

Cesarean section scar pregnancy treatment - case report

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Summary

This is a case report of a 36-year-old patient with an ectopic pregnancy located in the previous cesarean section scar following in vitro fertilization (IVF). The patient was treated by 50 mg of intrasacral methotrexate locally under ultrasound guidance. Transvaginal ultrasound (TVUS) confirmed that the pregnancy was no longer vital within 24 hours, dilatation and aspiration of the ovular tissue were performed after seven days and it was sent for pathohistological analysis. Eight hours after the procedure, the patient began bleeding abundantly and was consequently treated locally by 1 ml of Beriplast® P Combi set, human fibrinogen, and human thrombin set (CSL Behring). After the treatment, the patient was discharged in good health, with normal laboratory values. Her menstrual period resumed 35 days after the procedure.

Key words: Ectopic pregnancy; Cesarean section scar; Methotrexate.

Introduction

Cesarean section scar pregnancy is a very rare and life-threatening condition, which can also lead to uterine rupture, bleeding, and fatal outcome [1, 2]. Before the XIX century, the mortality rate due to ectopic pregnancies was over 50%, while during the XX century it declined to 1% [3, 4]. Today, ectopic pregnancy mortality rate in the USA is one in every 56,730, in Japan one in every 978 and in Austria one in every 4,500 [5]. The survival rate has increased despite the obvious increase in the number of ectopic pregnancies.

At its early stage, this kind of pregnancy is usually accompanied by pain during amenorrhea followed by abundant bleeding which is difficult to control conservatively. In the past, these pregnancies were usually terminated by removal of the uterus. Today, there is a trend, since it is a serious condition affecting even younger women where fertility preservation is of vital importance, toward conservative treatment, particularly now that the cesarean sections rates continue to increase [6, 7].

Various methods of conservative treatments of cervical pregnancies have been developed. The most frequently used ones include: uterine artery embolization, blood vessel ligation, balloon tamponade, medicinal administration, and local application of chemicals with or without iodoform gauze, and coagulation medications [8]. Severe hemorrhage, caused by syncytiotrophoblast invasion without enough muscle tissue to compress and control the bleeding by contractions, can be prevented by the obliteration of the local blood vessels.

Case Report

A pregnant 36-year-old woman was hospitalized in the Clinic of Gynecology and Obstetrics "Narodni Front" in Belgrade, after she had been diagnosed with cesarean section scar ectopic pregnancy (by the use of ultrasound and color Doppler). The pregnancy was the result of in vitro fertilization (IVF). The patient

reported laparoscopic surgery of the right ovary endometrioma and uterine myoma three years prior and cesarean section delivery two years prior. The previous pregnancy was also the result of IVF.

When admitted to the hospital, her biochemical and laboratory values were within reference ranges, as well as urinary values, except beta human chorionic gonadotropin (hCG) levels which showed an increase corresponding to the pregnancy and the period of amenorrhea.

Vaginal and cervical microbiological smears showed normal physiological flora. Transvaginal ultrasound (TVUS) imaging showed: yolk sac 3.4 mm, crown-rump length (CRL) 2.2 mm, and the gestational sac was located at the previous cesarean section scar with anechogenic shadow 7 x 2.5 mm. Beta hCG level was 24,577.5 IU. Three days later TVUS showed: CRL 7 mm, fetal cardiac activity present, and beta hCG level 27,347.8 IU. As the patient was pregnant for the second time via IVF and whose fertility preservation was of vital importance, the authors decided to combine chemical conservative and surgical treatment of the ectopic pregnancy.

After obtaining a substantial amount of her blood group, guided by ultrasound and using 22G needle, 50 mg of methotrexate were instilled into the sacus vitellinus through the front abdominal wall. Ultrasound confirmed that the pregnancy was no longer vital after 24 hours, and then waited for seven days for blood vessels to obliterate. Afterwards, the authors surgically removed the devitalized ovular tissue from the scar area. Stitches were made paracervically at the three and nine o'clock positions and the ovular tissue was removed from the scar area. Dilatation up to Hegar 8 was performed with subsequent ultrasound-guided aspiration, and the tissue was sent for pathohistological analysis. The procedure was performed in the operating room and all the necessary precautionary measures were undertaken in case of severe hemorrhage or need to change the method (Figure 1).

The procedure was not accompanied by any complication. During the following eight hours, the patient began bleeding and the authors introduced chemical coagulation i.e. local application of 1 ml of Beriplast® P Combi set, human fibrinogen, and human thrombin set (CSL Behring), which arrested the bleeding completely. Blood loss amounted to 200 ml and transfusion was unnecessary. The patient was discharged with regular vital values, laboratory, biochemical values within reference ranges, and beta hCG level was 371.5 IU.

The patient was scheduled for follow-up visit after the fol-

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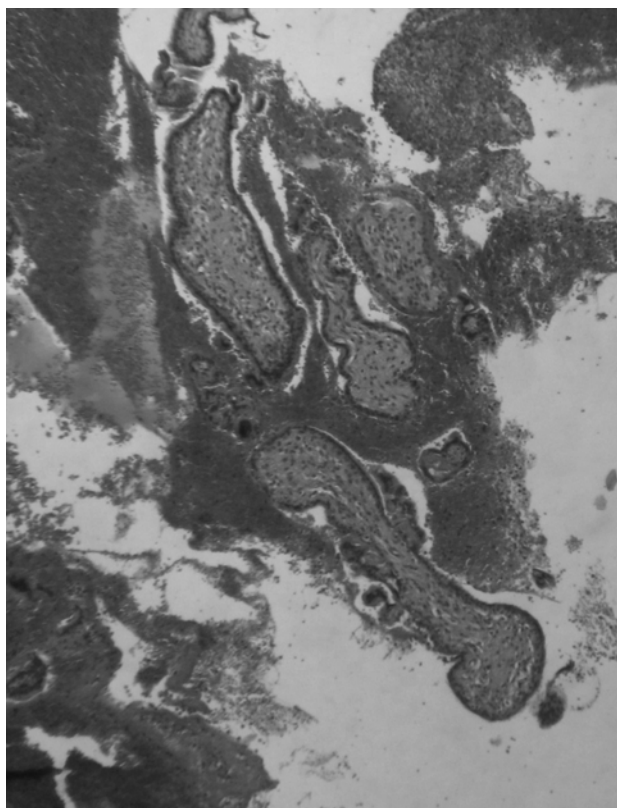


Figure 1. — Devitalized trophoblast tissue.

lowing menstrual period. Her menstrual period, painless and similar to the previous periods, resumed 35 days after the procedure. The patient was in good health and her next beta hCG was negative.

Discussion

Cesarean section scar pregnancy is a rare form of ectopic pregnancy first reported by Larsen and Solomon in 1978, with an incidence of 6.1% [9, 10]. As there is a trend toward increasing the number of cesarean sections, we can expect to see the increase, as well, in the number of these pregnancies [6, 7].

The estimated prevalence of cesarean section scar pregnancies within the local population is between one in 1,800 and one in 2,200 [10, 11]. When diagnosed, the gestational age of cesarean section scar pregnancy ranges from four to 23 weeks, while TVUS examination has confirmed fetal cardiac activity in 61% of all pregnancies [12]. This fetal cardiac activity was confirmed in the patient, as well, by TVUS.

The gestational sac can be implanted and continue to develop in the scar area and the increase in beta hCG levels can mimic normal pregnancy. Therefore, hCG surveillance is not the method of choice. There was a corresponding increase in beta hCG titre in the patient presented.

This kind of implantation demands intensive pregnancy surveillance, so the patient had to be frequently and regularly hospitalized. Early diagnosis is usually established by ultrasound, but it is difficult to establish differential

diagnosis between cesarean section scar pregnancy and cervical pregnancy or lower uterine segment pregnancy [13, 14]. The implantation of a pregnancy within cesarean section scar in the patient was diagnosed by TVUS at 6.1 gestational weeks.

A timely and accurate diagnosis is of vital importance, otherwise, there is a high risk of uterine rupture and massive hemorrhage [15, 16].

There are various approaches for the treatment of this condition. However, as only individual cases, small series, and individual experiences have been reported so far, and there is no generally-accepted approach to the treatment of this condition which would preserve fertility and avoid surgery [16-18].

Methotrexate application is the most commonly used procedure, since it is very convenient for early pregnancies and can be administered both locally and systemically, as a single or multiple-dose methotrexate [9, 19-21]. Methotrexate application can be combined with uterine embolization followed by curettage if necessary [22]. The authors administered 50 mg of methotrexate transabdominally directly into the sacus vitellinus [19, 20]. Vaginal bleeding might follow this procedure, although the authors did not experience this complication. The treatment of advanced pregnancies is more specific as there is a risk of uterine rupture. Additional surgery is sometimes needed. Spontaneous rupture is possible due to Cesarean scar tissue invasion [9].

Surgery implies opening the abdomen and uterus resection – hysterotomy or hysterectomy accompanied by adnexal conservation [9, 10].

Curettage is considered to be inappropriate because it can cause bleeding. Nevertheless, it can be combined with medication therapy in early pregnancies. Being prepared to change from vaginal to abdominal approach if necessary, the authors successfully performed dilatation and aspiration and removed the devitalized ovular tissue. This procedure is not recommended for advanced pregnancies since it can cause scar perforation and massive bleeding. If ectopic pregnancy is diagnosed in its early stage, and the patient is hemodynamically stable, it is possible to perform laparoscopic excision with minimal morbidity rate and fertility preservation [9].

Blood loss amounting in 500-1,000 ml requires blood transfusion. As this patient only lost 200 ml of blood, a transfusion was not necessary [13].

The patients with heterotopic pregnancies i.e. intrauterine cesarean section scar pregnancies can receive potassium chloride injection in the cesarean section area. Some studies report that intrauterine pregnancies can continue to develop normally within heterotopic pregnancies [18].

The prevalence of first trimester cesarean section scar pregnancies is much higher in patients than reported by some studies. This is explained by TVUS use in diagnosing abnormal uterine implantation. Ultrasound examination is performed routinely in all the patients who have undergone previous cesarean section and special attention should be paid to the new pregnancy location [14].

TVUS is the diagnostic methods used to confirm the condition. Laparoscopic approach, where implantation site can be determined by single port technique, is also possible [9, 14].

Methods of conservative treatment of this kind of pregnancy vary. After removing the ovular tissue, selective embolization of uterine blood vessels is usually performed in order to control hemostasis [8, 22, 23]. Nowadays, local coagulation medications are used frequently in order to keep the haemostasis under control after surgical treatment, and that is how massive bleeding is managed.

In addition to blood vessels embolization, there have been trials to ligate the uterine blood vessels prior to any other intervention. Stitches are made paracervically at the nine and three o'clock positions before any other action. The authors followed this procedure and afterwards used iodoform gauze tamponade for the cervix. Surgical amputation of the cervix is another method for hemostasis control following surgery [9].

Local and systemic methotrexate instillation was the method the authors decided to apply since it causes the disappearance of fetal vitality and gradual reduction of vascular network, enabling the growth of the fertilized egg cell. Methotrexate application is accompanied by folic acid. Recommended methotrexate doses are 50 mg per m² of skin, while folic acid doses are ten times smaller. It is possible to apply it under US guidance directly into the sacus vitellinus [16, 19].

With the absence of fetal vitality confirmed, embolization of blood vessels affected by syncytiotrophoblast invasion should be performed, and followed by dilatation, aspiration and removal of the devitalized ovular tissue. The procedure is performed in the operating room preceded by adequate preparation. Sufficient amounts of the same blood type should be obtained in case of severe bleeding and in case some inner organs (e.g. uterus) are to be removed.

Conclusion

Conservative treatment by locally-administered methotrexate via direct instillation into the sacus vitellinus under the guidance of US, and consequently followed by dilatation and aspiration of devitalized ovular tissue, has proved successful in the treatment of cesarean section scar ectopic pregnancies. In case of uncontrollable bleeding, it is possible to locally administer coagulation drugs which will improve hemostasis. TVUS can confirm suspicions of abnormal gestational tissue. The patients with previous cesarean section delivery deserve special attention. Late detection of ectopic implantation in the area of cesarean section scar causes increase in morbidity rate.

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