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Case Report

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Conservative management of cervical ectopic pregnancy: A case report and review of literature

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Abstract

Ectopic pregnancies, occurring in approximately 1-2% of cases, are typically found within the fallopian tube. Among these instances, cervical ectopic pregnancies constitute less than 1% of cases, with the majority observed within the endocervical canal. This study presents a case of cervical ectopic pregnancy following in vitro fertilization (IVF), treated with a single dose of methotrexate. A 23-year-old woman who has been married for 4 years with a history of infertility presents with complaints of abdominal pain for 2 days and vaginal spotting as bleeding, following her last menstrual period, at 5 weeks and 3 days of pregnancy. In her medical history, the patient mentions having low ovarian reserve (AMH 6.73 pmol/L), which led to in vitro fertilization (IVF) transfer 22 days ago. Due to the patient's young age and it being her first pregnancy, medical treatment with methotrexate (MTX) was decided. MTX was administered at a dose of 50 mg/m² (100 mg of intravenous MTX in 100 ml of 0.9% NaCl). Experiences in cervical ectopic pregnancies predominantly stem from case-based experiences. Thus, when planning treatment for cervical ectopic pregnancy, a conservative or minimally invasive approach may be more appropriate, tailored to the patient's characteristics whenever possible.

Keywords: cervical, ectopic pregnancy, methotrexate, medical treatment

1. Introduction

Ectopic pregnancies, occurring in approximately 1-2% of cases, are typically found within the fallopian tube. However, they can also manifest in unconventional localizations such as the ovary, intraabdominal space, cesarean scars, or even the intestinal segment of the tube. Among these instances, cervical ectopic pregnancies constitute less than 1% of cases, with the majority observed within the endocervical canal. The precise etiology of cervical ectopic pregnancies remains incompletely understood, although various risk factors have been identified, including prior manipulation or instrumentation of the endocervical canal, the presence of rapid intrauterine transit facilitated by retained intra-amniotic tissue (RIA), endometriosis in this area, anatomical or structural abnormalities, endometrial inflammation, in vitro fertilization (IVF), and exposure to diethylstilbestrol (1).

Cervical ectopic pregnancies are recognized as high-risk cases due to the potential for severe bleeding threatening life, necessitating hysterectomy, and posing a risk to fertility. Despite the increasing use of transvaginal ultrasound for early diagnosis and subsequent adoption of conservative treatments as the standard approach in recent years, a consensus regarding the optimal management strategy for this condition is yet to be reached (2).

This study presents a case of cervical ectopic pregnancy following in vitro fertilization (IVF), diagnosed in the early stages and treated with a single dose of methotrexate, along with a review of relevant literature to provide context for the case.

2. Case Report

A 23-year-old woman who has been married for 4 years with a history of infertility presents with complaints of abdominal pain for 2 days and vaginal spotting as bleeding, following her last menstrual period, at 5 weeks and 3 days of pregnancy. She sought care at Namık Kemal University Faculty of Medicine Hospital. In her medical history, the patient mentions having low ovarian reserve (AMH 6.73 pmol/L), which led to an in vitro fertilization (IVF) transfer 22 days ago. This was her first IVF attempt, and she had no previous history of infertility treatment. Prior to her first IVF attempt,

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hysterosalpingography revealed an arcuate uterus anomaly, and her partner's semen analysis results were normal.

Five months ago, she underwent laparoscopic left ovarian cystectomy due to a 6.5 cm complex ovarian cyst on the left ovary. The pathology report indicated serous cystadenoma. During the current visit, the patient's examination showed bleeding upon speculum insertion. A cervical examination revealed a short cervix with mildly sensitive cervical movements. The uterus was approximately 6 weeks in size based on gestational dimensions, and both adnexa were evaluated as normal upon palpation.

Laboratory results showed hemoglobin 14.2 g/dL, hematocrit 42%, white blood cell count 10.9 10^3 µL, and serum beta-HCG level 2930 mIU/ml. Ultrasound examination revealed a 14 mm thick decidua reaction in the endometrium and a gestational sac measuring 15*17.5 mm (consistent with 5 weeks and 5 days). Embryo and yolk sac were not observed (Fig. 1). Doppler examination showed increased vascularity in the cervix and increased blood flow in the trophoblastic tissue around the gestational sac. A 15 mm and 17 mm bilobular cystic structure was observed in the natural right ovary and the left adnexal area, respectively.

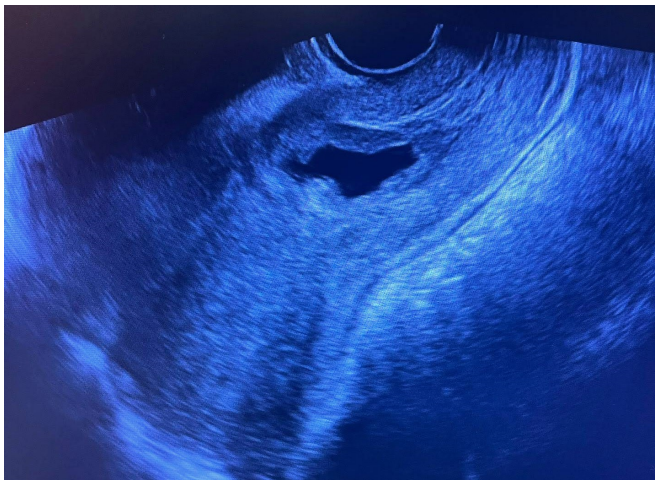


Fig. 1. Servical ectopic gestational sac

Due to the patient's young age and it being her first pregnancy, medical treatment with methotrexate (MTX) was decided. Baseline blood tests were performed before MTX treatment, including complete blood count, liver and kidney function tests, electrolytes, and blood type. MTX was administered at a dose of 50 mg/m² (100 mg of intravenous MTX in 100 ml of 0.9% NaCl). During MTX treatment, these parameters remained within normal limits.

After MTX treatment, the patient continued to experience spotting-like vaginal bleeding. Beta-HCG levels were measured on the 1st and 4th days post-MTX administration. A plateau was observed. On the 1st day, beta-HCG was 1213 mIU/ml, and a cervical gestational sac measuring 1313 mm was observed on transvaginal ultrasound. On the 4th day after MTX treatment, the beta-HCG level was 1215 mIU/ml, and there were no changes in ultrasound findings. While planning a second MTX dose on the 7th day, the beta-HCG level unexpectedly decreased to 669 mIU/ml on the 6th day of follow-up. Ultrasonography showed a gestational sac with irregular limited borders measuring 119 mm and minimal fluid accumulation around it (Fig. 2). Given these findings, it was determined that a single dose of MTX was sufficient until the beta-HCG level reached normal values. Twenty-two days after MTX administration, the beta-HCG measurement turned negative.

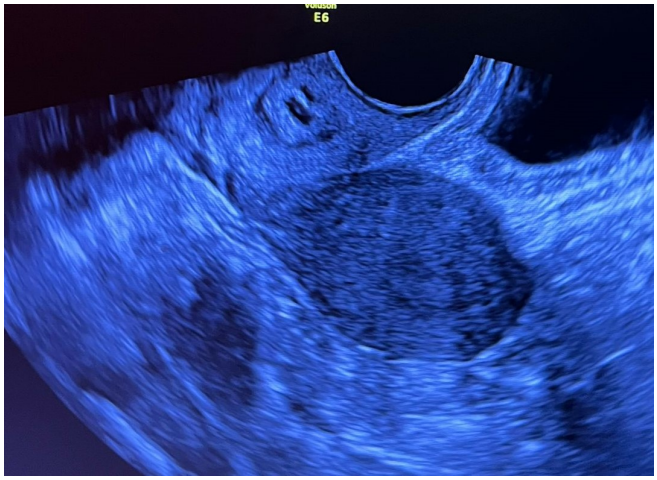
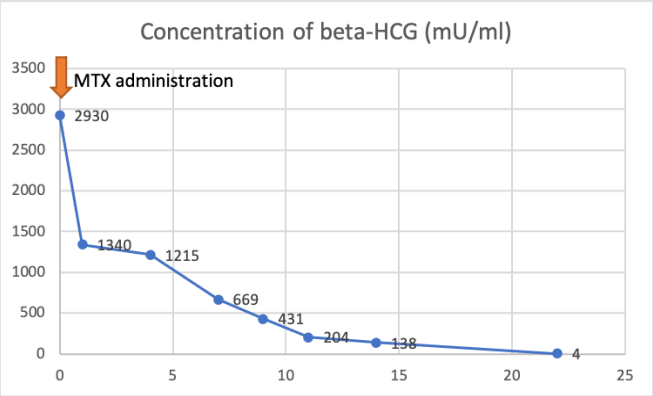


Fig. 2. Cervical ectopic pregnancy with minimal fluid accumulation around irregular borders after MTX treatment

Throughout the patient's treatment and follow-up, beta-HCG values are shown in Table 1. However, during this time, a gestational sac with irregular limited borders, measuring 11*9 mm, and minimal collection around it persisted in the cervix. The patient, who continued to have minimal spotting-like vaginal bleeding, was monitored with serial ultrasonographic examinations. At the follow-up, 27 days after the return of normal beta-HCG levels, after menstrual bleeding, the cervix was naturally observed, and endometrial thickness was measured as 4 mm (Fig. 3). The patient, who does not smoke, has no additional risk factors for ectopic pregnancy development aside from IVF treatment and previous pelvic surgery.

Fig. 3. 27th day of her persuit endometrial thickness measure is observed as 4 mm

Table 1. Concentration of beta-HCG in the blood serum on days of treatment



3. Discussion

Cervical ectopic pregnancy, though constituting a relatively low incidence rate (<1%) in comparison to other ectopic pregnancy locations, carries a heightened risk of significant bleeding, hysterectomy, or even mortality if not promptly managed (3). Recently, the incidence of cervical ectopic pregnancy has seen an increase due to the use of assisted reproductive techniques. While the exact mechanisms underlying the development of cervical ectopic pregnancy remain uncertain, factors such as the rapid passage of the fertilized egg through the uterine route, alterations in implantation capacity within the endometrial layer, and damage to the endometrial canal have been postulated (4). The literature cites numerous risk factors, including prior pregnancies, history of miscarriages, curettage, smoking, and the use of assisted reproductive technologies.

Approximately 70% of such cases are diagnosed between the 5th and 8th weeks of gestation, 20% between the 9th and 10th weeks, and 10% after the 11th week. Clinically, these patients often present with abdominal pain and vaginal bleeding, with speculum examination revealing cervical hyperemia, fetal membranes, and pregnancy products protruding into the vagina as swelling, which may lead to misdiagnosis as incomplete pregnancy or miscarriage (5).

Ultrasound findings during advanced gestational weeks can be nonspecific. The size of the fetus and the position within the cervical canal can affect imaging. However, distinct features such as an "hourglass" uterus with a ballooned endocervix, endometrial stripe visualization, motionless intracervical sac with the "sliding sign" upon vaginal pressure, and a closed external cervical os characterize cervical ectopic pregnancies and assist in distinguishing them from miscarriage (5).

Cervical ectopic pregnancy-related bleeding can be life-threatening and often necessitates hysterectomy. Treatment options primarily involve surgical and conservative approaches. Early diagnosis is crucial for both medical and surgical interventions. Surgical options include aspiration, forceps, curettage, hysteroscopy, and uterine artery embolization. Conservative methods encompass local or systemic administration of MTX, potassium chloride (KCl), highly concentrated sodium chloride (NaCl), or glucose injection (3). The use of MTX alone for cervical ectopic pregnancy has been reported to achieve a success rate of approximately 81.3%, increasing to around 91% when combined with systemic MTX and supplementary conservative methods (4). For hemodynamically stable cases, multiple-dose MTX, leading to the cessation of fetal cardiac activity, has been suggested as an appropriate option (6).

While numerous treatment modalities have been described, a consensus on the most effective approach has yet to be reached. Given the rarity of cervical ectopic pregnancy, experiences in this domain primarily rely on case series studies. For the majority of clinically stable patients, local or systemic MTX use constitutes an effective and safe method (7). MTX treatment protocols include single-dose (50 mg/m2) or multiple-dose (1 mg/kg + 0.1 mg/kg folinic acid) regimens (8).

The choice of treatment hinges on factors such as gestational week, initial serum β-HCG level, presence of fetal cardiac activity, vaginal bleeding, and desire to preserve fertility. Advanced-age (gestational week) cervical ectopic pregnancies are associated with higher morbidity risk and often necessitate hysterectomy. Existing research has demonstrated the safety and effectiveness of MTX in cervical ectopic pregnancy. However, dosing, protocols, and follow-up procedures have not yet been fully defined. While a single systemic MTX dose of 50-75 mg/m2 has been identified as an initial treatment option independent of fetal cardiac activity, certain variables such as gestational week (>9 weeks), serum β-HCG levels (>5000 mIU/mL), and crown-rump length (>10 mm) have been associated with higher failure rates (7). In a case series involving 13 cervical ectopic pregnancies, Mori et al. (9) reported satisfactory outcomes with single-dose intramuscular MTX as the primary treatment. However, they also suggested additional interventions such as curettage or, in some cases, placement of a cervical Foley catheter for hemostatic control in cases of increasing vaginal bleeding or persistent lack of β-HCG decline.

In cases where conservative treatment fails, severe bleeding occurs, or hemodynamics are unstable, surgical interventions such as curettage and Foley catheter insertion for uterine tamponade, topical prostaglandin injection, uterine artery embolization, and surgical procedures like bilateral uterine or iliac artery ligation or hysterectomy may be required (4). Mininci et al. (10) proposed the use of uterine artery embolization as a viable option for cervical ectopic pregnancy due to its potential for preserving both the uterus and fertility, along with the rapid healing of the uterus after minimal invasive interventions.

In conclusion, while cervical ectopic pregnancy is a rare occurrence, its frequency has increased with the growing use of assisted reproductive techniques in recent years. Despite a plethora of surgical and medical methods described in the

literature, a unanimous consensus on the optimal treatment for cervical ectopic pregnancy remains elusive, primarily due to the absence of extensive large-scale studies in this area. Experiences in cervical ectopic pregnancies predominantly stem from case-based experiences. As highlighted in this study, treatment decisions should consider factors such as gestational age, hemodynamic stability, and the patient's desire to preserve fertility. Thus, when planning treatment for cervical ectopic pregnancy, a conservative or minimally invasive approach may be more appropriate, tailored to the patient's characteristics whenever possible.

Conflict of interest

The authors have no conflict of interest to declare.

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Informed consent from the patient has been obtained.

Authors' contributions

Concept: E.K.Ç., B.Ü., Design: E.K.Ç., B.Ü., Data Collection or Processing: E.K.Ç., B.Ü., Analysis or Interpretation: E.K.Ç., B.Ü., Literature Search: E.K.Ç., B.Ü., Writing: E.K.Ç., B.Ü.

References

1. Kraemer B, Abele H, Hahn M, Wallwiener D, Rajab TK, Hornung R. Cervical ectopic pregnancy on the portio: conservative case management and clinical review. Fertil Steril. 2008;90(5):2011.e1-4. doi:10.1016/j.fertnstert.2008.06.018

2. Tanos V, ElAkhras S, Kaya B. Hysteroscopic management of cervical pregnancy: Case series and review of the literature. J Gynecol Obstet Hum Reprod. 2019;48(4):247-253. doi:10.1016/j.jogoh.2018.05.001

3. Sheng S, Zhang H, Pan Z, Li T, Wang H, Shi M, Wang F. Treatment of heterotopic cervical pregnancy by ultrasound-guided hysteroscopy: a case report and literature review. Medicine (Baltimore). 2022;101(48):e32177. doi:10.1097/MD.0000000000032177

4. Javedani Masroor M, Zarei A, Sheibani H. Conservative Management of Cervical Pregnancy with the Administration of Methotrexate and Potassium Chloride: A Case Report. Case Rep Obstet Gynecol. 2022:1352868. doi:10.1155/2022/1352868

5. Coulter-Nile S, Balachandar K, Ward H. A diagnostic dilemma of an 18-week cervical ectopic pregnancy: A case report. Case Rep Womens Health. 2022;13:33:e00385. doi:10.1016/j.crwh.2022.e00385

6. Fouda A, Enayat A, Ahmed WE. Conservative management of a viable cervical ectopic pregnancy with systemic and multiple local methotrexate injections: A case report. Eur J Contracept Health Care. 2022;27(3):265-268. doi:10.1080/13625187.2022.2026325

7. Stabile G, Mangino FP, Romano F, Zinicola G, Ricci G. Ectopic Cervical Pregnancy: Treatment Route. Medicina (Kaunas). 2020;56(6):293. doi:10.3390/medicina56060293

8. Guzowski G, Sieroszewski P. Invasive ultrasound in the management of cervical ectopic pregnancy. Eur J Obstet Gynecol Reprod Biol. 2014;172:7-9. doi:10.10.16/j.ejogrb.2013.10.016

9. Mori KH, Tavares BV, Yela DA, Baccaro LFC, Juliato CRT. Experience of a Tertiary Service in the Treatment of Women with Cervical Pregnancy. Rev Bras Ginecol Obstet. 2022;44(11):1014-1020. doi:10.1055/s-0042-175954

10. Mininni C, Garibaldi S, Fornari L, Domenici L, Cattani R, Bottone P. Effective combined treatment in ectopic cervical pregnancy preserving fertility: a case report and literature review. Eur Rev Med Pharmacol Sci. 2012;25(12):4190-4197. doi:10.2635/eurrev_202106_26121.