

A CASE REPORT ON CAESAREAN SCAR ECTOPIC PREGNANCY

Radio-Diagnosis

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ABSTRACT

Caesarean scar ectopic pregnancy is among the rarest forms of ectopic pregnancies. It occurs when a blastocyst implants at the site of a previous Caesarean section scar. The frequency of this condition has been rising, likely due to the increasing number of Caesarean deliveries. Early detection through sonography is crucial, as delayed diagnosis can significantly raise the risk of maternal complications and even death. Prompt identification allows for timely treatment, which can help preserve the woman's fertility. When ultrasound results are unclear or inconclusive, Magnetic Resonance Imaging (MRI) plays a key role in confirming the diagnosis before proceeding with treatment. In this report, we present a rare case involving a woman (G3P2L2) with a history of two Caesarean sections. She was diagnosed with a Caesarean scar ectopic pregnancy through sonography. The patient underwent a laparotomy, and the diagnosis was confirmed through histopathological examination.

KEYWORDS

caesarean scar, ectopic pregnancy, ultrasound

INTRODUCTION

Caesarean scar pregnancy (CSP) is a rare form of abnormal implantation, where the gestational sac embeds within the scar tissue from a previous caesarean section. This condition can lead to serious, potentially life-threatening complications, such as heavy bleeding, uterine rupture, and placenta accreta spectrum (PAS) disorders¹. Although CSP occurs within the uterine cavity, it is often classified as a distinct type of ectopic pregnancy. In rare cases, if complications in the early trimesters are avoided, a viable pregnancy may be carried to term. However, most women with CSP are at high risk of developing PAS.

Caesarean scar pregnancy is not a single, uniform condition; it presents in various forms depending on factors such as the size of the previous caesarean scar, how deeply the gestational sac implants into the scar area, and the remaining thickness of the myometrium at the implantation site.

The estimated incidence of CSP is approximately 1:1800-1:2000 pregnancies after caesarean delivery¹. For women who have had a previous C-section, CSP makes up about 6% of all ectopic pregnancies or about 0.05% of all pregnancies. The incidence is expected to continue to rise as global C-section rates increase. However, the incidence of CSP varies widely in the published literature as there is currently no large population study assessing the occurrence of CSP in all women with prior caesarean delivery. Mortality rate is about 1 in 500 cases.

Although the exact cause of scar ectopic is not known but poor healing of caesarean incision on the uterus may be a major contributing pathology. Scar ectopic pregnancy is more frequently seen in women with a history of caesarean section, hysterotomy, dilatation and curettage (D&C), or other uterine surgeries such as myomectomy, metroplasty, hysteroscopy, and manual removal of the placenta². The condition is also more common in women who have conceived through in vitro fertilization (IVF)³.

Ultrasound plays a key role in diagnosis. Key indicators include the presence of a gestational sac located at the site of a previous caesarean scar, outside the endometrial cavity, along with a thin (1–3 mm) or absent layer of myometrium between the sac and the bladder. Now-a-days, TVS scan is recognized as an essential diagnostic procedure for women during the early weeks of pregnancy in health as well as disease. In fact, TVS is reported to be more sensitive (88%) in the diagnosis of ectopic pregnancy than transabdominal ultrasound (TAS), which is 77% sensitive⁴. When transvaginal colour Doppler ultrasound does not provide a clear diagnosis, MRI may be used as an additional imaging tool.

Pregnancy termination is the primary treatment approach, and it can be carried out using a variety of methods depending on the individual case.

CASE REPORT

29-year-old female presented to Emergency Department with chief complaint of profuse per vaginum bleeding following a procedure of check curettage done 1 hour ago. She had history of 6 weeks of amenorrhea and a positive UPT done 2 hours ago. Dilatation and curettage was done in present pregnancy in view of profuse per vaginum bleeding due to incomplete abortion. In obstetric history, she was G3P2L2 with previous two Caesarean deliveries. Her first Caesarean section was due to fetal distress and second one was due to previous LSCS. General physical examination revealed tachycardia, hypotension and increased respiratory rate along with pallor. On per speculum, bleeding per vaginum was seen. On bimanual examination, uterus was bulky, anteverted and bilateral fornices were free with no tenderness. On routine blood investigation, she had severe anaemia (Haemoglobin: 1.3). On admission B-HCG level was 4611.68 IU/L.



Fig.1 TAS in sagittal section showing a well defined heterogeneous lesion in the lower uterine segment anteriorly (red arrow)

Trans abdominal and transvaginal ultrasound revealed empty uterine cavity with clearly defined endometrium, well defined heterogeneous lesion with few hypoechoic areas within seen in lower uterine segment anteriorly. It was seen closely abutting the endometrial lining without any significant displacement and compressing the posterior wall of the urinary bladder. No evidence of well defined gestational sac, fetal pole or cardiac activity seen. Cervical canal showed clots and bilateral adnexa was normal [Fig. 1]. On Doppler examination, peripheral rim of minimal vascularity was seen [Fig. 2]. Possibilities of Type IV intramural uterine fibroid with cystic degeneration and Grade IV caesarean scar ectopic pregnancy [Fig. 3] was considered. Mild free fluid with free floating echoes was noted in the pouch of Douglas which raised suspicion of hemoperitoneum. MRI could not be done due to vaginal bleeding and consequential anemia.

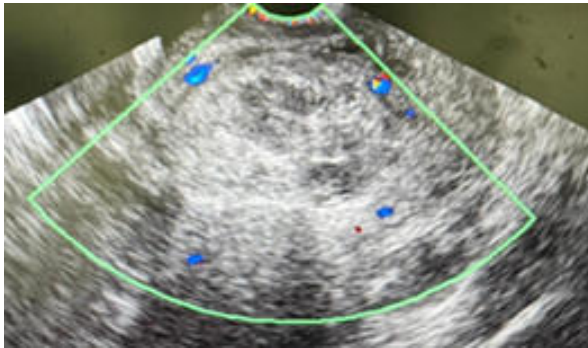


Fig.2 TVS Showing Minimal Peripheral Vascularity Around The Heterogeneous Lesion In Lower Uterine Segment Anteriorly

Patient was planned for emergency laparotomy. Intraoperative findings; soft and vascular mass seen at the site of previous scar [Fig. 4 & 5]. Hemoperitoneum was suctioned out. Caesarean scar ectopic tissue was removed and uterine scar edges were freshened and sutured in continuous interlocking manner. Urinary bladder injury of approx. 3 cm was noted at fundus, repaired and sutured in 2 layers. Scar ectopic tissue was sent for histopathological examination which demonstrated the presence of chorionic villi lined by inner layer of cytotrophoblasts and outer layer of syncytiotrophoblasts and diagnosis of Caesarean scar ectopic pregnancy was confirmed [Fig. 6 & 7].

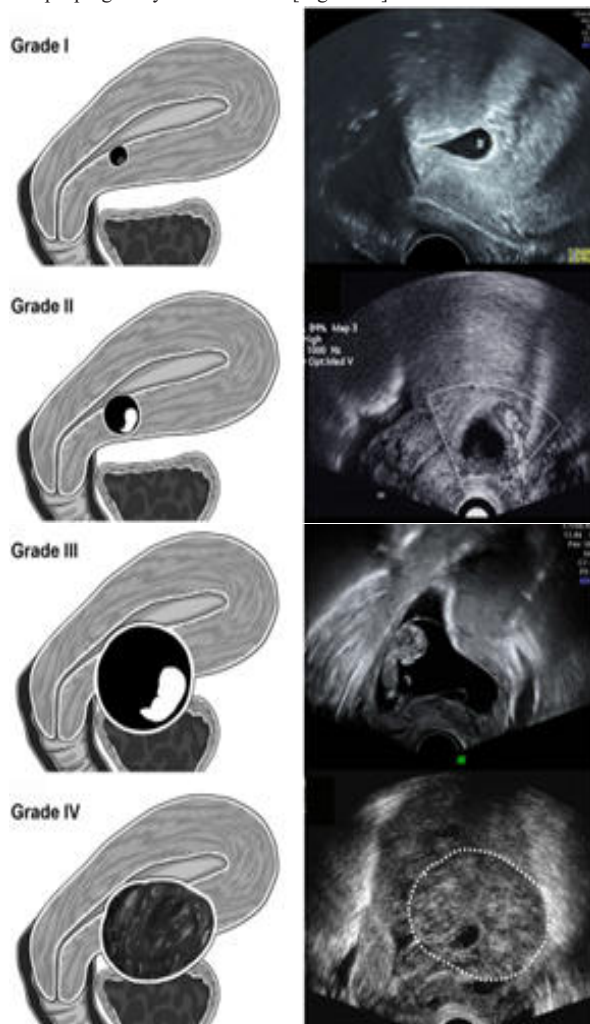


Fig. 3 New ultrasound grading system for CSEP Grade I CSEP represented the depth of CSEP embedded in less than one-half thickness of the lower anterior corpus. Grade II CSEP implied CSEP occupied more than one-half thickness of the lower anterior corpus. In grade III CSEP, the GS bulged out the overlying myometrium and uterine serosa. In grade IV CSEP, the GS became an amorphous tumor with rich vascularity at the cesarean scar¹³

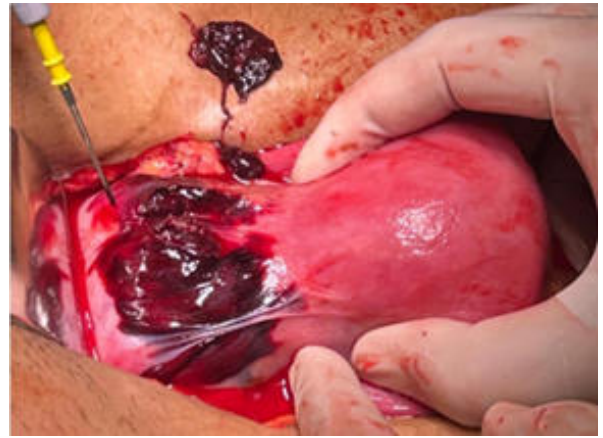
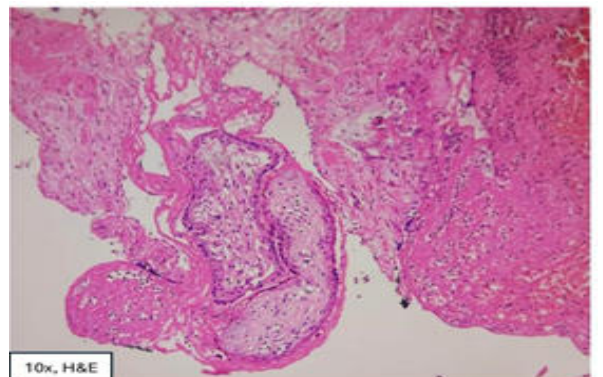


Fig. 4 & 5 Intraoperative findings: Scar ectopic tissue noted at the previous section scar site in the lower uterine segment anteriorly

DISCUSSION

Caesarean scar pregnancy (CSP) is a rare form of ectopic pregnancy in which the embryo implants within the scar tissue of a previous Caesarean section. It is considered the rarest type of ectopic pregnancy, with an estimated incidence of 1 in 1,800 to 1 in 2,500 Caesarean deliveries^{5,6}. CSP can be life-threatening, often leading to heavy bleeding and increasing the risk of uterine rupture. It is referred to by several terms, including "Caesarean scar pregnancy," "Caesarean ectopic pregnancy," or simply "scar ectopic." Diagnosis is often challenging, and missed or incorrect diagnosis can result in severe complications. A history of Caesarean delivery increases the likelihood of various obstetric complications such as placenta previa, placental abruption, placenta accreta or percreta, and ectopic pregnancies. Several theories have been proposed to explain the development of CSP, with the most widely accepted suggesting that the blastocyst implants into the myometrium through a microscopic defect in the scar from previous uterine surgery (e.g., Caesarean section or manual placenta removal)¹⁷. Another theory posits that trauma from assisted reproductive techniques may also lead to CSP, even in the absence of prior uterine surgery⁵.



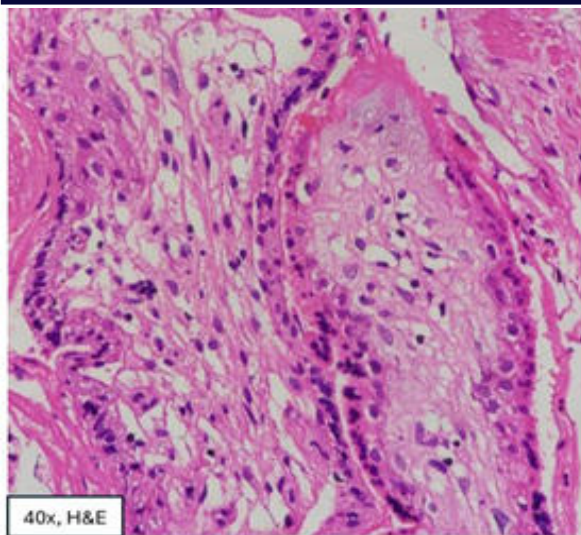


Fig. 6 & 7 Photomicrograph shows a chorionic villi lined by inner layer of cytotrophoblasts and outer layer of syncytiotrophoblasts

The most common symptom of CSP is painless vaginal bleeding, often without specific clinical signs. Transvaginal ultrasound (TVS) and color Doppler are valuable diagnostic tools, while MRI is useful when ultrasound findings are inconclusive^{9,10}. Differentiating CSP from cervical pregnancy is essential. In CSP, transvaginal ultrasound shows the gestational sac implanted in the anterior uterine isthmus, with no intervening myometrium between the sac and the bladder¹¹. A sagittal view can confirm an empty uterine cavity and cervical canal, helping to identify CSP¹².

In non-pregnant women, transvaginal sonography and saline infusion sonography can be used to assess uterine wall integrity after a Caesarean section. A defect in the scar may be visualized as fluid accumulation or a filling defect at the incision site¹⁰.

In a recent study involving 26 patients, 19 suspected CSP cases were successfully treated with a combination of intramuscular and intragestational methotrexate¹². Initially, patients showed a rise in serum hCG levels and increased gestational sac size and vascularity, followed by a gradual decline in hCG, indicating treatment effectiveness.

Several case reports support surgical management of CSP, even in the absence of bleeding⁷. Surgical approaches include elective laparotomy with removal of the gestational tissue^{10,13}. One advantage of this method is the excision of the previous scar, which allows for a new uterine closure, potentially lowering the risk of recurrence and reducing the duration of follow-up¹¹.

Additionally, Uterine Artery Embolization (UAE) has proven effective in managing CSP by controlling bleeding and supporting non-surgical treatment approaches¹⁴.

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