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Cervical pregnancy: different clinical scenarios leading to its diagnosis

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ABSTRACT

We report all the cases of cervical pregnancy managed in our institution in the past ten years. One of them was treated with methotrexate. The other one was the result of *in vitro* fertilization, leading to an early embryo reduction. The last one was misdiagnosed as an uterine abortion and was submitted to dilatation and curettage with profuse bleeding, uterine perforation and need of laparotomy. As it continues to be a rare condition, the most important step in cervical pregnancy continues to be thinking about the possibility of its occurrence, because if it remains unrecognized it may have an end in an unfavorable outcome.

Keywords: Ectopic pregnancy, embryo implantation, methotrexate

GRAVIDEZ CERVICAL: DIFERENTES CENÁRIOS CLÍNICOS QUE CONDUZEM AO SEU DIAGNÓSTICO

RESUMO

Este artigo descreve todos os casos de gravidez cervical que ocorreram na nossa instituição nos últimos dez anos. Um deles foi resolvido com metotrexato. Outro resultou de fertilização *in vitro*, tendo havido a necessidade de fazer uma redução embrionária precoce. O último foi mal interpretado como sendo um abortamento intrauterino, tendo sido a doente submetida a dilatação e curetagem, que resultou em hemorragia profusa, perfuração uterina e necessidade de laparotomia. Como a gravidez cervical continua a ser uma condição rara, o passo mais importante continua a ser pensar na possibilidade da sua ocorrência, porque uma gravidez cervical não reconhecida pode culminar num mau desfecho.

Palavras-chave: Gravidez cervical, Implantação embrionária, metotrexato

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INTRODUCTION

Cervical pregnancy is a rare form of ectopic pregnancy that occurs when the fertilized egg implants in the endocervical canal, below the internal cervical os.[1,2] It has an estimated incidence of 1:9000 deliveries, accounting for less than 1% of ectopic pregnancies.[3,4] It is a potentially life-threatening condition, in which catastrophic hemorrhage can occur during a spontaneous abortion or at an attempt of surgical evacuation, leaving hysterectomy as a last resort to save the life of the patient.

There are some recognized risk factors for its occurrence, such as previous pelvic inflammatory disease, tubal or pelvic surgery, smoking, use of an intrauterine contraceptive device, previous induced abortion, uterine curettage, uterine fibroids, previous cesarean section and use of in vitro fertilization.[5,6]

Cervical pregnancy may present with painless vaginal bleeding after some weeks of amenorrhea. Pain and abdominal cramps occur in nearly one-third of the patients, but pain without bleeding is rare.[6]

With the improvement in ultrasound resolution and the availability of quantitative β–hCG assays, cervical pregnancies are being early detected, which is critical for successful treatment and for avoidance of complications; it allows attempting conservative management.[7,8]

As this is a rare condition, the optimal treatment for cervical pregnancy remains unclear.[2,5] From the point of view of fertility preservation, treatment may be conservative, using methotrexate in single or multidose regimens, using fetal injection of potassium chloride, performing dilatation and curettage followed by intracervical tamponade, using angiographic embolization or operative ligation of uterine arteries among others or treatment may be radical, using hysterectomy.[2,7]

In this article we present all the cases of cervical pregnancy managed in our institution in the past ten years.

CASE PRESENTATION

Case one

A 27-year-old healthy woman, G3P2 (two cesarean term deliveries), presented with painless vaginal bleeding at eight weeks of amenorrhea. On physical examination, the patient was stable with minimal vaginal bleeding. Transvaginal ultrasound revealed a gestational sac with an embryo without cardiac activity implanted below the internal cervical os, with a negative "sliding sign". The serum β-hCG level was 8978 IU/L. The patient was treated with single dose intramuscular methotrexate, without any side effects. The serum β-hCG level dropped during the follow-up, while the women presented with vaginal bleeding, having become undetectable 40 days later. At that time, her transvaginal ultrasound had no gestational sac.

Case two

A 42-year-old women, G5P0, had a history of four previous miscarriages after *in vitro* fertilization treatment, all solved with medical treatment. She conceived again with *in vitro* fertilization, with the transference of two embryos. At six weeks gestation, a multiple pregnancy was diagnosed, with a gestational sac in the uterine fundus and another one in the endocervical canal. A decision was made to perform a transvaginal embryo reduction of the cervical pregnancy, using intracardiac instillation of potassium chloride.

Two weeks later, she presented to our emergency department with profuse vaginal bleeding, that required red blood cell transfusion. Vaginal examination revealed the presence of waste products of conception. Transvaginal ultrasound revealed a gestational sac with an embryo with cardiac activity well implanted in the uterine cavity and an irregular gestational sac being expelled from the endocervical canal. As vaginal bleeding was profuse, surgical treatment was equated, but the patient refused such treatment. She also refused the placement of an intra cervical balloon. Vaginal tamponade was performed at the same time that the woman received four units of red blood cells. It was required three vaginal tamponades during the first 12 hours, until the hemorrhage ceased. The woman did not present any other bleeding episodes and she is now in the third trimester of pregnancy.

Case three

A 24-year-old healthy woman, G2P0 (one elective pregnancy termination), presented with mild abdominal pain and slight vaginal bleeding at eight weeks of amenorrhea with a positive urine pregnancy test. Her vaginal examination showed minimal vaginal bleeding. Transvaginal ultrasound revealed an intrauterine gestational sac with an embryo with crown rump length corresponding to seven weeks without cardiac activity, surrounded by an image which appear to correspond to a hematoma. We hypothesized that it was a topical non-progressive pregnancy and the patient was admitted for uterine evacuation with vaginal misoprostol. As there was no uterine response, the woman was maintained in fasting and was transferred to the operative room in order to perform a dilation and curettage under ultrasound guidance.

The procedure was undertaken, but heavy bleeding emerged. Uterotonics were attempted, but the woman presented with signs of instability and peritoneal irritability, with the need of fluids and red blood cells transfusion and it was decided to carry out a laparotomy. In this procedure, uterine perforation at the cervico-isthmic junction was diagnosed and bleeding from the broad ligament was noted, causing an hemoperitoneum. Waste products of conception were present within the cervix, being visible through the uterine perforation; waste products were removed and the defects were corrected surgically. Histopathological examination of the products sent from the two surgeries helped us with the most likely final diagnosis of cervical pregnancy with incomplete abortion.

DISCUSSION

Cervical pregnancy remains a potentially life-threatening condition, besides the advanced diagnostic modalities available nowadays. The differential diagnosis between cervical pregnancy, cervical abortion and uterine scar pregnancy is very important.[9]

Transvaginal ultrasound is invaluable in the diagnosis of cervical pregnancy, having some criteria for the diagnosis: presence of a gestational sac in the cervix with an empty uterine cavity and a dilated cervix with a hourglass shaped uterus (with ballooned cervical canal). In cervical pregnancy usually the embryo has cardiac activity, the gestational sac is regular and the cervical os is closed, which helps differentiating it from an incomplete abortion. Besides that, the ''sliding sign'' is another important clue for this diagnostic: when the sonographer applies pressure on the cervix with the probe, the gestational sac of an abortus slides against the endocervical canal, unlike in an implanted cervical pregnancy. The demonstration of peritrophoblastic blood flow on color Doppler ultrasonography is another diagnostic criterion.[1,8]

Some authors believe that the use of three-dimensional ultrasound and/or magnetic resonance imaging is very useful in those cases in which the differential diagnosis is not made easily.[1,10] Three-dimensional ultrasound has the advantage of giving a coronal plane of the uterus, which helps in localizing the gestational sac.[1] These imaging modalities are not always available in our practice and as cervical pregnancy is a rare diagnosis we do not always evoke this diagnosis, which could have compromised the future fertility and, perhaps, the life of our patient number three.

The etiology of cervical pregnancy is unclear, but *in vitro* fertilization is a recognized risk factor for its occurrence, as in our case number two. One theory states that the transport of the fertilized egg can be too fast with this technique, leading that an embryo without nidation capability stays attached to the endocervical canal. The poor reproductive past of our patient, lead us with serious difficulty in the management of her acute state. Having another viable embryo in the uterine fundus led us with the difficult decision of proceeding with that pregnancy and solving the hemorrhage with one of the cervical pregnancy treatment options.

Our problem with the management of cervical pregnancy is the possibility of life-threatening hemorrhage, which can make an hysterectomy the last resort to save the woman's life. However, this compromises future fertility, therefore informed consent about the treatment modalities available must be obtained.[7] Medical treatment with methotrexate in single or multidose regimens (with or without the injection of potassium chloride in the fetuses with cardiac activity) is the least invasive treatment that we can perform and sometimes it is the unique treatment needed, as occurred in our patient number one. Unlike in tubal pregnancy, cardiac activity and βHCG level are not contraindications for medical treatment, because the best management option for this rare condition is still unclear.[5] Conservative treatment with combined ultrasound-guided transvaginal aspiration and methotrexate is another option.[7] There are also some surgical conservative options, including intracervical balloon tamponade after dilatation and curettage, cervical cerclage, local hemostatic sutures, uterine artery embolization and uterine or hypogastric artery ligation. Performing the stepwise approach, using first the conservative techniques, may be a good option for these patients, but if hemodynamic compromise emerges, we may have to perform a life-saving procedure.[11]

The emerging use of laparoscopy in gynecology brings new treatment options in cervical pregnancy, since the use of combined laparoscopy-assisted uterine artery ligation with hysteroscopic endocervical resection has already been described and it seems a good conservative choice.[8]

To conclude, patients with cervical pregnancy may have different risk factors, may present with different clinical scenarios, may be submitted to different diagnostic tests and may choose between different treatment options, based on their individual cases. However, as it continues to be a rare condition and as we do not have preventive strategies, the most important step to the physician continues to be thinking about the possibility of its occurrence, because otherwise unrecognized cervical pregnancies may end in an unfavorable outcome.

HIGHLIGHTS

"At six weeks gestation, a multiple pregnancy was diagnosed, with a gestational sac in the uterine fundus and another one in the endocervical canal. A decision was made to perform a transvaginal embryo reduction of the cervical pregnancy."

"Cervical pregnancy remains a potentially life-threatening condition, besides the advanced diagnostic modalities available nowadays."

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REFERENCES

1. Ruano R, Reya F, Picone O, Chopin N, Pereira PP, Benachi A, *et al*. Three-dimensional ultrasonographic diagnosis of a cervical pregnancy. Clinics 2006; 61:355-8.
2. Singh S. Diagnosis and management of cervical ectopic pregnancy. J Hum Reprod Sci. 2013; 6: 273–6.
3. Ushakov FB, Echalal U, Aceman PJ, Schenker JG. Cervical pregnancy: past and future. Obstet Gynecol Surv 1997; 52:45-59.
4. Vela G, Tulandi T. Cervical pregnancy: the importance of early diagnosis and treatment. J Minim Invasive Gynecol 2007; 14: 481-4.
5. Weibel HS, Alserri A, Reinhold C, Tulandi T. Multidose methotrexate treatment of cervical pregnancy. J Obstet Gynaecol Can. 2012; 34:359-62.
6. Surampudi K. A case of cervical ectopic pregnancy: successful therapy with methotrexate. J Obstet Gynaecol India. 2012; 62(Suppl 1):1-3.
7. Cepni I, Ocal P, Erkan S, Erzik B. Conservative treatment of cervical ectopic pregnancy with transvaginal ultrasound-guided aspiration and single-dose methotrexate. Fertil Steril. 2004; 81:1130-2.
8. Kung FT, Lin H, Hsu TY, Chang CY, Huang HW, Huang LY, *et al*. Differential diagnosis of suspected cervical pregnancy and

conservative treatment with the combination of laparoscopy-assisted uterine artery ligation and hysteroscopic endocervical resection. Fertil Steril. 2004; 81:1642-9.
9. Maymon R, Halperin R, Mendlovic S, *et al*. Ectopic pregnancies in a Caesarean scar: review of the medical approach to an iatrogenic complication. Hum Reprod Update 2004; 10:515-23.
10. Kataoka ML, Togashi K, Kobayashi H, Inoue T, Fujii S, Konishi J. Evaluation of ectopic pregnancy by magnetic resonance imaging. Hum Reprod. 1999; 14:2644-50.
11. Yitzhak M, Orvieto R, Nitke S, Neuman-Levin M, Ben-Rafael Z, Schoenfeld A. Cervical pregnancy – a conservative stepwise approach. Hum Reprod. 1999; 14:847-9.

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