

## A Detour in the Primary Management of Cesarean Scar Pregnancy

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**Cesarean scar pregnancy (CSP) is considered a rare type of ectopic pregnancy. It is associated with high morbidity and mortality rates. It accounts for less than 1% of total pregnancies. There are different types of management options according to the patient's clinical status as well as the hospital protocol.**

**A thirty-five-year-old gravida 3 para 2 presented at six weeks of gestation with a history of mild abdominal pain and vaginal bleeding. She was diagnosed with cesarean scar pregnancy by transvaginal ultrasound. Initially, it was planned to manage her medically by methotrexate; however, due to a change in the patient's clinical status, she was managed surgically.**

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CSP is considered a rare type of ectopic pregnancy. It is diagnosed when the gestational sac is found implanted in the previous cesarean scar. The estimated incidence of CSP is 1 in 2,000 pregnancies<sup>1</sup>. Although it is a rare condition, its rate is increasing due to the increasing rate of cesarean sections worldwide and higher detection of the cesarean scar pregnancy by frequent use of Transvaginal Ultrasound<sup>2,3</sup>.

Despite being a rare condition, it has serious complications, such as abnormal placental implantation, scar rupture, uncontrolled bleeding which may lead to hysterectomy and mortality<sup>4</sup>.

There are no established standard guidelines for the management of CSP; the management is based on the center experience and the patient's condition. There are different methods of management; however, none of them is superior to the other concerning patient safety and treatment effectiveness<sup>5</sup>.

The aim of this report is to highlight the challenges gynecologists might have to face during the diagnosis and management of CSP.

### THE CASE

A thirty-five-year-old gravida 3 para 2 at 6 weeks of gestation was referred for further management of possible cervical pregnancy. The patient complained of mild abdominal pain and mild vaginal bleeding. She had a previous cesarean section followed by vaginal delivery. The patient was clinically stable upon the initial assessment.

Transvaginal ultrasound revealed a single gestational sac with a viable fetus corresponding to her gestational age. The sac was

seen in the anterior aspect of the uterus just above the cervix toward the previous cesarean scar and behind the bladder, see figure 1. CSP diagnosis was confirmed.



**Figure 1: Transvaginal Ultrasound: A Single Gestational Sac with a Viable Fetus was Seen in the Anterior Aspect of the Uterus Just above the Cervix Heading towards the Previous Cesarean Scar**

It was planned to treat the patient medically with systemic methotrexate, 50 mg/body surface area intramuscularly. Before initiating the treatment, the patient developed heavy vaginal bleeding. She was evaluated and her vital signs were BP: 99/68 mmhg, P: 76/MIN SPO2: 100%. Her initial hemoglobin was 12 gm/dl. On examination, the abdomen was soft and lax with no tenderness or distension. The clots were removed from the vagina. Bedside abdominal ultrasound revealed minimal free fluid in the pelvis, hypoechoic small lesion below the scar was seen compared to the early ultrasound which showed a

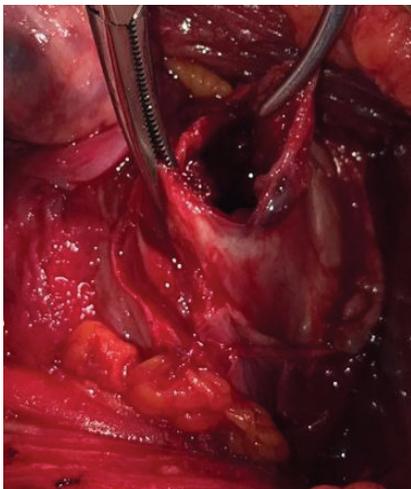
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gestational sac with a viable fetus. The patient was counseled and consented to the need for exploration and possible hysterectomy.

The procedure started with suction evacuation under ultrasound guidance. During the procedure, the patient started to bleed heavily; therefore, simultaneous laparoscopy was performed. A small bluish, ballooned swelling was noted at the right angle of the uterus, see figure 2. The uterovesical space was opened and the ruptured scar was found. The procedure was converted to laparotomy, the defect was trimmed and sutured in two layers and the bleeding was controlled, see figure 3.



**Figure 2: Laparoscopy Findings: Small Bluish, Ballooned Swelling Noted at the Right Angle of the Uterus**



**Figure 3: The Defect at the Site of the CSP after Trimming**

The postoperative period was uneventful, she was counseled regarding her condition and future pregnancy plans. She was discharged on the 2nd postoperative day in a stable condition.

## DISCUSSION

CSP is defined as an uncommon form of ectopic pregnancy, in which the gestational sac is implanted into the myometrium at the site of previous cesarean scar<sup>6</sup>. It accounts for 6% of ectopic pregnancy in women with previous cesarean scar<sup>4,7</sup>.

The patient may present with no symptoms, mild symptoms such as abdominal pain and vaginal bleeding or present with heavy bleeding and hemodynamic instability. Therefore, it is important to diagnose these cases at early gestational age<sup>8</sup>.

Several studies have reported the criteria to diagnose CSP by ultrasound. The ultrasound criteria for the diagnosis of CSP include: empty endometrial cavity and cervical canal, gestational sac (with or without a fetal pole and yolk sac, with or without active cardiac pulsation); the gestational sac is located in the lower uterine segment at the site of previous cesarean scar and takes a triangular shape due to its location. The myometrial layer between the sac and bladder is almost absent (most of the cases <5mm). Doppler Ultrasound shows vascularity which is prominent in previous cesarean scar suggestive of scar pregnancy<sup>2,3,9,10</sup>. If the Doppler transvaginal ultrasound is not conclusive, Magnetic Resonance Imaging (MRI) is preferred to confirm the diagnosis.

Two forms of CSP were found; in the first form, the pregnancy may extend from the cervico-isthmic space into the uterine cavity. The second form may implant and extend deeper into the myometrium to the serosal surface of the uterus. The latter may lead to a viable pregnancy with the possibility of expectant management<sup>11</sup>.

There is no standardized treatment for CSP. The treatment should be individualized according to the patient's clinical condition, ultrasound findings, BhCG level and the desire for future fertility. The suggested options are medical, surgical, and combined treatment. The medical option is used when the patient is clinically and hemodynamically stable. Methotrexate is widely used in the medical option<sup>12</sup>. It could be performed by a local injection under ultrasound hysteroscopy guidance, systemic treatment, or both. The success rate of treatment by methotrexate depends on the site of the gestational sac implantation. The success rate decreases if the gestational sac is implanted in the scar, as the absorption of the methotrexate will be reduced due to the fibrous tissue<sup>16</sup>.

The surgical management includes suction curettage or wedge resection either by hysteroscopy, laparoscopy or laparotomy<sup>1,6</sup>. A hysterectomy is an option if fertility is not desired or as a lifesaving procedure. Expectant management is not recommended as it may increase the risk of abnormal placental implantation and hemorrhage in the second and third trimester, which may end eventually by hysterectomy<sup>1,3</sup>.

Timor-Tritsch et al favored expectant management in CSP; the women who continued their pregnancy until the third trimester delivered live fetuses, but ended up with peripartum hysterectomy due to morbidly adherent placenta<sup>14</sup>. Zhuang et al found that Uterine Artery Embolization has a significant reduction in blood loss as well as a shorter hospital stay. Uterine Artery Embolization could be used before surgical intervention in such cases<sup>15,16</sup>. However, high intensity focused ultrasound (HIFU) has been used as single management or combined with other modalities. HIFU was approved by the FDA as a non-invasive treatment in 2005 for adenomyosis and fibroid. It works as thermal energy by converting the acoustic to thermal energy<sup>17,18</sup>. It was found in a study that a combination of 2-3 treatments will increase the success rate of the management<sup>6</sup>.

## CONCLUSION

**CSP should be considered as one of the differential diagnoses in pregnant women with previous cesarean scar presenting in the first trimester with abdominal pain or vaginal bleeding. There are no standardized guidelines for the treatment of such patients. The choice of the treatment depends on the patient's clinical condition, surgeon's experience and the available facilities. All women should be counseled and included in the choice of management.**

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