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Case Report

Cesarean Scar Pregnancy: Case Report with Overview of Diagnosis and Management Strategies

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Abstract

Cesarean scar pregnancy (CSP) is a rare ectopic pregnancy, with potential risk for major maternal complications. Its incidence keeps on rising, parallel to the continuous increment in cesarean birth rates. This emerging problem calls for more clinical studies on the outcome of different treatment methods, in order to elaborate ideal management recommendations. To this end, we share the case of a CSP treated in our unit, which has required recourse to second line therapy after failure of medical treatment.

Keywords: *Cesarean Scar Pregnancy; Ectopic Pregnancy; Management*

Abbreviations

CSP: Cesarean Scar Pregnancy; c-section: Cesarean Section; PAS: Placenta Accreta Spectrum Disorder; GS: Gestational Sac; hCG: Human Chorionic Gonadotropin

Introduction

CSP is defined as an ectopic pregnancy established on the myometrium of a previous c-section scar. Based on the level of implantation, there are two types of CSP. Type 1 (on the scar) is when the gestational sac (GS) protrudes more toward the cervical canal or uterine cavity, while type 2 (on the niche) is when it is implanted more toward the bladder or abdominal cavity [1]. Both types can be life-threatening and functionally critical, as they are associated with severe maternal complications including uterine rupture, abnormal placentation and major hemorrhage requiring hemostatic hysterectomy [2].

Early diagnosis and urgent treatment consisting in terminating the pregnancy help to avoid some of these risks. It must be conducted in a timely matter, because the placenta will implant more deeply into the myometrium as the days pass. As for the method of termination, in the absence of international guidelines, physicians proceed according to their own history and experience. In our case, the treatment was initiated with systemic MTX injections, but in the absence of pregnancy resolution, we completed with suction evacuation guided by ultrasounds.

Case Presentation

38-year-old patient who presented at 6+4 weeks gestation with lower abdominal pain and vaginal spotting. She had a history of three previous c-sections, last of which was three years ago.

Clinical findings showed a patient in good general condition, with a slightly enlarged uterus and no sign of vaginal bleeding. Transvaginal ultrasound scanning demonstrated an empty uterine cavity and cervical canal, along with the presence of a low-lying gestational sac, containing a 73mm non-living embryo. The sac was implanted within the niche of previous c-section (CSP type 2). The residual myometrial thickness (RMT) between the gestational sac and the bladder was about 2 mm.

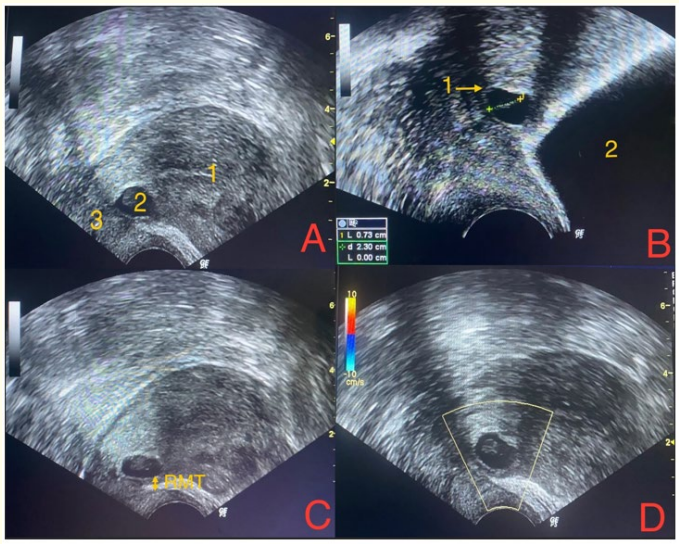

Figure 1: *A: Image demonstrating empty uterine cavity (1) and cervical canal (3), with type 2 CSP (2). B: 73 mm embryo with no heart beat (1) developed more toward the bladder (2). C: RMT of 2 mm between the bladder and the GS. D: Negative blood flow around the GS.*

The patient received two MTX systemic injections (1 mg/kg) one week apart, with no resolution of the pregnancy, then she underwent suction evacuation guided by ultrasounds. The gestational tissue was removed with no complications, patient discharged in the first post op day. She was reviewed one week later with negative hCG level.

Discussion

The increase in the number of uterine scars creates microscopic tracts between the uterine cavity and myometrium, due to abnormal healing, poor vascularity and fibrosis. In later pregnancies early blastocysts can enter through these defects and implant in the deficient uterine wall resulting in CSPs [1]. This uncommon condition, represents 6.1% of all ectopic pregnancies [3], and occurs in around 1/2000 gestations [4]. Its incidence continues to rise, particularly with the growing frequency of c-sections.

CSP may manifest itself by vaginal bleeding or abdominal pain [5], as it may remain silent until discovery in 20 - 25% of cases [6]. Diagnosis is established, in most cases, in the first trimester, between 6 and 12 weeks of gestation [3]. It is chiefly made by transvaginal ultrasounds. Sonographic features are made of empty uterine cavity and cervical canal, along with the anterior implantation of the

gestational sac, at the site of previous c-section [1]. Further investigations like three-dimensional ultrasounds and pelvic MRI may support the diagnosis by precising the exact position of the gestational sac, the depth of trophoblastic invasion in the myometrium as well as the potential involvement of the serosa or bladder [7].

CSP is related to serious complications, including uterine rupture, placenta accreta spectrum disorder (PAS) and severe hemorrhage. These risks tend to get worse as the pregnancy continues. Matter of fact, a systematic review of patients with live CSP who considered the option of continuing the pregnancy, and resulted in 57% live birth rate, demonstrated that 63% of women required hysterectomy either for PAS or uterine rupture [8]. Therefore, despite the significant proportion of live offspring, most authors and scientific societies, like the Society for Maternal Fetal Medicine, recommend against keeping CSPs, and advocate conducting prompt and active pregnancy termination [9].

CSP treatment targets essentially pregnancy termination before the onset of dreadful complications and the removal of the gestational sac while preserving the patient's fertility. There are no standard CSP management protocols: patients in critical condition require immediate surgical treatment, otherwise, clinicians can use different methods depending on their own history and expertise.

Medical treatment includes systemic or local MTX administration (success rate of 53.1%, additional treatment is necessary in 46.9%) [10]. As well as local injections of potassium chloride, hyper-osmolar glucose and ethanol, who proved their efficiency in several case reports [11]. This treatment requires close and continuous monitoring until the ectopic pregnancy is completely resolved.

More experienced centers may use ultrasound-guided suction evacuation, when the pregnancy is developed more towards the uterine cavity [12]. Preferably combined with uterine artery embolization, to minimize the risk of bleeding. Another therapeutic option is hysteroscopic resection, which allows proper visualization and selective hemostasis of vessels at the implantation site [13]. Surgical treatment via laparotomy or laparoscopy, offers pregnancy resection along with myometrial defect repair. It is associated with the highest rates of CSP resolution and lowest risk of hysterectomy.

In our case, giving the early gestational age and the negative cardiac activity, usually associated with less maternal morbidity, the patient was counselled on different management options. We started with MTX injections, being the less invasive method, but with the persistence of the GS further treatment was proceeded by guided suction-evacuation.

Conclusion

CSP is an emerging c-section complication where patients should be considered case-by-case. Early diagnosis allows the possibility of choosing the optimal management strategy, which can be quite challenging as it depends on the clinical context, radiological features, technical expertise and the patient's desire.

Both ending or keeping the pregnancy are associated with considerable risks, therefore, patients should be clearly counselled on the complications of each case scenario.

With the intention of getting better understanding of this iatrogenic entity and identifying the most effective treatment, the international CSP-registry was created to provide clinicians with evidence-based therapeutic recommendations (www.csp-registry.com).

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