

A Report of Four Cases of Caesarean Scar Pregnancy in a Period of 24 Months

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Abstract

The implantation of a pregnancy within the scar of a previous caesarean delivery is the rarest of ectopic pregnancy locations. If it is diagnosed early, treatment options are capable of preserving the uterus and subsequent fertility.

Objective: Pregnancy in previous caesarean scar is the rarest form of ectopic pregnancy. We aimed to present 4 cases of caesarean scar ectopic pregnancy and assess the potential role of three dimensional ultrasonography in the diagnosis.

Design: We report 4 cases of caesarean scar pregnancies; one of them was initially mistaken for a viable intrauterine pregnancy.

Results: 2 cases had transcervical aspiration of the gestational sac and two by open surgery. One underwent hysterectomy and the other laparotomy and excision of the pregnancy located in the CS scar.

Conclusions: We report on four cases of caesarean scar pregnancy with different modes of treatment. The three dimensional ultrasound improved visualisation of the caesarean scar pregnancy. Care should be taken in the diagnosis of caesarean scar twin pregnancy by a transvaginal ultrasonography in order to not mistake a caesarean scar pregnancy for an intrauterine pregnancy.

Keywords: Caesarean scar pregnancy; Ectopic pregnancy; Dilatation and curettage; Three dimensional ultrasonography; Caesarean scar

Introduction

A caesarean scar ectopic pregnancy is considered to be the rarest form of ectopic pregnancy and can lead to life-threatening hemorrhage during pregnancy or curettage and even to uterine rupture, disseminated intravascular coagulation, or death [1,2].

Caesarean section scar pregnancies have become more common because of the increasing rate of caesarean deliveries [3].

Three cases of caesarean scar pregnancies were seen within a period of 24 months in our hospital (1/180) and were managed with different treatment modalities. There are currently no guidelines for the management of such pregnancies. With these three cases and a review of the literature, we explore the indications for the various treatment modalities for caesarean scar pregnancy.

Case Report

Case 1: A 35-year-old woman, G3P2, presented in early pregnancy with light vaginal bleeding that had begun earlier in the day. Her obstetrics history revealed 2 lower transverse caesarean sections performed 3 and 4 years previously. Her last menstrual period placed her gestational age at 9 weeks, and she had not yet begun prenatal care. The first transvaginal sonographic evaluation revealed a gestational sac with two viable embryos low in the uterine cavity. The crown-rump lengths were 14, 14.5 mm corresponding to a gestational age of 7 weeks and 6 days. A repeat transvaginal ultrasound scan (by an experienced sonographer) 15 days after the initial examination revealed twin pregnancy of 10 weeks with cardiac activity low in the uterine cavity.

When controlled by a transabdominal ultrasound, that gestational sac was located within the isthmic area of the lower anterior wall of the uterus and that protruded toward the vesico-uterine junction.

The crown-rump lengths were 32, 32.3 mm corresponding to a gestational age of 9 weeks and 6 days. The diagnosis was revised to that of a caesarean scar ectopic pregnancy. After counselling on the on the elevated risk of uterine rupture, the patient decided to opt for pregnancy termination. A decision was made to perform a laparotomy. At laparotomy, with dissection of the uterus off the abdominal wall and with mobilization of the bladder, the lower uterine myometrial implantation site was confirmed. The gestation was dissected from the anterior uterine isthmus; foetuses and the placenta were removed. Bleeding went on actively; the placental site was sutured to help with haemostasis. When controlled by a transabdominal ultrasound, that gestational sac was located within the isthmic area of the lower anterior wall of the uterus and that protruded towards the vesico-uterine junction. The crown-rump lengths were 32, 32.3 mm corresponding to a gestational age of 9 weeks and 6 days. The diagnosis was revised to that of a caesarean scar ectopic pregnancy. After counselling on the on the elevated risk of uterine rupture, the patient decided to opt for pregnancy termination. A decision was made to perform a laparotomy. At laparotomy, with dissection of the uterus off the abdominal wall and with mobilization of the bladder, the lower uterine myometrial implantation site was confirmed. The gestation was dissected from the anterior uterine isthmus; foetuses and the placenta were removed.

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Bleeding went on actively; the placental site was sutured to help with haemostasis. A hysterectomy was required because of uncontrollable bleeding. The patient had an uneventful postoperative recovery and was discharged from the hospital on postoperative day (Figure 1).

Case 2: A 41-year-old woman, with a history of two caesarean sections, which one was 9 years ago and the other 3 years ago, was admitted at 6 weeks of gestation complaining of mild lower abdominal pain and vaginal spotting. An ultrasound scan showed a 3.45×2.80 cm hyperechogenic mass in the anterior myometrium over the isthmic region, with increased vascularity. Beta-hCG level was 133 528 UI/L. No other adnexal lesions were seen. A provisional diagnosis of Caesarean scar ectopic pregnancy was made. The decision was made for intramuscular injection of methotrexate in an attempt to decrease the vascularity around the sac. The patient has undergone 50 mg methotrexate injection, Two days later; another dose of methotrexate was given. After 3 days of second dose methotrexate injection, the patient flood during 10 days.

On the 10th day of the vaginal bleeding, transvaginal ultrasonography was repeated and showed that the diameter of the gestational sac was reduced to 2.5×2.4 mm and serum beta hCG level was reduced to 11 437 mlU/ml. It was decided to evacuate the pregnancy by dilatation and curettage. The procedure was immediately complicated with haemorrhage. Moderate uterine bleeding began immediately after uterine evacuation, and on ultrasonographic examination there was no suspicion of pregnancy tissue remaining in the uterus. The patient was treated with a balloon tamponade. Blood loss was estimated at 900 mL. Histopathology of the endometrial curettings showed products of gestation. The patient was discharged home 2 days after admission. The patient had intermittent vaginal bleeding until the second postoperative week, when an acute severe noncrampy abdominal pain occurred. A laparotomy was performed and a left caesarean scar ectopic pregnancy was removed. B-HCG was negative on fifth postoperative day (Figure 2).

Case 3: A 32-year-old woman was admitted in stable clinical

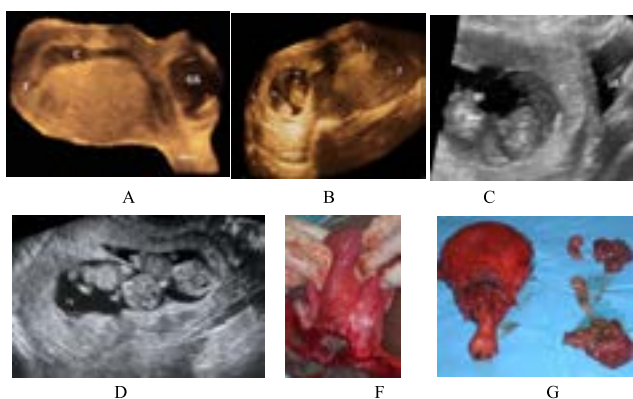


Figure 1: (Case 1) A-B- 3 D image Transabdominal ultrasound picture of a Caesarean scar ectopic twin pregnancy of 11 weeks, note empty uterine cavity (B). C - 3 d image showing the gestational sac with a twin pregnancy, the close localization of gestational sack to the bladder is seen. D- Transvaginal I ultrasound showing a twin pregnancy of 11 weeks (in which the ectopic localisation is impossible to be diagnosed). F -Photograph of the uterine isthmus after the gestational sac has been opened surgically, which reveals the placental tissue G- Photograph of the surgically removed uterus with the 2 fetuses C: cavity (uterine), GS: Gestational Sac, UB: Urinary Bladder, P: Placenta, F: Fundus, T, Twin.

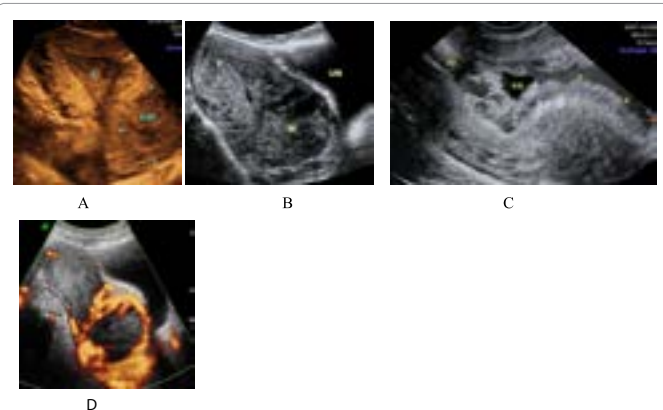


Figure 2: (Case 2) A- B: Ultrasonographic evaluation revealed a gestational cystic mass (CSP) located within the isthmic area of the lower anterior wall of the uterus. The uterine cavity (C) is empty. B: Midline sagittal transvaginal image demonstrating a gestational sac (GS) with a yolk sac implanted at the isthmic region (IO) D: Three-dimensional colour power Doppler images of CPS show the extensive neovascularisation encircling the gestational cystic mass.

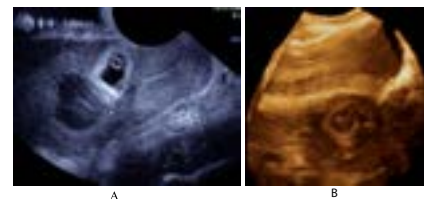


Figure 3: (case 3) A: Midline sagittal transvaginal image demonstrating a gestational sac with a yolk sac implanted at the isthmic region between the cervix and the empty uterine cavity (C), i.e. anatomical location of a previous Caesarean section scar. B: Three dimensional image showing the gestational sac protruding towards the urinary bladder (B).

condition at a gestation of 7 weeks, complaining of vaginal bleeding. She had delivered a baby by lower segment caesarean section, done for fetal distress, 5 years previously. A pelvic ultrasonography showed a 3.06×2.50 cm gestational sac containing a viable 6 mm viable foetus and a secondary yolk sac inside the anterior myometrium at the isthmic level, compatible with a caesarean scar pregnancy. The HCG was 11 320 874 IU/L. The diagnosis of ectopic pregnancy in a previous caesarean scar was assessed and termination of the pregnancy was planned. Suction curettage was performed under transabdominal ultrasonographic guidance with Karmen plastic cannula No 7. Gestational sac was removed completely and the values were -7 235, 2248, 380 and <6 mIU/ml on days, 2, 9 and 17 and 27 after the evacuation (Figure 3).

Case 4: A 32 -year-old woman, gravida 4 para 5, was admitted to our ward complaining of pelvic pain and slight vaginal bleeding. Her pertinent history included a cesarean section for breech presentation as well as one dilatation and curettage. A transvaginal ultrasound scan revealed a gestational sac within the anterior wall of the uterus, 3.8 cm from the external os, surrounded by myometrium and pressing anteriorly on the urinary bladder. An embryonic pole was identified with a crown-rump length of 4 mm, corresponding to 7+4 weeks' gestation. Fetal cardiac activity was detected. A diagnosis of a viable pregnancy in a uterine scar was made. She was treated with an intramuscular injection of 50 mg/m² methotrexate 2 days later a suction curettage was performed and B-HCG the values were 1248, 243 and <6 mIU/ml on days, 2, 8 and 13 after the evacuation (Figure 4).

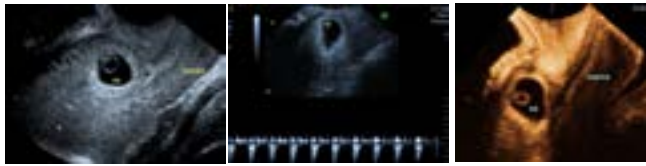


Figure 4 (Case 4): Midline sagittal transvaginal image demonstrating a gestational sac (GS) with a yolk sac and fetal heart tones implanted at the isthmic region.

Discussion

A caesarean scar ectopic pregnancy is considered to be the rarest form of ectopic pregnancy and constitutes a life-threatening condition [1]. Caesarean section scar pregnancies have become more common because of the increasing rate of caesarean deliveries [3]. The first case of a pregnancy implanted into a caesarean scar was reported in 1978 [4]. The exact cause of implantation of the gestation into the scar of a previous caesarean section is not well understood. Investigators have speculated that caesarean scar pregnancies result from implantation through a microscopic fistula between the endometrial cavity and the scar [5]. The true incidence of this condition is unknown because the literature primarily consists of case reports. Two recent studies have estimated an incidence of approximately 1 in 2000 pregnancies [6]. As of 2006, there were 161 instances reported in either case reports or case series [7]. Jurkovic et al. [8] used the following criteria to diagnose early caesarean scar pregnancies by transvaginal sonography.

1. The uterine cavity is empty.
2. The gestational sac is located anteriorly at the level of the internal os, covering the visible or presumed site of the caesarean section scar.
3. Doppler study suggests a functional placental circulation defined by increased vascularity by colour flow evaluation, a peak velocity greater than 20 cm/s, and a pulsatility index of less than 1.
4. There is no “sliding organs sign,” defined as the inability to displace the gestational sac with gentle pressure applied by the transvaginal probe [6].

A discontinuity in the anterior wall of the uterus being demonstrated on a sagittal view of the uterus when the direction of the ultrasound beam runs through the amniotic sac [9]. These criteria assist in distinguishing this type of pregnancy from other diagnostic options, such as cervico-isthmic implantation, cervical pregnancy and spontaneous abortion in progress [10]. Because of its rare occurrence, no universal treatment guidelines have been established to date and there is no consensus on the treatment of choice [10]. Still, it is widely agreed that it would be more prudent to interrupt such pregnancies as soon as a precise diagnosis has been made [11,12].

Both medical and surgical approaches have proven successful. Systemic [13] and local injection of methotrexate has been described in published reports [14]. Other agents injected directly into the fetus within a caesarean scar pregnancy have included potassium chloride [15] and hyperosmolar glucose. Surgical sac aspiration [16] has proven successful. Several other surgical approaches, including endoscopic [17] and open removal, have been successfully used. Uterine artery embolization (UAE) combined with intra-arterial methotrexate (MTX) infusion [18] and bilateral uterine artery chemoembolization with methotrexate for cesarean scar pregnancy [19].

Local treatment with transvaginal ultrasound-guided injection of methotrexate is an excellent option which also optimizes the chance for fertility preservation [20].

Uterine curettage has been performed to treat caesarean scar pregnancies, but this approach appears to have a high failure rate. Li et al. [17] reported a failure in 12 of 17 women who underwent uterine curettage as their initial treatment modality. Of note, removal of the pregnancy by dilation and curettage is not recommended as severe hemorrhage complicates a majority of cases so treated [21]. In this decision process, pregnancy size, absence or presence of rupture, β -hCG levels, desire for future fertility and patient hemodynamic status weigh heavily. Asymptomatic and hemodynamically stable patients are candidates for medical management by methotrexate [22]. Regarding the first case, the vaginal probe, which is considered the gold standard, would have led to a wrong diagnosis. The gestational sac volume (Twin pregnancy) and advanced gestational age limit our ability to explore the whole of the uterus; in consequence we see only the gestational sac that makes the diagnosis of caesarean scar twin pregnancy difficult or impossible.

In control with abdominal probe, the diagnosis of the CSP was evident. In the second case vacuum evacuation was immediately complicated with haemorrhage controlled by balloon tamponade. The third and fourth cases were treated successfully by a suction curettage.

All of the four cases had a three dimensional ultrasonography. Transabdominal scan was performed with VOLUSON 730 pro equipment using 3D transducer and colour Doppler imaging. All volumes were stored and then processed off line.

The three dimensional ultrasound improved visualisation of the caesarean scar pregnancy as it conveys a spatial, three dimensional impressions of the ectopic pregnancy and its relation with surrounding structures.

While three dimensional ultrasound cannot replace conventional sonography, it can complement it in selected cases. Literature is still not conclusive as regards dilatation and curettage for treatment of caesarean scar pregnancy, one of our cases was complicated by bleeding and two cases were treated successfully with dilatation and curettage without any complication. We think dilatation and curettage an effective measure for termination of pregnancy but precautions must be taken for eventual hemorrhage. All scar pregnancies should be reported so that more data may be obtained to quantify the indications, contra-indications, the safety and efficacy of the various management modalities.

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