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Conservative Management of Cervical Ectopic Pregnancy with Multidose Methotrexate and Subsequent Successful Intrauterine Pregnancy: A Case Report and Review of Literature

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Abstract
Background: *At less than 1% of all ectopic pregnancies, cervical ectopic pregnancy (CEP) is a very uncommon type of ectopic gestation. Due to the significant danger of major hemorrhage, which frequently requires a hysterectomy if left untreated, early detection is essential. Early identification and fertility-preserving treatment techniques have been made possible by advancements in transvaginal ultrasonography and serum beta-human chorionic gonadotropin (β-hCG) monitoring.*
Case Presentation: *We report the case of a 26-year-old gravida 2 para 1 live 1 woman with a prior lower segment cesarean section who presented with vaginal bleeding and a positive urine pregnancy test. Transvaginal ultrasonography revealed an empty uterine cavity with a gestational sac located within the cervical canal, consistent with cervical ectopic pregnancy. Her initial serum β-hCG level was 3034.14 mIU/mL. After counseling regarding medical and surgical options, the patient opted for conservative medical management. A multidose methotrexate regimen was administered, with serial monitoring of β-hCG levels demonstrating a progressive decline to non-pregnant levels within four weeks. The patient experienced no major complications. Notably, she conceived spontaneously six months later and is currently continuing a viable intrauterine pregnancy under regular antenatal surveillance.*
Conclusion: *In hemodynamically stable individuals, conservative medical care with multidose methotrexate can be a safe and successful fertility-preserving strategy. This case further emphasizes the significance of early detection of cervical ectopic pregnancy. Improved reproductive results and a considerable reduction in maternal morbidity are achieved with prompt detection and tailored care.*
Keywords: *Cervical ectopic pregnancy, methotrexate, conservative management, fertility preservation, β-hCG*

Introduction

The rare and possibly fatal syndrome known as cervical ectopic pregnancy (CEP) is characterized by the gestational sac implanting into the endocervical canal below the internal os.[1] Cervical pregnancy, which was first identified in the early nineteenth century, is still difficult to diagnose and treat because of its rarity and the high danger of excessive bleeding that comes with improper treatment or delayed identification.[2,3]

Less than 1% of all ectopic pregnancies are cervical ectopic pregnancies, with reported incidences ranging from 1 in 1,000 to 1 in 95,000 pregnancies.[2,4] In the past, CEP was commonly discovered only after severe bleeding, which frequently resulted in an emergency hysterectomy and irreversible infertility.[2] However, early diagnosis and conservative, fertility-preserving therapy options are now possible because to the widespread availability of sensitive serum β-hCG tests and high-resolution transvaginal ultrasonography.[3,5]

Previous uterine surgery, such as dilatation and curettage or cesarean section, assisted reproductive methods, intrauterine device use, and endometrial injury are risk factors for cervical ectopic pregnancy.[4,6] The precise pathophysiology of cervical implantation is still unknown despite these correlations.[7]

Over the past few decades, CEP management techniques have seen tremendous change. In carefully chosen, hemodynamically stable patients, medicinal therapy with methotrexate, either systemic or local, has replaced the conventional use of surgical procedures including hysterectomy, cervical curettage, or uterine artery embolization.[8]

In addition to reviewing the most recent research on diagnosis and treatment, this case report details the effective conservative therapy of a cervical ectopic pregnancy with a multidose methotrexate regimen, which was followed by a spontaneous intrauterine pregnancy.

Case Presentation

A 26-year-old woman with gravida 2 para 1 live 1 complained of vaginal bleeding when she arrived to the Sapthagiri Institute of Medical Sciences and Research Centre's Department of Obstetrics and Gynecology in Bangalore. On October 12, 2024, her urine pregnancy test came back positive. Her prior lower segment caesarean section for foetal distress made her obstetric history noteworthy. There was no history of intrauterine contraception, pelvic inflammatory illness, or assisted reproductive methods.

A urine pregnancy test came back positive after the patient reported experiencing brownish vaginal discharge on September 15, 2024, almost a month earlier. She had not suffered syncope, tissue passing, or stomach pain. The patient had normal vital signs and was hemodynamically stable upon evaluation. The speculum examination showed very minor cervical os hemorrhage, and the abdominal examination was uneventful. A bimanual examination revealed a soft, slightly enlarged cervix, a normal-sized uterus, and no lumps or pain in the adnexa.

The results of laboratory tests showed that the serum β-hCG level was 3034.14 mIU/mL. Transvaginal ultrasonography showed a gestational sac inside the cervical canal and an empty uterine cavity. The uterus had an hourglass shape because the sac was located below the level of the internal os. There was no sign of an adnexal mass, intrauterine pregnancy, or pelvic fluid accumulation. There was a negative sliding sign because the internal os was closed and the gestational sac did not move when the transvaginal probe was gently pressed. The diagnosis of cervical ectopic pregnancy was supported by these results.

Following diagnosis confirmation, the patient received comprehensive counseling on available management choices, including conservative medicinal management and surgical surgery. Medical management was selected due to her hemodynamic stability, low β-hCG levels, lack of fetal cardiac activity, and strong desire for future fertility.

As per usual protocol, folinic acid rescue was started along with a multidose methotrexate therapy that included injectable methotrexate on days 1, 3, 5, and 7. Monitored serial serum β-hCG levels showed a consistent decrease from the starting value to 1115

mIU/mL on day 5. There were no severe side effects or episodes of severe bleeding, and the patient responded well to the treatment.

Four weeks after medication ended, follow-up β-hCG levels dropped further, to less than 5 mIU/mL. The patient received frequent follow-up care and was instructed to refrain from getting pregnant for six months. She became pregnant on her own six months later, and an ultrasound revealed that her fetus was viable. As of this writing, she is still having a good pregnancy and receiving regular prenatal care.

Discussion

A rare but dangerous obstetric disease that can result in potentially fatal bleeding is cervical ectopic pregnancy. Because the cervix is primarily made up of fibrous tissue and does not have the uterine myometrium's contractile ability, it cannot effectively stop bleeding when trophoblastic tissue invades cervical arteries.[8] As a result, a serious bleeding necessitating an emergency hysterectomy may arise from misdiagnosis or delayed treatment.

The exact process that results in cervical implantation is not fully known. Some hypotheses include altered uterine peristalsis, endometrial injury leading to improper implantation, and delayed transfer of the fertilized ovum.[6,9] The most prevalent risk factor is prior uterine instrumentation, specifically dilatation and curettage. Due to the potential disruption of the normal endometrial environment, prior caesarean sections, like the one in this case, are also regarded as a significant predisposing factor. [2,9]

Preventing morbidity requires an early diagnosis.[6] The preferred diagnostic technique is transvaginal ultrasonography.[6,9] An hourglass-shaped uterus, a gestational sac beneath the internal os, an empty uterine cavity, and the lack of the sliding sign are important sonographic indicators of cervical pregnancy, according to Timor-Tritsch et al.[10] In this instance, these requirements were met.

Cervical cancer, cervical fibroid, trophoblastic illness, placenta previa, low-lying intrauterine pregnancy, and inevitable or incomplete abortion are examples of differential diagnoses.[6] Because curettage in cases of cervical ectopic pregnancy (CEP) can cause catastrophic haemorrhage, it is crucial to distinguish it from an aborting intrauterine pregnancy. [1,9,10]

Hemodynamic stability, foetal heart activity, gestational age, β-hCG levels, and the patient's desire for future fertility all affect how cervical ectopic pregnancy is managed.[6] In the past, the only effective treatment was a hysterectomy.[2] But where possible, conservative methods are now favoured. [6,9]

Today, methotrexate is the mainstay of medical care. It is especially useful in early, non-viable pregnancies with lower β-hCG levels and can be given locally or systemically.[6] When compared to single-dose protocols, multidose regimens have been demonstrated to have greater success rates in situations with higher β-hCG levels or more advanced gestations.[9]

The multidose methotrexate treatment in this instance led to a successful resolution free of problems. Crucially, the patient went on to have a subsequent spontaneous intrauterine pregnancy, highlighting the ability of conservative treatment to preserve fertility.[6,9,11]

One of the main concerns for young women with cervical ectopic pregnancy is fertility preservation.[9] After effective medical treatment, several studies have documented positive reproductive results, with many patients going on to have intrauterine pregnancies.[6,11,12] This instance contributes to the increasing amount of data demonstrating that conservative treatment is a secure and successful choice for patients who are carefully chosen.[11,12]

Conclusion

Despite being uncommon, cervical ectopic pregnancy presents a serious risk to the health of the mother because of the possibility of extensive bleeding. Serial β-hCG readings and transvaginal ultrasonography are crucial for an early diagnosis. For patients who are hemodynamically stable and do not have fetal cardiac activity, conservative medical care using multidose methotrexate can be a safe and effective fertility-preserving medication. This example illustrates the value of tailored care and

shows that, with cautious treatment, a successful subsequent intrauterine pregnancy is possible.

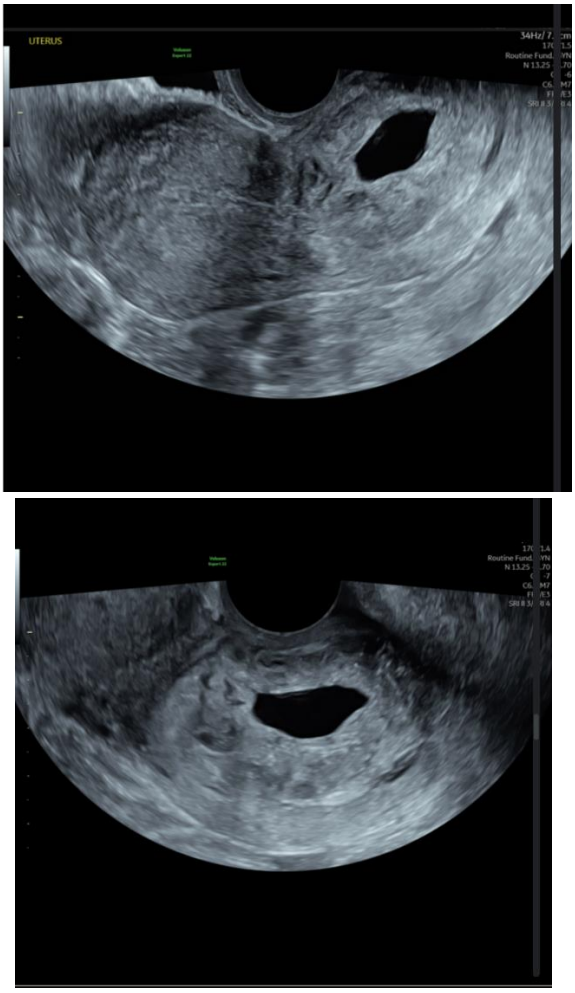

Figure 1. No intrauterine pregnancy is identified. Endometrial thickness measures 4.4 mm.

Located eccentrically at the level of the cervix is a heterogeneous vascular mass, with the appearance of a surrounding echogenic decidual reaction. Centrally within this is a gestational sac measuring 18.2 mm.[13]

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