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Medical management of cesarean scar pregnancy at advanced age: case report and literature review

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Summary

Aim: Cesarean scar pregnancy is a rare condition that is increasing in frequency parallel to the increase in cesarean section rates. The authors hereby discuss a case with cesarean scar pregnancy at advanced age that was treated with methotrexate (MTX) in Nyala Sudan Turkey Training and Research Hospital. *Conclusion:* Cesarean scar pregnancy is a rare type of ectopic pregnancy that is increasing in number due to the increase in cesarean deliveries. Clinical vigilance is imperative for diagnosis and treatment of this highly mortal and morbid entity.

Key words: Cesarean scar pregnancy; Ectopic pregnancy; Methotrexate.

Introduction

Gestational sac (GS) positioned along cesarean scar of the lesser uterine segment is a rare and life threatening form of ectopic pregnancy which was first described by Larsen and Solomon in 1978 [1-3]. Reported risk factors are mostly previous surgical intervention such as, cesarean section, dilatation and curettage (D&C), myomectomy, metroplasty, and hysteroscopy [4, 5]. Scar pregnancy occurs once in every 2,500 pregnancies [4, 5]. Data in the literature mainly consists of case reports due to rarity of the condition. However, owing to increasing rate of cesarean deliveries and frequent utilization of high resolution ultrasound devices have increased the frequency of this entity in the recent years [6]. Cesarean scar pregnancy is a potentially life threatening condition which can lead to uterine rupture, hemorrhage, disseminated intravascular coagulation, and eventually maternal death if left untreated [3]. There is no agreement in the literature on treatment due to rarity of the condition. Expectant treatment, D&C, local or systemic MTX, local potassium chloride application, embolization of uterine artery, laparoscopic excision, and hysterectomy were all suggested for different clinic presentations of the disease [7, 8]. Early and accurate diagnosis is essential for the utilization of various treatment options and preventing serious complications [7, 8]. In this paper, the authors discuss a six to seven week old cesarean scar ectopic pregnancy that was successfully treated with MTX thanks to early diagnosis and include a brief literature review.

Case Report

Forty-six year old woman, who gave birth to nine children by normal childbirth before, underwent cesarean delivery owing to a failed labor one year earlier, admitted to the Obstetrics and Gynecology Department of Nyala Sudan Training and Research Hospital in Nyala (Sudan) with two weeks menstrual delay, vaginal bleeding, and abdominal and pelvic pain. Physical examination revealed generalized pain in the inferior abdominal quadrants and speculum inspection showed a closed multipara collum and oozing bleeding possibly from the uterine cavity. Uterus size was consistent with six-week pregnancy and adnexal structures were normal. Transvaginal ultrasound imaging revealed that ovaries were normal and uterine cavity was empty with ten-mm thick tri-laminar appearing endometrium covering it. However a 22 x 30 mm gestational sac consistent with six to seven week pregnancy was detected in the junction of cervix and isthmus just adjacent to bladder, a location that fitted previous cesarean scar. Yolk sac and fetus could not be clearly identified (Figure 1). Measured beta human chorionic gonadotropin (β-HCG) level was initially 1,354 mIU/ml and the patient was hospitalized with the diagnosis of cesarean scar ectopic pregnancy for observation and treatment. Gestational sac with no fetus was measured to be 25 x 30 mm, which was consistent with seven-week pregnancy and β-HCG was 1,890 mIU/ml four days later. Patient's complaints were gradually progressing however there was no objective sign of active pelvic bleeding or rupture in transvaginal ultrasonography.

MTX treatment at 50-mg/m² dose was initiated immediately after liver and renal function tests came in normal ranges. Control measurements of β-HCG levels were obtained on the first, fourth, and seventh days. The patient was discharged on the seventh day, after β-HCG levels dropped gradually and significant relief in symptoms was observed. Weekly measurement of β-HCG levels gradually dropped to 195.56 mIU/ml, 30.76 and finally under ten mIU/ ml and the patient was put to long-term follow up thereafter.

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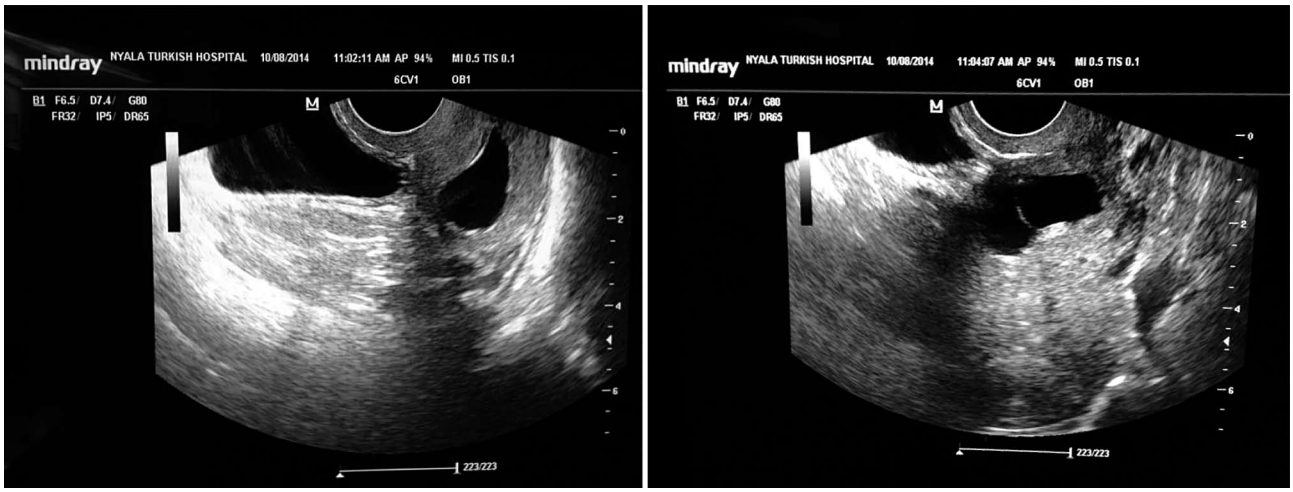

Figure 1. — Ultrasound images of a gestational sac on the front wall of isthmus where myometrium measures under three-mm thick.

Discussion

Considering that there is an increase in frequency due to increasing number of cesarean deliveries, cesarean scar pregnancy is still one of the rarest and potentially life threatening form of ectopic pregnancies [1, 9]. Seow *et al.* estimate risk of cesarean scar pregnancy as one in every 2,226 pregnancies and give rates as 0.15% among women who underwent cesarean delivery and 6.1% among women with a history of previous ectopic pregnancy [5, 10, 11]. With advancing gestational age, trophoblasts invading defective myometrium along previous cesarean scar cause abnormal vascularization in the inferior segment of the front uterine wall and eventually leading to pelvic pain and severe vaginal bleeding especially in greater gestational weeks [10]. While the most common presenting symptoms are pelvic pain and/or vaginal bleeding, the patients can be asymptomatic that usually get diagnosed during a routine examination for menstrual delay [12]. The present patient had vague symptoms that were initially menstrual delay and spotting vaginal bleeding which then progressed to severe pelvic pain over time. Differential diagnosis of cesarean scar pregnancy from cervicoisthmic pregnancies and incomplete abortion is important. Even extensive magnetic resonance imaging establishes definite diagnosis of cesarean scar pregnancy; transvaginal ultrasonography is widely used as some sonographic properties such as, 1) empty uterine cavity, 2) empty cervical canal, 3) gestational sac visualized lying along the cesarean scar between inferior segment of the uterus and bladder in sagittal views of the uterus, and 4) visualization of trophoblastic activity on color flow Doppler imaging gives valuable data for evaluating the patient [4, 10, 12]. Combination of transvaginal and transabdominal ultrasound imaging enhanced with color flow Doppler imaging can actually be used as a gold standard for diagnosis [10, 12, 13]. There is little known about the natural course of cesarean scar pregnancy. Earliest data suggest that expectant treatment is rarely successful and life threatening [10, 14]. Although expectant treatment was initially considered in the present patient, treatment plan was switched to MTX administration immediately after progression of symptoms and increase in gestational sac dimensions. Pregnancy termination in the first trimester is advised for women with cesarean scar pregnancy since there is a high risk of life threatening complications such as uterine rupture and massive bleeding [4]. There is no consensus on treatment due to rarity of the entity and little data in the literature. In a study by Shao *et al.*, uterine artery embolization followed by curettage is reported to be superior than other therapeutic approaches [15]. Another study by Polat *et al.* suggests abortion for cases less than seven weeks and MTX and/or surgery for cases greater than seven weeks [16]. Similarly, in a trial of newly introduced transvaginal surgery technique, Le *et al.* found it superior to uterine artery embolization and chemotherapeutics [17]. Non-surgical treatment options consist of MTX (either local or systemic and single or multiple doses), uterine artery embolization and potassium chloride or hyperosmolar glucose applications. Surgical procedures are namely D&C, wedge resection of gestational sac (either by laparoscopy or laparotomy), hysterectomy, hysteroscopy, and excision of the sac [9]. Systemic administration of MTX is standard treatment for tubal and cervical pregnancies [18]. Wang *et al.* showed that while long term high doses of MTX or local MTX combined with intravenous MTX was required for the patients with β-HCG levels higher than 5,000 IU/ml and fetal heart beat, single dose of 100 mg or multiple divided doses (20 mg/day for five days) of MTX was sufficiently embryocidal for patients with β-HCG levels less than 5,000 IU/ml and without fetal heartbeat [19]. Although D&C carries high intraoperative bleeding risk as a primary treatment [6, 10], it can be con-

sidered as an option under the guidance of abdominal ultrasonography after MTX treatment or when serum β-HCG level drops under 50 IU/L, subtrophoblastic blood circulation is completed and there is a connection between gestational sac and uterine cavity in transvaginal ultrasonography. D&C can manage to prevent septic abortus or intermittent uterine bleeding by removing gestational sac of the cesarean scar pregnancy. D&C was also planned for the present patient after MTX treatment, but the patient refused the intervention after her complaints regressed with MTX therapy. Gestational sacs that are growing into the uterine cavity are the only true indication for D&C. According to Graesslin *et al.*, connection formation between uterine cavity and gestational sac is a natural course of MTX treatment [20]. Serum levels of β-HCG steadily dropped following a single dose of MTX in the present patient and she was discharged uneventfully after one week when β-HCG levels returned to normal range and gestational sac was regressed in the transvaginal ultrasonography.

Consequently, studies show MTX therapy alone or combined with D&C helps to avoid laparotomies and preserves fertility. However, some time is needed for β-HCG levels to drop and resolution of gestational sac [5, 19].

Conclusion

There is an increase in frequency of cesarean scar pregnancies due to increasing number of cesarean deliveries. It is a severe late complication of cesarean deliveries that can lead to loss of fertility and even death. Clinical suspicion and measurement of serum β-HCG levels along with an evaluation with transvaginal ultrasonography is crucial for early diagnosis. Delays in diagnosis and treatment of cesarean scar pregnancy can lead to life threatening conditions and prompt emergent hysterectomies for hemostasis.

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