

C-SECTION SCAR ECTOPIC PREGNANCY A CASE REPORT AND REVIEW OF THE LITERATURE***Dr. R. Kifani, Dr. H. Chimi, Dr. C. Nadim, Dr. A. Bentaleb, Dr. S. Dagdag and Pr. S. Bargach**

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ABSTRACT

Introduction: Uterine scar ectopic pregnancy occurs when an embryo implants in the myometrium due to a defect from a previous cesarean section scar. Its incidence is rising with the increase in both primary and repeat cesarean sections. This type of ectopic pregnancy has also been seen following other uterine procedures such as myomectomy, uterine evacuation, and in vitro fertilization. These cases are linked to prior uterine interventions or abnormalities. **Case Report:** A 29-year-old woman with a history of a previous stillbirth at 30 weeks and a live child delivered by planned cesarean section was found to have a cervical location of the gestational sac during her initial consultation. Despite an unremarkable clinical examination and stable hemodynamics, ultrasound revealed an anteverted uterus with an eccentric, posterior cervical gestational sac and a high β HCG level of 55,000 mIU/mL. Pelvic MRI confirmed the sac's location on a thin myometrium over the cesarean scar and identified a FIGO 3 myoma. Given these findings, the patient underwent a Pfannenstiel laparotomy for uterine evacuation and scar reinforcement. **Discussion:** Implantation of an ectopic pregnancy in a cesarean scar involves the gestational sac being encased in myometrium and scar tissue, completely separate from the uterine cavity, unlike placenta accreta, which features abnormal placental attachment within the uterine cavity. The risk is heightened by previous cesarean sections or other uterine procedures, with pregnancies presenting as either shallow or deep implantation. Diagnosis is typically made through endovaginal ultrasound, with additional imaging such as 3D ultrasound or pelvic MRI for detailed assessment, while hysteroscopy or laparoscopy can be used for both diagnosis and treatment. Treatment options include systemic methotrexate (MTX), often combined with local therapies, and surgical methods like hysteroscopic resection or laparotomy/laparoscopy, with uterine artery embolization and hysterectomy considered for severe cases or when other treatments fail. **Conclusion:** While the exact incidence of cesarean scar pregnancy is unclear, rising case reports reflect increased awareness among obstetricians. Early diagnosis with transvaginal ultrasound and Doppler imaging is crucial for managing this condition, as it can lead to severe hemorrhagic complications if unrecognized.

KEYWORDS: extra-uterine pregnancy, ectopic pregnancy, c-section scar.**INTRODUCTION**

Uterine scar ectopic pregnancy occurs when the embryo implants in the myometrium in a myometrial defect caused by the dehiscence of a caesarean scar from the lower segment of the uterus. Its frequency is increasing alongside the rise in both primary and repeat cesarean sections. Ectopic pregnancies in a hysterotomy scar have also been observed following procedures such as myomectomy, uterine evacuation, previous cases of abnormally adherent placentation, manual placenta removal, metroplasty, hysteroscopy, and in vitro fertilization.

CASE REPORT

A 29-year-old female patient, with a regular cycle, third gesture, with a child who died a few days after a c-

section at 30 weeks' gestation and a live child delivered by programmed caesarean section. Her current pregnancy was marked by the fortuitous discovery of a cervical location of the gestational sac during her first consultation. Clinical examination was unremarkable, and the patient was hemodynamically stable, with blood pressure 117/68 mmHg, pulse 86 beats/minute and afebrile. Abdominal examination revealed a Pfannenstiel-type scar, with soft palpation, no localized pain or tenderness, and a normal-sized uterus. Gynecological examination revealed a long, closed, posterior cervix on vaginal touch, and a healthy cervix on speculum examination.

The Obstetrical ultrasonography shows an anteverted globular uterus, normal size 66x52x64mm, regular

contours of homogeneous echo structure, with individualization of a gestational sac, cervical seat eccentric and posterior, rounded, hyperechoic wall, measuring 16x19mm, containing a product of conception with presence of cardiac activity, with LCC measured at

93mm estimated at 6W+6D. A free vacuity line, a thickened endometrium, measuring 16mm, the left ovary the site of a functional cyst measured at 38mm longaxis with the absence of pelvic effusion. A quantitative β HCG level of 55,000 mIU/mL.

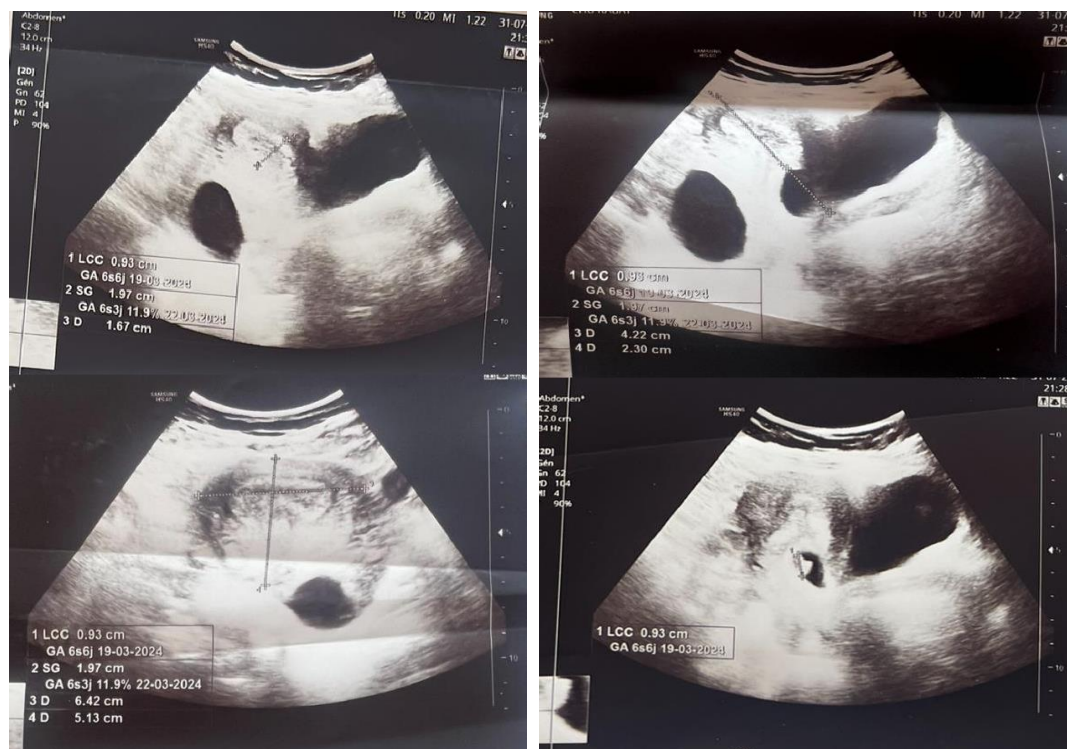


Figure 1: Ultrasound images of the c-section scar ectopic pregnancy.

A pelvic MRI was ordered, revealing an anteverted anteflexed uterus, normal size 44x41x97 mm, regular contours, seat of a gestational sac, eccentric and anterior located opposite the isthmus and resting on a scar with thin myometrium measuring 3 mm. Presence of a well-limited oval posterior corporal formation with T1 and T2 hypo signal without diffusion restriction in connection with a myoma measuring 23x17 mm and classified FIGO

3. Thickened endometrium measuring 16 mm. Left ovary with a functional cyst measuring 38x32 mm. Normal-sized right ovary measuring 26x17 mm.

A second-look ultrasound showed a product of conception with positive cardiac activity in the low endo-cavity.

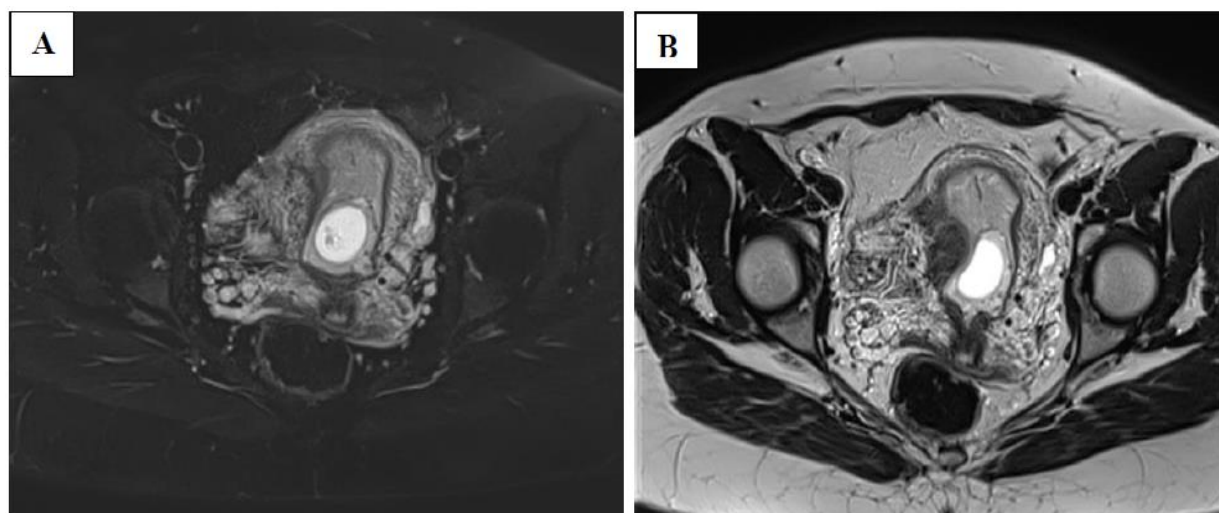




Figure 2: MRI images of the c-section scar ectopic pregnancy. (A) T2 axial FAT SAT. (B) and (C) T2 axial and sagittal views.

We chose to treat the patient surgically, with a pfannenstiell laparotomy for uterine evacuation and revision and reinforcement of the old caesarean scar.

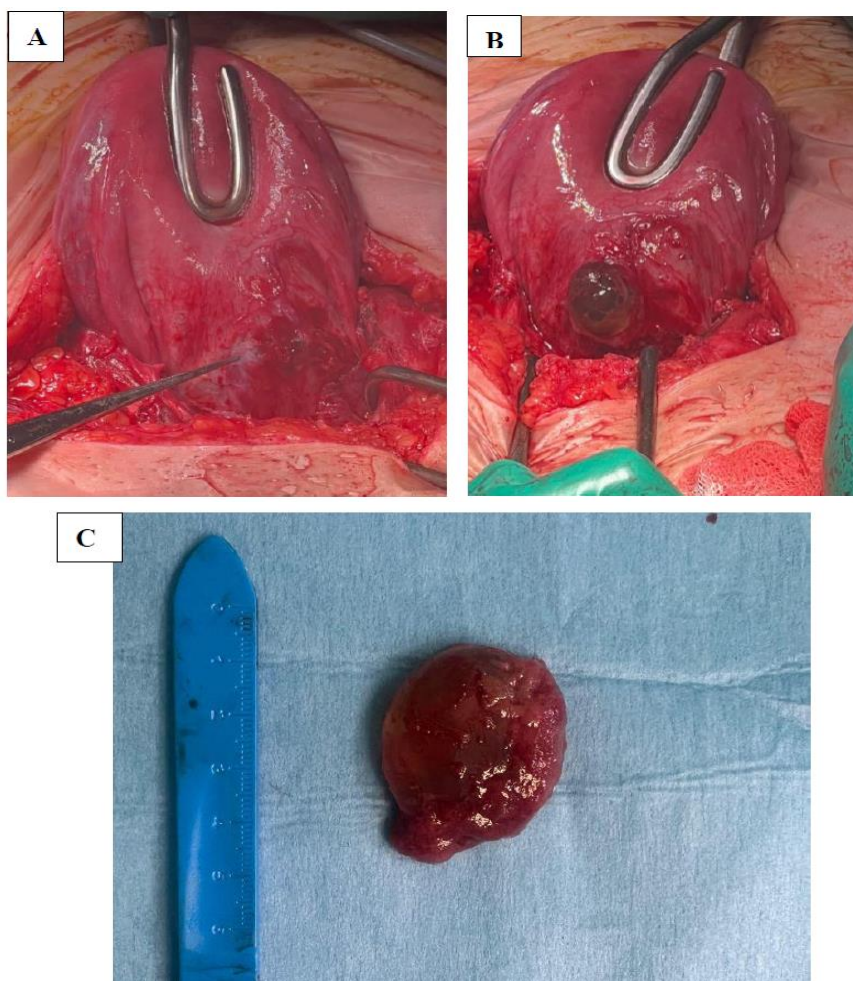


Figure 3: photos during surgery. (A) dehiscence of the pregnancy while exploring the uterus. (B) after detachment of the uterine serosa. (C) the gestational sac after removal.

DISCUSSION

Epidemiology: A rare form of ectopic pregnancy, recent case series have estimated the incidence of ectopic caesarean pregnancies at 1/2226 of all pregnancies, with a rate of 0.15% in women with a previous caesarean section and a rate of 6.1% of all ectopic pregnancies in women with at least one previous caesarean section. Initially exceptional, this ectopic pregnancy is increasing in frequency, due to the rise number of caesarean sections in recent years. In Morocco, there is currently no epidemiological study of the frequency of scar pregnancies across the Kingdom.^[1]

Physiopathology

The mechanism of implantation of an ectopic pregnancy in the Caesarean scar is different from that of a placenta accreta. In pregnancy on a C-section scar the gestational sac is completely surrounded by myometrium and myometrium and scar tissue, completely separated from the uterine cavity. Placenta accreta is characterized by absence of decidua, varying degrees of myometrial invasion myometrium and an ovarian sac located in the uterine cavity. The micro-defect of the hysterotomy scar allows invasion of the myometrium by the blastocyst, in an incompletely healed, poorly vascularized and rich in fibrosis. This risk would be increased in the case of a previous programmed caesarean section, where the inferior segment, less solicited and less mature, would not allow optimal quality of healing. The defect may result from other endo-uterine interventions such as curettage, myomectomy, hysteroscopy or uterine revision. Two clinical forms have been described: a shallow implantation in the scar with development towards the uterine cavity or to the cervico- isthmian canal, or a deep scar implantation with development towards the bladder and abdomen, the most likely to rupture.^[2]

Diagnosis

The diagnosis of scar pregnancy is typically made through endovaginal ultrasound, a highly sensitive examination (84.6%) that is both accessible and effective for early and accurate diagnosis. Key diagnostic criteria include.^[3]

- An empty uterus with no contact with the gestational sac.
- An empty cervical canal with no contact with the gestational sac.
- In a sagittal section, the implantation of the gestational sac on the anterior uterine wall.

Indirect ultrasound findings include the absence of adnexal mass and fluid in the Douglas pouch, except in cases complicated by uterine rupture. Additional indirect signs include a reduction in myometrial thickness between the gestational sac and the bladder, which indicates the depth of implantation, and increased peritrophoblastic vascularization, detectable via color or power Doppler. Early in the pregnancy, there is typically no pelvic effusion or adnexal mass; if present, it may

suggest that the pregnancy has already ruptured.

Doppler imaging is particularly valuable for distinguishing between viable and non-viable scar pregnancies, which is crucial for determining the appropriate management.^[4]

If diagnostic uncertainty persists, additional tests may be recommended. Three-dimensional ultrasound or pelvic MRI can provide more detailed information on the depth of trophoblastic invasion into the myometrium and assess potential involvement of the serosa or bladder, as well as pinpoint the exact location of the gestational sac. Sagittal and transverse T1- and T2-weighted MRI scans can clearly visualize the gestational sac on the anterior uterine wall, particularly if it is situated on the external surface of the cervical canal. These imaging techniques can offer a more precise evaluation of the lesion's volume and help guide therapeutic decisions.^[5]

The hysteroscopy is infrequently used for diagnostic purposes. It has been mentioned in the literature by Chueh, who reported a case of a twin pregnancy on a cesarean section scar following embryo transfer. Recently, hysteroscopy and/or laparoscopy have been utilized as alternatives for minimally invasive intervention. Research has also demonstrated that hysteroscopy can be employed as a treatment for scar pregnancies to help reduce recurrence.^[6]

Treatment Systemic treatment

Drawing parallels with the treatment of early ectopic pregnancies, it has been suggested to use systemic treatment for pregnancies located on cesarean section scars. This involves administering an intramuscular injection of methotrexate (MTX) at a dose of 1 mg/kg. The procedure mirrors that used for ectopic pregnancies: pre-treatment assessments include checking blood count, platelet levels, blood electrolytes, and liver function tests, ensuring no abnormalities. Treatment efficacy is monitored by tracking the reduction in plasma β HCG levels.

Combined Approaches: Various authors have successfully employed different routes of administration for treatment. These methods include local injection of KCl or hyperosmolar glucose, combined with oral methotrexate (MTX), or a combination of intravenous and local MTX.^[7]

Surgical treatment

Conservative

Dilation and curettage (D&C) carries a high risk of hemorrhage and uterine rupture. Since the gestational sac is not within the uterine cavity, the trophoblastic tissue located in the cesarean scar is difficult to access with a curette, making the procedure potentially dangerous and ineffective.^[8] It may lead to complications requiring surgical intervention (such as a secondary hysterectomy due to massive hemorrhage).^[9] To reduce the risk of

bleeding, it has been successfully combined with other therapeutic measures such as local injection of vasopressin, placement of a Foley catheter in the uterine cavity, or pre-surgical uterine artery embolization. Major drawbacks of this method include the lack of direct visualization of the gestational sac and the risk of local hematoma. Therefore, blind curettage is generally not recommended as a first-line approach. However, some authors advocate for ultrasound-guided D&C in cases of pregnancy ≤ 7 weeks of amenorrhea with myometrial thickness over the scar ≥ 3.5 mm.^[7]

Resection

Hysteroscopic Resection

This procedure offers the advantage of clear visualization of the pregnancy and allows for targeted electrocautery of vessels at the implantation site, thus reducing the risk of intraoperative hemorrhagic complications. Additionally, the decline in plasma bHCG levels is more rapid compared to medical treatment, with normalization occurring in less than four weeks.^[6]

Surgical Resection (Laparotomy or Laparoscopy)

In cases where a laparotomy or laparoscopy is performed, the cesarean scar can be resected alongside the removal of the gestational sac. Excision of the cesarean scar helps to remove any remaining trophoblastic tissue and reduces the risk of recurrence. Laparoscopy requires advanced surgical expertise to ensure high-quality myometrial suturing for future pregnancies. Hemorrhagic risk can be mitigated by injecting 5-10 ml of vasopressin (1 IU/ml) into the myometrium adjacent to the gestational sac before resection.^[10] In the event of uterine rupture, laparotomy may be preferred over laparoscopy, particularly if the patient is hemodynamically unstable.^[10]

Uterine Artery Embolization: This technique provides vascular control to prevent or manage hemorrhagic complications. It requires specialized equipment and infrastructure. While effective in managing symptoms, this approach is not a curative treatment.

Hysterectomy: Although the need for hysterectomy is decreasing due to advancements in diagnostic techniques that enable earlier detection and new therapeutic options, 13 cases were documented in the literature up until 2006. Hysterectomy may be performed either as an initial approach in cases of uterine rupture with massive hemorrhage or after the failure of other treatment methods.^[11]

CONCLUSION

The true incidence of cesarean scar pregnancy remains unknown, but the increase in reported cases over the past decade indicates heightened awareness among obstetricians regarding diagnosis and management options that are still not standardized. In the first trimester, the presence of a low-lying gestational sac in patients with a history of uterine scarring should raise suspicion of a

cesarean scar pregnancy. If unrecognized, this condition can lead to severe and early hemorrhagic complications. Diagnosis should be made as early as possible using transvaginal ultrasound combined with Doppler imaging to enable a combined conservative treatment approach.

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