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CASE REPORT OPEN ACCESS

Cervical Ectopic Pregnancy: A case report and review of literature

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Abstract
Background: Cervical ectopic pregnancy is a rare obstetric emergency commonly associated with adverse outcomes because of the diagnostic and treatment challenges it poses.
Case presentation: We report a referred case of cervical ectopic diagnosed using transabdominal and transvaginal ultrasound scan which was successfully managed conservatively with methotrexate. We further review available literature while discussing our management.
Conclusion: Prompt diagnosis of cervical ectopic pregnancy will require a high index of suspicion alongside appropriate ultrasonography skills and other ancillary investigations. Medical management where possible could reduce the risk of intractable haemorrhage and hysterectomy.

Keywords: Cervical ectopic, Methotrexate, Transvaginal ultrasound, Transabdominal ultrasound

Introduction

Cervical ectopic pregnancy is a rare condition that occurs in less than 1% of all ectopic pregnancies (1). It is associated with high morbidity and mortality and requires timely intervention to preserve fertility (2). It is a high-risk pregnancy that may present with an unexpected life-threatening haemorrhage secondary to the erosion of cervical blood vessels (3). Management options depend on presentation and can range from conservative management using methotrexate to more extreme measures such as hysterectomy to preserve life in cases of massive haemorrhage.

Case presentation

A 41-year-old nullipara presented with a 2 days history of painless vaginal bleeding. The bleeding began gradually in spots but had progressively increased in volume. She was unsure of her date but was about 6weeks amenorrhoeic. The pregnancy was spontaneously conceived; she had no history of dilatation and curettage nor any utero-cervical procedures. She was being evaluated for symptomatic uterine fibroids and being worked up for an abdominal myomectomy before conception. Her review of systems was not remarkable. She was not pale, anicteric, not cyanosed, and had mild suprapubic tenderness with an abdominal swelling. A gentle vaginal (speculum) examination revealed a slightly dilated external os of less than 10mm and with minor bleeding. Her weight was 62kg, height

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1.56cm, and a body surface area (BSA) of 1.64kg/m^2. She had a bedside transabdominal scan which raised the suspicion of a cervical ectopic and was confirmed by a transvaginal ultrasonography performed by three Consultant Gynaecologist on duty. Findings were a gestational sac in the cervical region corresponding to 5 weeks and 4 days gestation with no visible fetal pole or cardiac activity, the sliding sign was negative. There were multiple intramural myomas on the anterior and posterior walls of the uterus and an empty uterus with thickened endometrium. The transvaginal scan also revealed a ballooned-out cervical region containing a gestational sac with similar features and the sliding sign was negative. The uterine cavity was empty with an endometrial thickness of 10mm. The internal os was closed, both ovaries were normal and there was no free fluid in the pouch of Douglas. Her quantitative serum beta-human chorionic gonadotropin (β-HCG) level was 1216.3mIU/ml. She was haemodynamically stable with a haemoglobin of 13.8 g/dl. Her urea, electrolytes, and liver function test were all within normal limits. The couple was counselled on the diagnosis, management options, and risk-benefit ratio. She was then planned for conservative management. She had a dose of 82mg stat methotrexate at 50 mg/m^2 BSA with a plan to repeat by day 4. The quantitative β-HCG had dropped to 129mIU/ml by Day 4. A transabdominal scan revealed the sac had collapsed. Her vaginal bleeding was moderate and she remained haemodynamically stable. She was counselled on the need for sustained follow-up and discharged. On day 7 follow-up, the quantitative β-HCG had dropped to 32.6 mIU/ml. The patient did well afterwards, subsequent follow-up was uneventful. Her post-treatment ultrasound scan was also unremarkable. She expressed satisfaction with her overall care and management.

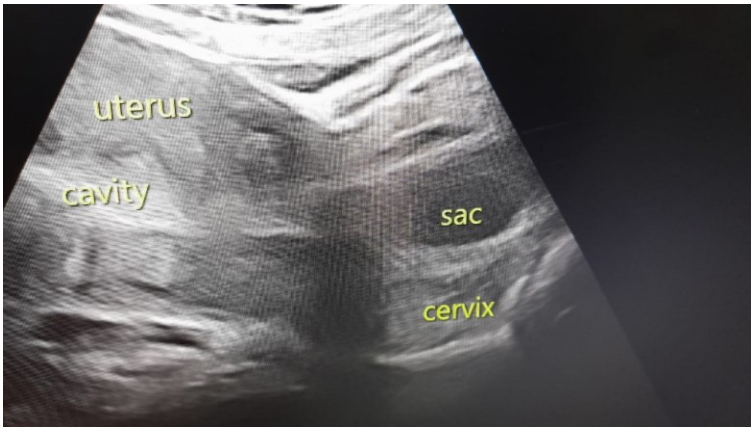

Figure 1: Transabdominal ultrasound image of index patient showing gestational sac in the cervical region.

Discussion

Cervical pregnancy is a rare complication that can be life-threatening if not diagnosed and treated early (4) just as in ectopic pregnancies generally (5). Fortunately, our index case presented with minimal bleeding and necessitated conservative management with systemic methotrexate which resolved with a single dose. Such treatment has been attributed to a high success rate for the preservation of the uterus (6). This is even more important for this 41-year-old nullipara who is desirous of future fertility. Treatment choices may be divided into five categories: tamponade, reduction of blood supply, excision of trophoblastic tissue, intra-amniotic feticide, and systemic chemotherapy (7).

Predisposing factors reported include endometrial damage after curettage or chronic endometritis, leiomyoma, intrauterine devices, in vitro fertilization, and primary embryo anomaly (8, 9). Our index patient had multiple intramural myomas. This may have been the predisposing factor in her. Cervical pregnancies occur in 2% of ectopic resulting from assisted reproductive technology (ART) (10). Other associated risk factors include; previous uterine and cervical surgeries and Asherman's syndrome (11).

Cervical ectopic pregnancy accounts for less than 1% of ectopic pregnancies (12). It is seen in about 15% of all non-tubal ectopics (11). it may be found incidentally on early ultrasound scans, especially in asymptomatic women (10). Prompt and early diagnosis is important to prevent life-threatening haemorrhage and ensure a successful treatment (13).

Ultrasound scan represents a potent tool for diagnosing cervical ectopic. It is accurate in 87.5% of cases, with features such as the presence of a gestational sac (GS) within the cervix, no evidence of intrauterine pregnancy, hourglass shape of the uterus, with ballooned cervical canal, and visualization of an endometrial strip (14). MRI can be used if the location of cyesis is not clear (14, 15). This is in a bid to rule out other differentials like an incomplete or threatened miscarriage, cervical polyps, or tumour amongst others. Some ultrasound diagnostic criteria for a cervical pregnancy include an empty uterine cavity or thickened endometrium, closed internal os, gestational sac or placental tissue below the level of the internal os, an intact cervical canal between the endometrium and sac, a negative sliding sign, and a high peri trophoblastic vascularity on Doppler interrogation (16). Most of these were found in the index patient.

Although there are no specific criteria or guidelines for treating cervical ectopic, the treatment may depend on haemodynamic stability. Haemodynamically stable patients can receive methotrexate (MTX) as a first-line therapy (as in index patient), as either a single dose or multidose systemic regimen, or administered as a local intra-sac injection (17). Methotrexate can be combined with intraamniotic Potassium chloride (KCL) when fetal cardiac activity is present. Similarly, Methotrexate in combination with a double catheter has been described in case reports with successful outcomes (18, 19). Combinations with mifepristone have also been reported in the literature (16). The success rate of exclusive methotrexate administration has been reported to be as high as 81.3%, possibly increasing to 90% when combined with additional conservative methods (16).

Failure of single methotrexate therapy is likely if the gestational age is greater than 9 weeks, fetal viability is documented and serum β-HCG is >10,000 miu/ml. This was not the case in the index patient as her β-HCG was 1216.3miu/ml, a gestational sac of 5 weeks with no fetal pole or heart seen. This may have also contributed to the success of our medical management with methotrexate. It is also important to note that though Methotrexate is a safe and effective drug in the management of cervical ectopic, dose schedules, and follow-up protocols are yet to be determined. A single systemic dose of 50-75mg/m^2 is widely accepted as first-line therapy regardless of fetal cardiac activity (20).

Management of massive haemorrhage with dilatation and curettage (D&C) has been reported (21). Other management options including intracervical balloon tamponade, cervical cerclage (Shirodkars), vaginal ligation of cervical arteries, uterine artery and internal iliac artery ligation amongst others have also been reported in the literature (16). Uterine artery embolization (UAE) and hysterectomy are management options in intractable haemorrhage when all other measures are unsuccessful (22). There are case reports of cervical pregnancy carried beyond viability with the delivery of a live fetus (11).

Conclusion

Although cervical ectopic pregnancies are rare, increased numbers are being reported because of risk factors such as increased uptake of ART for infertility treatment and high caesarean section rates amongst others. Hence a high index of suspicion and timely diagnosis will be very essential to reduce the complications that can occur with this type of pregnancy.

List of Abbreviations

ART: Assisted Reproductive Technology
BSA: Body Surface Area
CM: Centimetre
D&C: Dilatation and Curettage
HCG: Human Chorionic Gonadotrophin
KCL: Potassium Chloride
KG: Kilogram
MG: Miligram
MM: Millimetre
MTX: Methotrexate
SEUCr: Serum Electrolyte Urea and Creatinine
UAE: Uterine Artery Embolization

Declarations

Ethical approval and consent to participate

Written informed consent for publication was obtained from the patient whose management is being reported.

Consent for publication

Availability of data and materials

All essential data supporting the findings of this case are available within the article. Additional data are available upon request from the corresponding author.

Competing interests

The authors declare no conflict of interest.

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Authors' contributions
DG, AS, and EO were involved in managing the index patient. DG, AS, OF, BZ, ISO, and EO conceptualized the report and wrote the first draft of the manuscript. DG and ISO corrected the manuscript. All the authors agreed on and approved the final manuscript after review.

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