

Caesarean scar ectopic pregnancy. A case report

Sarcina ectopică dezvoltată pe cicatricea de cezariană: studiu de caz

Abstract	Rezumat	
<p>Introduction. The cesarean scar ectopic pregnancy tends to become a pathology more and more frequently encountered in the practice of obstetricians. The early diagnosis by means of echography allows the elaboration of various therapeutic strategies, substantially improving the achieved results. The careful monitoring of these patients through a detailed plan represents one of the main objectives, having an impact on fertility by the conservation of the uterus, and of females' health. An early echography in the case of a woman with scar ectopic pregnancy in her history would clarify the localization of implantation of the new pregnancy and would allow the evaluation of the uterine scar. The aim of this study is to present a case of an ectopic pregnancy implanted in a previous uterine scar diagnosed in the first trimester of pregnancy and the efficiency of the therapeutic strategy required.</p> <p>Case. The 43-year-old patient, gravida 2, appeared within our service, suspecting the diagnosis of cervical ectopic pregnancy. Reduced genital bleeding and low abdominal pain were objectified upon admission. Endovaginal ultrasonography showed a 6-week ectopic pregnancy with viable fetus and intact gestational sac, implanted towards the former post-cesarean isthmic scar. The determined therapeutic protocol approached a medical and surgical management. Conclusions. The cesarean scar pregnancy does not have specific symptoms and may be easily misdiagnosed.</p> <p>Keywords: transvaginal sonography, methotrexate, cesarean scar pregnancy, uterine rupture</p>	<p>Introducere. Sarcina ectopică dezvoltată pe cicatricea de cezariană tinde să devină o patologie întâlnită din ce în ce mai frecvent în practica obstetricienilor. Diagnosticul precoce prin ecografie permite elaborarea unei strategii terapeutice variate și îmbunătățește considerabil rezultatele obținute. Monitorizarea atentă a acestor paciente printr-un plan detaliat constituie unul din principalele obiective, cu impact asupra fertilității prin conservarea uterului, și asupra sănătății femeilor. Un examen ecografic timpuriu în cazul unei gravide cu antecedente de sarcină ectopică pe cicatrice ar elucida localizarea implantării noii sarcini și ar permite evaluarea cicatricei uterine. Scopul acestui studiu este de a vă prezenta un caz de sarcină ectopică dezvoltată pe cicatricea de cezariană diagnosticat în primul trimestru de sarcină și eficiența strategiei terapeutice impuse. Cazul O pacientă în vârstă de 43 de ani, IIIG, s-a prezentat în serviciul nostru cu suspiciunea de diagnostic de sarcină extrauterină cervicală. La internare s-a obiectivat sângerare genitală redusă și dureri hipogastrice. Examinarea ecografică transvaginală a evidențiat sarcină ectopică de 6 săptămâni cu făt viabil și sac gestațional intact implantat în dreptul vechii cicatrice istmice post-cezariene. Protocolul terapeutic stabilit a abordat un management medicamentos și chirurgical. Concluzii. Sarcina pe cicatricea de cezariană nu are simptome specifice și poate fi ușor de diagnosticat incorect. Cuvinte-cheie: ecografie transvaginală, metrotrexat, sarcină pe cicatricea de cezariană, ruptură uterină</p>	<p>Andrei Dumitrescu¹, Mihaela Camelia Tîrnovanu^{1,2}, Dragoș Nemescu^{1,2}, Anca Berescu¹, Alexandra Carp¹, Mircea Onofriescu^{1,2}</p> <p>1. Spitalul Clinic de Obstetrică-Ginecologie „Cuza Vodă”, Clinica 1, Iași, România 2. Universitatea de Medicină și Farmacie „Gr. T. Popa”, Iași, România</p> <p>Correspondence: Dr. Dragoș Nemescu e-mail: dragos.nemescu@umfiiasi.ro</p> <p>Mention: All authors have equal contribution.</p>

Introduction

The post-cesarean scar pregnancy defines that entity of ectopic pregnancy implanted in the scar myometrium localized at the level of the former uterine segment⁽¹⁾.

In practice, it is the most rarely encountered as form of ectopic pregnancy, statistics proving significant risks of morbidity and severe maternal mortality⁽²⁾. Early in the first trimester of pregnancy, the invasion of the myometrium often produces uterine ruptures and subsequently profuse bleeding while the pregnancy advances, hysterectomy being inevitable and having a negative impact on fertility⁽³⁾. At this site of a previous cesarean section scar, the danger of such an implantation of the gestational sac seems to be superior to a possible placenta accreta^(4,5).

Among the multiple advanced theories explaining the occurrence of cesarean scar pregnancy, the most feasible seems the one related to the invasion of the blastocyst in the myometrium through a microscopic dehiscence, as a consequence of poor vascularization and incomplete healing of the lower uterine segment⁽⁶⁾.

Such a microscopic path may be achieved in different conditions, following an injury produced by certain uterine surgical techniques: myomectomy, interventional hysteroscopy, possibly the manual removal of the placenta^(7,8).

The suspicion of diagnosis of post-cesarean scar pregnancy is reduced, especially under the circumstances of an early pregnancy, and frequently the diagnosis

is delayed or falsely expressed as cervical pregnancy or abortion, and the resulting consequences may be life-threatening.

Predictions concerning the association with the maternal age or parity are not known.

A prompt and supported diagnosis is required as soon as possible⁽⁹⁾.

Patient's history and the clinical manifestations including different types of abdominal pain and quantitatively variable genital bleeding may sometimes justify such pathology.

According to Seow et al., the history per se may be an instrument used in differentiating this condition from other forms of failure of a pregnancy⁽¹⁰⁾.

The early echographic diagnosis allows the elaboration of a varied therapeutic strategy and considerably improves the achieved results.

Maymon et al. recommend a combined echographic approach: transvaginal to obtain details on the gestational sac and scar, followed by an abdominal investigation with full bladder for an accurate measurement of the distance between the gestational sac and the urinary bladder⁽¹¹⁾.

Criteria required by Vial et al., subsequently amended by Fylstra and Godin, are used in diagnosing this pathology^(12,13).

Color Doppler and 3D Power Doppler may improve the capacity of diagnosis by evaluating the flow, the resistance and pulsatility indices in the peritrophoblastic vascularization⁽¹⁴⁻¹⁶⁾. MRI may be used complementary to the echography.

The therapeutic method is founded on the severity of symptomatology, on β HCG serum values and on surgeon's experience⁽¹⁷⁾.

Therapeutic objectives consist in: administration of substances with harmful fetal impact prior uterine rupture, the evacuation of the gestational sac and the preservation of patient's fertility⁽¹⁸⁾.

The treatment approaches an expectant strategy, a medical one administered locally/systemically, a surgical one or combined.

Case presentation

The 43-year-old patient, gravida 2, with obstetrical history of cesarean in 1997 declaratively performed for the diagnosis of breech presentation and an incomplete spontaneous abortion resulting in cervical dilation and curettage, appeared within the service of "Cuza Vodă" Maternity of Obstetrics-Gynecology of Iași, suspecting the diagnosis of cervical ectopic pregnancy.

In respect of anamnesis, the patient presents amenorrhea for 6 weeks, a positive result to a pregnancy test 2 weeks before and 2 serial echographies performed in the province about a week before, the examination reports supporting the diagnosis of cervical pregnancy.

Upon admission, she presented a discreet symptomatology, manifested by low intensity hypogastric pains and reduced genital bleeding started about 5 days before, subsequently confirmed at the genital examination by means of a speculum. There were not stated changes at the level of the cervix, which was closed, and the uterus did not have a large volume, although it had a doughy consistency.

The transvaginal echographic examination revealed the presence of a gestational sac with dimensions of 14x13 implanted in the anterior section of the uterine isthmus towards the former post-cesarean scar at 26 mm from the external os (Figure 1) and at 34 mm from the fundus of uterus (Figure 2).

The thickness of the myometrium interposed between the bladder and the sac had 6.3 mm (Figure 3), the empty uterine cavity with an endometrium of 13 mm (Figure 4).

It was objectified an embryo whose crown-rump length of 6.4 mm corresponded to a pregnancy with gestational age of 6 weeks + 3 days (Figure 5), with cardiac activity and a significant vascularization at the superior pole of the sac.

No adnexal mass or free fluid in the Douglas's cul-de-sac was found.

Color Doppler echographic scanning identified peritrophoblastic circular vascularization called "ring of fire", with a pulsatility index of 0.9 (Figure 6).



Figure 1. Distance from the implanted sac to external cervical os



Figure 2. Distance from the implanted sac to the fundus of uterus



Figure 3. The gestational sac of the cesarean scar pregnancy separated from the bladder with a thin layer of myometrium (6.3 mm)



Figure 4. Endovaginal ultrasonography demonstrating the pregnancy implanted at the isthmic region between the cervix and the empty uterine cavity-anatomical location of a previous cesarean section scar (Endometrium 12.6 mm)



Figure 5. A live embryo with a crown-rump length of 6.4 mm is seen within the sac implanted at the isthmic region

According to Fylstra and Godin's criteria, strictly met in the present case, the indubitable diagnosis of post-cesarean scar pregnancy was required.

Assuming the risk of additional vaginal bleeding, a slight pressure was applied with the endovaginal probe to invalidate Jurkovic's "sliding organs sign"⁽⁶⁾.

The dosage of the β HCG serum level showed 7500 mUI/ml.

Considering the low-intensity pelvic symptomatology, the haemodynamic stability of the patient upon admission, the framing of vital parameters within normal values (blood pressure =110/60 mmHg, P=85 b/min, t=36.7°C), gestational age <8 weeks, upstanding scar and a 6-mm thickness of the myometrium, despite



Figure 6. Transvaginal ultrasound: vascularization of the massa

a value of the β HCG > 5000 mUI/ml, we opted for the initiation of a systemic conservator medical treatment with Methotrexate Ebewe 20 mg/2 ml in multiple doses of 1 mg/kg administered intramuscularly, intercalated with folinic acid (Leucovorin) and monitoring the β HCG levels after 48 hours.

For objective reasons, the fourth dose of Methotrexate has not been administered (the absence of the preparation).

The serial monitoring of β HCG during the cure with Methotrexate did not prove a decrease by 15% from the previous value.

The transvaginal echographic scanning objectified the embryo with the absence of embryonic heart beats and maintaining a CRL of 5.6 mm.

The required strategy was an expectant one, with the continuous measurement of β HCG values with the result of 3650 mUI/ml 7 days after the administration of the last dose of Methotrexate.

The persistence of genital bleeding, as well as the abundance of peripheral vascularization at the site of the implantation of gestational sac, both corroborated with the inadequate decrease of β HCG, determined us to begin the implementation of an oncologic systemic scheme of administration of Methotrexate in 3 doses, each dose containing 60 mg of Methotrexate Ebewe administered in microperfusion at a time lapse of 2 days with intercalation of Leucovorin 0.1 mg/kg.

During the new treatment scheme, the patient received preventively borax glycerin in local applications, iron supplements because of anemia in reaction contexts and therapy with cephalosporins (febrile convulsion).

The value of 1200 mUI/ml of β HCG and the Doppler echographic confirmation of devascularization of the gestational sac allowed the suction curettage.

The patient was discharged on the second postoperative day, with no complications.

Recommendations concerned: the weekly monitoring of β HCG values up to an undetectable value (becoming negative 3 weeks after the intervention) and monthly Doppler echographic evaluation.

Three months of oral contraceptives have been prescribed in order to prevent a new pregnancy, with the need of investigation of the scar integrity 4 months after intervention, by performing a hysteroscopy or a hysterosalpingography.

Considering the age of the patient, the procedure of definitive laparoscopic sterilization or contraceptives for minimum 6 months shall be discussed, subject to her wish of conception, in order to minimize the teratogenic effects of Methotrexate.

Discussion

Little information is found in respect of incidence and natural history of the pathology.

The cesarean scar ectopic pregnancy tends to become a pathology more and more frequently encountered in the practice of obstetricians, on the one hand probably

reflecting the increase in the number of caesarean deliveries worldwide, but also because of the increase of accuracy of diagnosis and the high index of suspicion^(6,19).

The incidence varies between 1/800 and 1/2216 pregnancies, with a rate of 0.15% in case of females with history of caesarean and a rate of 6.1% of all ectopic pregnancies in the case of women who had at least one caesarean delivery^(6,10).

Larsen and Solomon reported the first case in 1978, and the first review article by Fylstra described a number of 18 cases until 2002^(3,20).

The mean age of patients with pregnancy implanted in the post-caesarean scar myometrium is 33 +/- 5.7 years, with the mean gestational age of 7.5 +/- 2.5 weeks (time lapse 5 weeks + 0 days - 12 weeks + 4 days) at presentation. The presented case is included in this range of gestational age, but we notice that the maternal age (43 years) exceeds the statistical average.

The time lapse between 6 and 12 years is often quoted in the literature as a lapse included between the last caesarean and the post-caesarean scar pregnancy. The particularity of the case is represented by the difference of about 17 years since surgery.

Patient's obstetric history - pregnancy with breech presentation and the presence of a factor with predisposition for pathology (uterine curettage) - consolidate the argumentation concerning etiology.

A prompt and precise diagnosis is crucial. Without an increased index of suspicion and a correct early diagnosis, also required in other types of ectopic pregnancies, this abnormal implantation would result in uterine rupture, hysterectomy, followed by maternal morbidity and loss of fertility.

The misinterpreted localization in the case of the two echographies performed in the province would probably determine a surgical uterine intervention, as well as dilatation and curettage, ended with life-threatening hemorrhage. The patient's intuition and her wish to be treated in a third care center avoided an uncomfortable situation, with medical implications.

The transvaginal ultrasonography with the 4 criteria totally accomplished by the case, combined with the Colour flow Doppler have allowed the precise localization of the pregnancy, quantification of reports with the structures in the neighborhood and the degree of perfusion from peritrophoblastic level.

Apart from these two investigation methods that expected to emerge as a future gold standard, the absence of any fluid collection in Douglas, the absence of an adnexal mass and the "sliding organs" negative sign facilitated the diagnosis of caesarean scar pregnancy⁽⁶⁾.

The rare casuistry and the absence of some specific therapeutic protocols determined that the experience should be mainly based on series of cases.

The patient's pelvic symptomatology upon admission, the additional echographic and laboratory measured parameters have allowed the adoption of a therapeutic strategy with the systemic administration of Methotrexate

te, followed by an expectative management as treatment alternatives. The β HCG parameters and the negative echographic signs of resolution of the pregnancy required a new cure with Methotrexate, systemically administered, followed by an invasive surgical procedure: suction curettage. β HCG became negative 3 weeks after the intervention, the evaluation of the uterine scar following to be achieved in 4 months by hysteroscopic examination. The 3D organ computer-aided analysis would have been useful in monitoring and quantifying the changes of

uterine neovascularization before and after successful treatment of caesarean scar pregnancy⁽²⁹⁾.

Conclusion

The caesarean scar pregnancy does not have specific symptoms and may be easily misdiagnosed.

An early echography in the case of a woman with scar ectopic pregnancy in her history would clarify the localization of implantation of the new pregnancy and would allow the evaluation of the uterine scar. ■

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