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Extra Uterine Pregnancy on Cesarean Scar: Case Report and Literature Review

El Bakkali Bachira[1*], El Hassouni Fatima[2], Zraidi Najia[3], Lakhdar Amina[4], Baidada Aziz[5]
[1]Gynecology-Obstetrics Resident, Unit MI-III, Souissi Maternity, Rabat, Morocco
[2]Gynecology-Obstetrics Resident, Souissi Maternity, Rabat, Morocco
[3]Associate Professor, Gynecology-Obstetrics , Souissi Maternity, Rabat, Morocco
[4]Associate Professor, Gynecology-Obstetrics, Souissi Maternity, Rabat, Morocco
[5]Associate Professor, Head of Department, Gynecology-Obstetrics, Souissi Maternity, Rabat, Morocco

***Corresponding author**
El Bakkali Bachira

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Abstract: Caesarean section scar pregnancy is a rare form of ectopic pregnancy that is life-threatening and engages functional prognosis. Diagnosis is more often made in the first trimester with endo-vaginal ultrasound. Treatment must be early and active because of the major risk of hemorrhage or uterine rupture involving the vital and functional uterine prognosis. This risk increases with the age of pregnancy. We report the case of an ectopic pregnancy on caesarean section scar diagnosed at 8 weeks of amenorrhea. The diagnosis was early thanks to the endo-vaginal ultrasound. The patient had a conservative treatment successfully. We discuss diagnosis and treatment to contribute in improving care.
Keywords: ectopic pregnancy, uterine scar, diagnosis, conservative treatment.

INTRODUCTION

Cesarean section scar pregnancy is an ectopic pregnancy of cicatricial and isthmic localization. Lack of knowledge or late diagnosis could be associated with severe morbidity such as metrorrhagia, uterine rupture and irreversible obstetric sequelae. Hysterectomy is the gold standard treatment for massive bleeding. The initial precise diagnosis based essentially on ultrasound has allowed successful conservative treatment and improved management of pregnancy developed on the caesarean section scar.

OBSERVATION

Mrs. ND, 37 years old, with no significant history, G6, P4 with two vaginal deliveries followed by two caesareans (first caesarean section for fetal pelvic disproportion nine years ago and second caesarean section for breech presentation and scar uterus four years ago), spontaneous miscarriage at three months with curettage and current pregnancy. The patient was admitted to gynecological emergencies for pelvic pain with minimal blackish metrorrhagia that had been evolving for two days on an eight weeks amenorrhea, with no other associated signs. On clinical examination, the hemodynamic state was stable, the abdominal palpation showed a depressible supple abdomen, the speculum examination confirmed the endo-uterine origin of the bleeding, and the vaginal touch combined with abdominal palpation objectified a normal sized uterus without palpable lateral-uterine mass and no sign of peritoneal irritation. A pelvic and endo-vaginal ultrasound performed in the emergency department showed a 23 mm "low implanted" intra-uterine sac with visible yolk sac and an embryonic image of six weeks of amenorrhea without visible cardiac activity, no intraperitoneal effusion (Figure 1, Figure 2, and Figure 3). The biological assessment showed a plasma hCG at 12,643mIU/mL. The diagnosis of an ectopic pregnancy accreta on caesarean section scar was retained.

The patient received medical treatment by intramuscular injection of methotrexate at 1.5 mg / kg, followed by a second dose on day 5 due to a 60% increase in BHCG (Figure 4). Negative hCG was obtained in 68 days. Clinically, weak metrorrhagia persisted for two months. Ultrasound monitoring showed a retention image of 22mm / 19mm (Figure 5) and the patient was scheduled for resection of retention under hysteroscopic control with good evolution. Today, the patient has no desire for pregnancy and a combined estrogen and progestin contraception was prescribed.

Fig-1: Sagittal section of the uterus showing a gestational sac on the anterior surface with invasion of the myometrium, presence of an embryonic image without visible cardiac activity

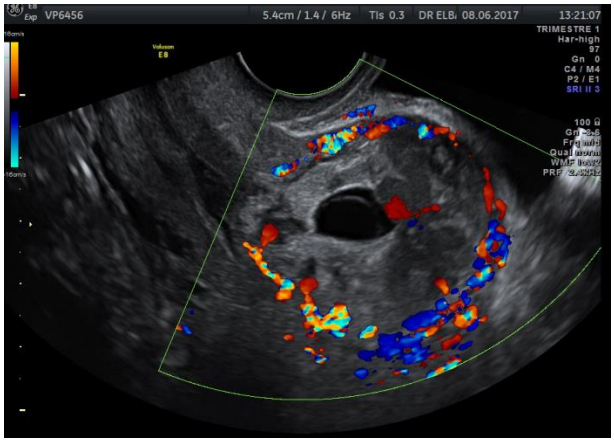

Fig-2: Sagittal section of the uterus with color Doppler window showing a gestational sac with invasion of the myometrium by the trophoblast at the scar

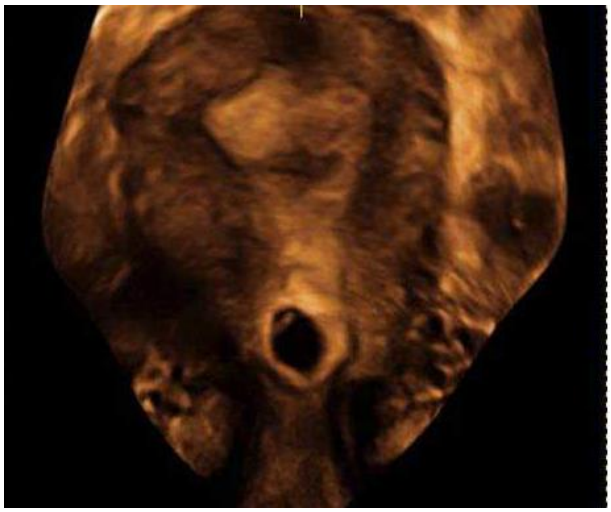

Fig-3: 3D pelvic ultrasound of pregnancy at the level of the scar

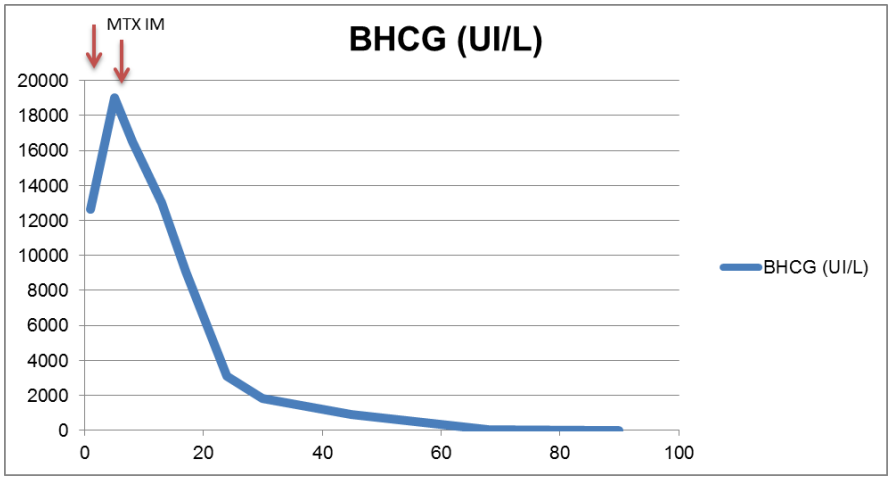

Fig-4: Progression of the patient's Beta-hCG plasma level after management for cesarean section scar pregnancy

Fig-5: Sagittal section of the uterus showing an image of retention after treatment with methotrexate of extra uterine pregnancy on scar during the ultrasound control

DISCUSSION

Caesarean section scar pregnancy is a rare form of ectopic pregnancy that is life-threatening (by hemorrhage or early uterine rupture) and engages functional prognosis (because of the need for hemostatic hysterectomy for uncontrollable hemorrhage) [1]. The incidence is estimated at 1/1800 to 1/2250 pregnancies [2]. Initially exceptional, this ectopic pregnancy is increasing in frequency, due to the increase in the number of caesareans in recent years. It may be detected better by the use of endo-vaginal ultrasound. From a pathophysiological point of view, the mechanism of implantation of ectopic pregnancy in the caesarean section scar is different from that of an intrauterine pregnancy with placenta accreta [3]. In pregnancy on cesarean section scar, the micro-defect of the hysterectomy scar would allow myometrial invasion by the blastocyst, in an area incompletely healed, poorly vascularized and rich in fibrosis. In our case, the patient had a bi-cicatricial uterus. The fibrosis and low vascularity of the area are thought to be responsible for insufficient and more extensive healing on a multi-scar uterus.

The diagnosis of pregnancy on cesarean section scar is often made in the first trimester. The clinical presentation associates pelvic pain and/or vaginal bleeding of variable abundance, in early pregnancy, affecting patients with a history of hysterotomy. However, 37% of patients are asymptomatic and the diagnosis is then an accidental discovery [4]. Endovaginal ultrasound allows accurate and early diagnosis based on criteria established by Vial in 2000 [5]: uterine vacuosity and an empty cervical canal without contact with the gestational sac in addition to disruption of the gestational sac on the anterior uterine wall in sagittal section of the uterus. There are also indirect ultrasound signs, such as decreased myometrial thickness between the gestational sac and the bladder, which reflects depth of implantation and peri-trophoblastic hypervascularization, as seen by color or energy Doppler [6]. In the early stage, there is usually no pelvic effusion or adnexal mass. Other tests may be offered if doubt persists after the ultrasound. Indeed, three-dimensional ultrasound or pelvic MRI can be used to specify the depth of trophoblastic invasion in the myometrium and the potential involvement of the serosa or bladder, as well as the exact position of the

gestational sac [7]. In our case, transabdominal and then endovaginal pelvic ultrasound was sufficient to carry the diagnosis.

The treatment is often conservative, except in case of therapeutic escape or lack of desire to preserve fertility. The possibility of expectancy is extremely rare [8, 9], and such an attitude is generally not advocated by the majority of authors. On the other hand, the use of medical treatment in a hemodynamically stable patient is conceivable by many teams. It is based on the methotrexate through systemic administration (intramuscular injection) [10, 11], or local administration (in situ injection possibly under ultrasound or coelio-guidance) [11, 12] or combination of the two at the dose of 1 mg/kg [7]. It takes an average of 4 to 6 weeks to normalize hCG [6], most often with daily monitoring of hCG decreasing during hospitalization then once a week until negativity. Ultrasound monitoring is also recommended until the complete removal of the ovum sac.

A curettage aspiration is a high-risk gesture of uterine rupture and hemorrhage and does not seem to be considered as first-line treatment for cesarean section pregnancy. Hysteroscopic resection is a recently described method [1, 13, 14]. It requires a trained team to respect the pregnancy when it is accessible in the cavity. It allows an effective coagulation of the vascular root of the mass and presents simple operating sequences with a return to normal three times faster than after medical treatment.

Resection of the pregnancy by laparotomy or coelioscopy with repair of the hysterotomy scar is possible. This treatment also provides preventive hemostasis by ligation of the uterine or hypogastric arteries [14]. hCG normalization is then reached in one to two weeks [2]. Embolization of the uterine arteries is a minimally invasive technique, it allows effective control of bleeding, and would allow avoiding hysterectomy hemostasis and thus preserves fertility.

After a pregnancy on a scar, the risk of recurrence exists and is estimated at 5% [15]. A delay of 12 to 24 months between pregnancy on cesarean section scar and future pregnancy is recommended [6]. The authors recommend then performing an early ultrasound scan during a subsequent pregnancy to check the intrauterine location of the gestational sac [16].

The morbidity and mortality following this pathology is important, so the diagnosis must be evoked quickly and confirmed early by endo-cavitary ultrasound probe to propose a conservative treatment. At present, there are no recommendations for the management of these ectopic pregnancies. Studies should be conducted to determine and evaluate the different therapeutic modalities as well as their impact on subsequent fertility.

CONCLUSION

Surgical indications must remain exceptional and intervene only in cases of uncontrollable bleeding or failure of medical treatments performed according to the proposed hierarchy. The realization of a systematic caesarean section is recommended by many authors, it seems to us to be the appreciation of the obstetrician who would have to take these patients in charge.

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