CERVICAL ECTOPIC PREGNANCY DIAGNOSED BY POINT-OF-CARE EMERGENCY DEPARTMENT ULTRASOUND

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Abstract—Background: Although rare, cervical ectopic pregnancy (EP) represents a potentially lethal variation of a common first-trimester disease entity. Case Report: We report a case of low abdominal pain and vaginal bleeding diagnosed as a cervical EP by point-of-care ultrasound. Conclusion: Familiarity with cervical EP and its sonographic appearance is essential for emergency physicians because it can be easily mistaken for an intrauterine pregnancy or other obstetric/gynecologic pathology, such as an incomplete abortion or nabothian cyst. The management of each of these differs substantially, making accurate diagnosis crucial. Published by Elsevier Inc.

Keywords—cervical; ectopic; pregnancy

INTRODUCTION

Cervical ectopic pregnancy (EP) represents a rare but dangerous form of EP. We describe a case of first-trimester vaginal bleeding and low abdominal pain ultimately diagnosed as a cervical EP. We additionally review the sonographic pitfalls involved in making this diagnosis.

CASE REPORT

A 32-year-old woman presented to the Emergency Department (ED) with low abdominal pain and vaginal bleeding. Her last menstrual period was 6 weeks prior. Vitals signs were: blood pressure 140/103 mm Hg, heart rate 83 beats/min, respiratory rate 18 breaths/min, temperature 37.4 °C (99.4°F), and physical examination was significant only for mild tenderness across the lower abdomen without rebound or guarding. Hemoglobin and hematocrit were within normal limits, and the serum beta human chorionic gonadotropin was 23,622 mIU/mL. A pelvic sonogram was performed by the emergency physician and revealed a gestational sac containing a yolk sac and fetal pole within the cervix, consistent with cervical EP (Figure 1). The Obstetrics and Gynecology team was consulted and the patient was sent to the operating room for dilatation and curettage. Surgical pathology showed immature chorionic villi, consistent with products of conception.

DISCUSSION

The incidence of cervical EP ranges from 1 in 2500 to 1 in 18,000 pregnancies, and is associated with a mortality rate of up to 40% due to the potential for massive hemorrhage (1–4). The etiology remains unclear, but potential causes include accelerated migration of the fertilized ovum, and unfavorable “endometrial environment” due to scarring, causing implantation in the cervix (5). Hypothesized risk factors include prior history of endometrial scarring (previous abortion with curettage), presence of intrauterine devices, structural abnormalities, Asherman syndrome, endometriosis, past cesarean section, and in vitro fertilization (4).
The ultrasound finding required to diagnose an intrauterine pregnancy is visualization of a yolk sac or fetal pole within a gestational sac that is surrounded by myometrium. The sonographic findings in cervical EP may vary from these in a subtle manner. A gestational sac is typically visualized below the internal os at the level of insertion of the uterine artery (6). The fundus of the uterus lies in a characteristic “hour-glass” shape, as opposed to the globular shape seen in spontaneous abortions. The cervical canal is enlarged, and echogenic tissue invasion is seen in the wall of the normally homogenous cervix. Color Doppler will demonstrate the so-called “ring of fire,” a low-resistance peritrophoblastic flow pattern characteristic of EP and corpus luteal cysts. A fetal heart beat is often present at the time of diagnosis (5).

In the absence of an obvious cervical gestational sac containing either a yolk sac or fetal pole, making the distinction between a true cervical EP and other pathologies (nabothian cyst or incomplete abortion) can be challenging. These alternatives must be entertained because therapeutic management is markedly different. As mentioned, the uterus in spontaneous abortions is classically globular. Color Doppler does not demonstrate “ring of fire” flow, and the “sliding sign,” where the gestational sac slides against the cervical canal with gentle transducer pressure, also may be present (6).

Nabothian cysts (Figure 2) are well-circumscribed, circular, anechoic structures with posterior enhancement that usually occur in groups (7). They usually have peripheral flow on Doppler, but with high resistance in contrast to the low-resistance flow of cervical EP (8). Additionally, so-called “low” nabothian cysts may be visible on cervical speculum examination, and their location should correlate with ultrasound findings (7).

The traditional treatment for cervical EP in the hemodynamically unstable patient is hysterectomy (4). Unstable patients with equivocal ultrasound findings also may require immediate surgical intervention. However, stable patients in whom the diagnosis is uncertain may benefit from serial ultrasound studies. Nabothian cysts are generally static structures and should retain their sonographic appearance over short time periods. Products of conception in an incomplete abortion also may progress through the cervical canal over a relatively short time frame, and the characteristic features of a true cervical EP (yolk sac, fetal heart activity, or trophoblastic ring) may become more apparent as the pregnancy progresses. If further characterization of the pregnancy is required, magnetic resonance imaging may be helpful (9). More conservative measures are now used in the management of stable women with cervical EP. These include local excision and curettage, endocervical tamponade, medical therapy with methotrexate, or uterine artery embolization (4).
CONCLUSION

Cervical EP represents a rare and potentially lethal variation of a pathology frequently encountered in the ED. Because there are no clinical factors that distinguish cervical EP from other types of ectopic pregnancy, familiarity with ultrasound findings and potential mimics is essential to ensure the safe management of these patients.

REFERENCES