

Treatment of Viable Cesarean Scar Ectopic Pregnancy with Combination of Intracardiac KCl and Systemic Methotrexate: Case Report

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Abstract

Objective: Successful pharmacologic treatment of cesarean scar pregnancy was reviewed by recent literature.

Case: 24 years old G3P2A0 woman who diagnosed as cesarean scar pregnancy was treated by systemic multiple dose of methotrexate following the ultrasound guided intracardiac KCl injection.

Conclusion: Pharmacologic treatment of cesarean scar pregnancy should be combined with intracardiac KCl injection in the presence of high hCG titer and cardiac activity.

Keywords: Cesarean scar pregnancy, intracardiac KCl, methotrexate.

Canlı sezaryen skar gebeliğinin intrakardiyak KCl ve sistemik metotreksat kombinasyonu ile tedavisi: olgu sunumu

Amaç: Sezaryen skar gebeliğinin başarılı farmakolojik tedavisi literatür eşliğinde gözden geçirilmiştir.

Olgu: Yirmi dört yaşında, G3P2A0 olan, 2 kez sezaryen ile doğum yapmış, asemptomatik ve son adet tarihine göre 8 hafta 4 günlük gebeliği olan bir sezaryen skarı gebeliği (CSP) olgusunun intrakardiyak potasyum klorür (KCl) enjeksiyonu sonrası, multiple doz metotreksat kemoterapisi ile tedavisi edilmiştir.

Sonuç: Yüksek hCG titreleri olan veya kardiyak aktivitenin izlendiği sezaryen skar gebeliklerinin farmakolojik tedavisi intrakardiyak KCl ile kombine edilmelidir.

Anahtar Sözcükler: Sezaryen skar gebeliği, intrakardiyak KCl, sistemik metotreksat.

Introduction

Pregnancy implanted to cesarean scar (CSP) is a rare form of ectopic pregnancy. In a series of 12 cases, Jurkovic et al.¹ reported approximate CSP incidence in all pregnancies as 1:2226, CSP rate as 0.15% in women who had cesarean and 6.1% in women who had at least one cesarean

and one ectopic pregnancy.^{1,2} Data for CSP is mostly based on case presentations and anecdotal information since it is rare. Therefore, there is no clinical method agreed for its diagnosis and treatment. In this article, the literature is reviewed by presenting CSP case successfully treated with multiple dose methotrexate chemotherapy after intracardiac KCl injection.

Case

Twenty-four years-old female patient with gravida 3, para 2, abortus 0 and O Rh (-) blood type referred to our clinic with cervical pregnancy on 8th week and 4th day of her pregnancy according to her last menstrual period. Patient had no complaint when applied. It was learnt from the history of patient that she had a cesarean in her first delivery due to rectal presentation four years ago and her second delivery was done by cesarean 10 months ago. Serum Beta-hCG value was 62316 mIU/ml. In the transvaginal ultrasonography (TVUSG) performed, it was observed that there was a gestational sac with 42x33 mm diameter and an embryo inside with heart beat just over internal os. The patient was diagnosed as CSP since cervical canal and uterine cavity were empty, gestational sac at sagittal section developed from anterior of uterine isthmus, anterior uterine wall did not show continuity and myometrium got thin between bladder and sac (Figs. 1 and 2).

Intracardiac KCl was applied to the patient by means of 20 gauge spinal needle accompanied with ultrasonography and it was observed that cardiac pulse was gone. After the process, anti-D immunoglobulin prophylaxis was applied to the patient and multiple dose systemic methotrexate protocol was initiated. 1 mg/kg intramuscular methotrexate at 1st, 3rd, 5th and 7th days, and 0.1 mg/kg intramuscular folinic acid at 2nd, 4th, 6th and 8th days were applied to the patient. No complication was observed in the patient during treatment. Beginning from the second day of treatment, the patient had vaginal bleeding for three days. Serum Beta-hCG value was measured as 44174 mIU/ml on the last day of chemotherapy while it was 70074 mIU/ml on the day when treatment began. Serum Beta-hCG value which decreased gradually later was reset at sixth week after chemotherapy and no progression was observed in next follow-ups (Diagram 1). At first week after chemotherapy, the gestational sac became a 14x10 mm area including par-



Figure 1. In transvaginal examination, it is seen that cervical canal and uterine cavity are empty and gestational sac locates at lower segment.

tially cystic and solid areas and it disappeared at the end of third week.

Discussion

Cesarean scar pregnancy was first reported in 1978. There are totally 161 cases reported in English medical literature between January 1966 and October 2006 and actual incidence of CSP is unknown since few cases are reported in the literature. While CSP incidence has been increasing in recent years due to the increase in cesarean deliveries, its successful treatment seems possible by conservative methods without requiring surgical operations like hysterectomy since early diagnosis by transvaginal monitoring in early gestational weeks is more prevalent.¹

The most accepted theory among all theories defined for CPS development physiopathology is the implantation of blastocyst into the microscopic separation area on myometrium. Microscopic separation area may arise due to removing placenta by hand (hallas)

as well as traumas of other uterine surgeries such as cesarean, dilatation & curettage, myomectomy, metroplasty, hysteroscopy etc. Increased risk factors for CSP are the performance of cesarean due to rectal presentation, providing two or more cesareans, dilatation / curettage, ectopic pregnancy, existence of placental pathologies, providing pregnancy by in vitro fertilization, and the shortness of period between previous cesarean and pregnancy development.^{2,3} When cases were evaluated, ages increased as cesarean increases and mean ages of patients were $33.4 \pm 5.7.4$ Gestational week at diagnosis was found as $5-12$ weeks (mean 7.5 ± 2.5) and 4 days, and the period between last cesarean and cesarean scar was 6-12 months.^{1,2} As in many cases reported in the literature, the period between first cesarean indication, rectal presentation and previous cesarean and cesarean scar pregnancy was 10 months in our case. Gestational age of our case was 8 weeks and 4 days.



Figure 2. In transvaginal examination, it is seen that myometrium gets thin and the sac protrudes towards bladder.

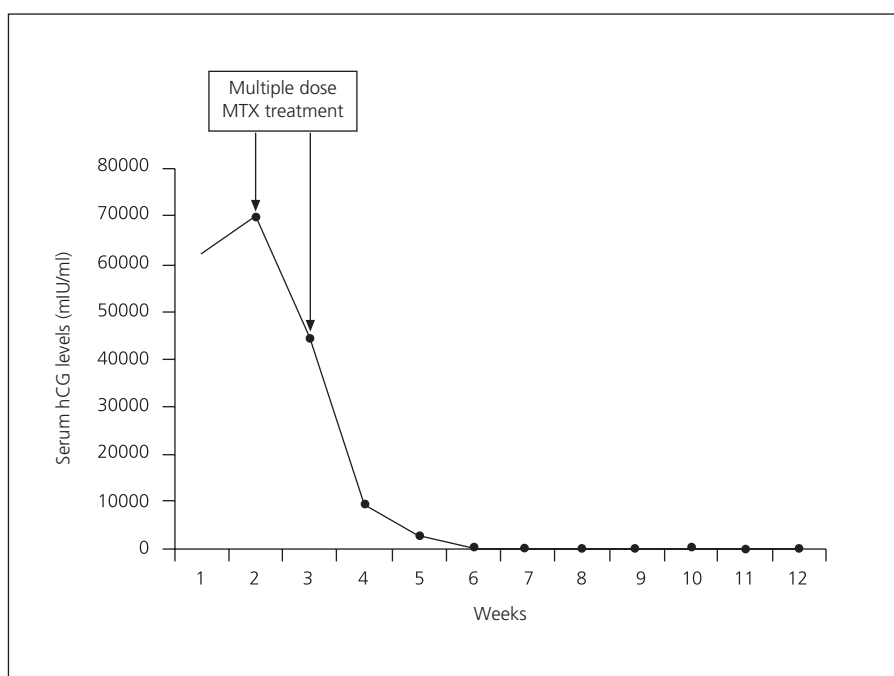


Diagram 1. hCG titer progress after systemic methotrexate treatment.

It should be remembered that an important number of cases (36.8%) like our case may have asymptomatic progress while there is painless vaginal bleeding in many cases (38.6%). Vaginal bleeding together with abdominal pain (15.8%) and only abdominal pain (8.8%) are other important clinical indicators.⁴

The sensitivity of using transvaginal ultrasonography in CSP is 84.6% and it is frequently confused with cervical pregnancy, cervico-isthmic pregnancy, advanced spontaneous abortus and incomplete abortus.⁴ Sonographic diagnosis criteria of CSP are: (i) empty uterine cavity; (ii) empty cervical canal; (iii) dilution or discontinuity of anterior uterine wall on sagittal uterus section where amniotic sac is shown, and (iv) development of gestational sac from uterine isthmus and the existence of myometrial layer thinned between bladder and sac.² Color Doppler ultrasonography, three-dimensional ultrasonography, three-dimensional power Doppler ultrasonography and magnetic resonance monitoring are other methods that may be used in diagnosis.

There is no algorithm agreed upon for the treatment like in CSP diagnosis. However, during advanced gestational weeks, ending pregnancy on first trimester is advised by many researchers due to the increase in development risk of complications threatening life in later weeks of pregnancy such as massive bleeding and uterine rupture. Conservative medical treatment, local injection treatments, surgical sac aspiration, dilatation curettage (D&C), surgical treatments and their various combinations are among current treatment options.²

The agent frequently used in medical treatment is methotrexate and it can be used in single or multiple dose protocols. Methotrexate, KCl, hyperosmolar glucose and crystallized tricosantin are used in the local injection treatment. While dilatation and curettage can be performed alone, they can also be combined with medical treatments and local injection treatments. The possibility of remaining rest tissue which may require systemic methotrexate use after dilatation and curettage, and massive bleeding risk that may proceed up to hysterectomy

tomy should be remembered. Most of the patients applied surgical treatment are the patients who get late period diagnosis and/or have instable hemodynamics.^{4,5} Smorgick et al.⁶ reported that they achieved 100% success in 5 cesarean scar pregnancy on whom they applied systemic methotrexate. Due to high initial hCG titer and the existence of fetal cardiac activity in our case, multiple methotrexate application was preferred after intracardiac KCl application.

Conclusion

In cases where high hCG titer or cardiac embryonal cardiac activity are monitored, it is considered suitable to combine systemic treatments with local treatments since using systemic methotrexate alone has low success rates.

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