Cervical ectopic pregnancy (CP) is a rare form of ectopic gestation. It is associated with high morbidity and mortality if not properly managed. Transabdominal ultrasonography (TAS) alone without transvaginal ultrasonography (TVS) could create diagnostic dilemmas. Minimally invasive treatment with local or systemic methotrexate is effective and has no effect on subsequent reproductive carrier. We present a 39-year-old G3 P2+2 woman who presented with pregnancy of unknown location following TAS. The TVS confirmed CP. She had a successful medical treatment with a single dose of intramuscular methotrexate and subsequently got pregnant and delivered a live-born infant 11 months after treatment.

Key words: Cervical ectopic pregnancy; conservative management; methotrexate; transvaginal ultrasound scan.

Introduction

Cervical ectopic pregnancy (CP) is the second most common type of nontubal ectopic pregnancies. It is a rare form of ectopic pregnancy in which the trophoblast implants in the lining of the endocervical canal. It accounts for less than 1% of ectopic pregnancies with a reported incidence ranging between 1 in 1,000 to 18,000 pregnancies.[1]

The cause of CP is unknown; however, most literature has shown previous cervical or uterine surgeries, such as cervical curettage and cesarean sections (C-sections), to be risk factors. Other predisposing risk factors are similar to those for ectopic pregnancy in general, which include history of previous pelvic inflammatory disease, smoking, intrauterine contraceptive device, uterine anomalies, in vitro fertilization, and history of in utero exposure to diethylstilbestrol (DES).[2]

CP poses a diagnostic dilemma and it is important to differentiate it from an inevitable abortion.[3] Locating the site of the ectopic pregnancy is a step toward effective management. The application of ultrasound diagnostic criteria first described by Raskin[4] and, subsequently, refined by Timor-Tritsch et al.[5] has significantly improved early diagnostic accuracy allowing for conservative medical or surgical management.

We present a case of CP that was treated with a single dose of intramuscular methotrexate with no adverse outcome.

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The patient had a successful vaginal delivery 11 months after treatment.

**Case Report**

A 39-year-old G5P2+2 woman was referred to our facility as a case of pregnancy of unknown location. She presented with an 8-week history of amenorrhea and spotting per vaginam (PV) of 2 weeks duration. There was no abdominal pain or passage of products of conception (POC). The patient’s vital signs were stable and vaginal examination revealed a soft, closed cervical external os and scanty altered blood. She had two first trimester spontaneous miscarriages 2 years prior to presentation. The patient never had suction evacuations or previous uterine surgery. She was not on any form of contraception.

The patient had two separate transabdominal ultrasound (TAS) scans from private radio diagnostic centers, in which one reported normal findings while the other reported uterine fibroid. However, the pregnancy test was positive. A repeat TAS scan in our facility also showed an empty uterus while the transvaginal sonography (TVS) showed an empty uterus with an anterior–posterior (AP) diameter of 4.1 cm, triple-layered endometrium measuring 7.8 mm, and an irregular gestational sac with a fetal pole of 6 weeks gestation within the cervix with decidual reaction. There was no cardiac activity and the color score was 2. There was a corpus luteum (CL) in the adnexum [Figure 1a and b]. The qualitative pregnancy test in serial dilution was positive in 1: 4 dilution. The patient’s packed cell volume was 40% and platelet count was 118 × 10^9. Other investigations were within normal limits.

She was managed as a case of CP. The patient consented for medical therapy and had a single dose of intramuscular methotrexate 50 mg/m^2 (100 mg) and leucovorin (folic acid). She had moderate vaginal bleeding 10 days after the methotrexate. The urine pregnancy test became negative and a TVS scan showed no color flow to the embryo on the tenth day following methotrexate. However, the CL became corpus hemorrhagic (CH) with retracting clot [Figure 2]. Two weeks after a negative urine pregnancy test, she had her normal menses and a regressed CH on repeat TVS. The patient was counseled on contraception at discharge; however, she was lost to follow-up despite recall and presented 6 months later for antenatal booking. She had a successful vaginal delivery 11 months after treatment. There was no obvious fetal congenital anomaly at birth.

**Discussion**

CP is associated with high morbidity and mortality. There is, therefore, the need for high index of suspicion in all women presenting with pregnancy of unknown location such as the case of this 39-year-old G5P2+2 woman. Our patient presented with painless vaginal bleeding following an 8-week history of amenorrhea with the product of conception entirely confined within the endocervix on TVS. The cervical internal os was closed, fulfilling most of the five clinically practical criteria proposed by Paalman and McElin in 1959.[6] Other clinical criteria include a soft enlarged cervix equal to or larger than the fundus and partially opened external cervical os. With recent advancements in sonography and the availability of high-resolution transvaginal Doppler ultrasound scans, most cases of CPs are detected in the first trimester permitting fertility-sparing conservative treatment and reducing the morbidity and mortality associated with advanced cases. The diagnosis and management of CP are faced with challenges.[7] Our patient had three separate TAS scans within the same period—two from a radio-diagnostic center and one from our facility—however, the CP was missed. This underscores the value of TVS in all cases of suspected ectopic pregnancies or pregnancies of unknown location. In a review of 117 cases of cervical pregnancy by Ushakov et al.,[8] sonography improved pretreatment diagnosis in 81.8% of the cases. The presence of trophoblastic invasion of the cervical stroma results in peri-trophoblastic blood flow, which is demonstrated with a color Doppler ultrasound scan. This is helpful in differentiating ectopic pregnancy from abortion in progression. It is also useful in monitoring during treatment and follow-up as seen in our patient, who had a Doppler color
score of 2 at presentation and subsequently no blood flow 10 days following methotrexate treatment.

Our patient had no obvious risk factors except for the advanced maternal age of 39 years. Although presumptive predisposing factors, such as trauma to the endocervical lining following curettage or endometritis, leiomyomatosis, intrauterine devices, genetically abnormal embryo and in vitro fertilization, have been implicated in the pathogenesis of CP, there is no substantive evidence to support these factors because of its rarity.[2]

There is no standard recommended treatment for CP. Various treatment options have been cited in the literature depending on the gestational age, hemodynamic stability, fertility desire, and available expertise. Medical management is favored when diagnosed before 12 weeks in a hemodynamically stable patient with low serum beta human chorionic gonadotropin (β-hCG). The various medical options include systemic or local injection of methotrexate, local or systemic prostaglandin, potassium chloride, local vasopressin injection, systemic mifepristone, and intrauterine irrigation with 3.5% hydrogen peroxide.[7] Our patient fulfilled the above criteria for medical management and as such she had a single dose of methotrexate with successful outcome. Farabow et al. were the first to report the use of methotrexate in the treatment of CP in 1983[9] and since then, its use is favored. Methotrexate has not been shown to have impact on ovarian reserve or clinical outcome, regardless of time since exposure.[10] Other literature has shown the safety of methotrexate in the treatment of ectopic gestation.[11-13] Our patient’s fertility profile was preserved, she had a term vaginal delivery of a healthy child 11 months after therapy.

Surgical treatment modalities include suction curettage, balloon tamponade, cervical cerclage, uterine artery embolization, angiographic embolization, and even hysterectomy in uncontrolled hemorrhage.[14,15] These are, however, more technical and are associated with more complications including anesthetic risk.

CP is rare. A high index of suspicion and the application of requisite ultrasound diagnostic criteria will increase diagnostic yield. Medical treatment with methotrexate is associated with preservation of fertility as demonstrated in this case.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

References
1. Bouyer J, Coste J, Fernandez H, Pouly JL, Job-Spira N. Sites of ectopic pregnancy: A 10 year population-based study of 1800 cases. Hum Reprod 2002;17:3224-30.
2. Kashanian M, Baradaran HR, Moussavi SS, Sheikzansari N, BararPour F. Risk factors in ectopic pregnancy and differences between adults and adolescents, is consangunuity important? J Obstet Gynaecol 2016;36:935-9.
3. Berek JS. Nontubal ectopic pregnancy. In: Berek and Novak’s Gynecology. 15th ed. 2012. p. 642-3.
4. Raskin MM. Diagnosis of cervical pregnancy by ultrasound: A case report. Am J Obstet Gynecol 1978;130:234-5.
5. Timor-Tritsch IE, Montaguerho A, Mandeville EO, Peisner DB, Anaya GP, Pirronw EC. Successful management of a viable cervical pregnancy by local injection of methotrexate guided by transvaginal ultrasonography. Am J Obstet Gynecol 1994;170:737-9.
6. Paalman RJ, McElin TW. Cervical pregnancy: review of the literature and presentation of cases. Am J Obstet Gynecol 1959;77:1261-70.
7. Hosni MM, Herath RP, Rashid M. Diagnostic and therapeutic dilemmas of cervical ectopic pregnancy. Obstet Gynecol Surv 2014;69:261-76.
8. Ushakov FB, Elchalal U, Aceman PJ, Schenker JG. Cervical pregnancy: Past and future. Obstet Gynecol Surv 1997;52:45-59.
9. Farabow WS, Fulton JW, Fletcher V Jr, Velat CA, White JT. Cervical pregnancy treated with methotrexate. NC Med J 1983;44:91-3.
10. Sekhon L, Rodriguez-Purata J, Lee JA, Whitehouse MC, Copperman AB. Methotrexate treatment of ectopic pregnancy does not impact ovarian reserve or clinical outcome, regardless of the duration of time since exposure. Fertil Steril 2016;106:e88.
11. Piccioni MG, Framarino-dei-Malatesta M, Polidori NF, Marcocci E. Cervical ectopic pregnancy treated with systemic methotrexate and following successful term pregnancy: Case report. J Obstet Gynaecol 2015;35:654-5.
12. Sijanovic S, Vidosavljevic D, Sijanovic I. Methotrexate in local treatment of cervical heterotopic pregnancy with successful perinatal outcome: Case report. J Obstet Gynaecol Res 2011;37:1241-5.
13. Pressman AB, Ditkoff JS. Cervical pregnancy: Misdiagnosis and hemorrhage after pharmacologic therapy at an early gestational age: A case report. J Reprod Med 2017;62:445-8.
14. Fylstra DL. Cervical pregnancy: 13 cases treated with suction curettage and balloon tamponade. Am J Obstet Gynecol 2014;210:581.e1-5.
15. Zakaria MA, Abdallah ME, Shavell VI, Berman JM, Diamond MP, Kmnak DC. Conservative management of cervical ectopic pregnancy: Utility of uterine artery embolization. Fertil Steril 2011;95:872-6.