful cases such as this.^[11,12] The MRI findings of CP include:^[11] (a) presence of a mass with heterogeneous signal intensity and (b) partial or complete dark rim on T2-weighted images. In conclusion, a case of CP is described where multi-modality investigations were used in the diagnosis, which aided the subsequent management, resulting in successful preservation of fertility.

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