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CASE REPORT

Laparoscopic management of an ectopic pregnancy within a previous caesarean section scar

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Abstract Ectopic pregnancy situated in a caesarean section scar is a rare but potentially life-threatening event. Because of its rarity there are no universal guidelines to manage this condition. We report a case of laparoscopic management of an ectopic pregnancy in a previous caesarean section scar. Laparoscopy enabled the successful treatment of an ectopic pregnancy, avoided unnecessary laparotomy and made it possible to preserve the patient's reproductive capability. We discuss the management options and review the literature.

Keywords Caesarean scar pregnancy · Ectopic pregnancy · Laparoscopy

Introduction

Caesarean scar pregnancy (CSP) is a rare type of ectopic pregnancy which is implanted in the myometrium at the site of a previous caesarean section. It is a potentially life-threatening condition and if not diagnosed early and treated, it may be associated with catastrophic complications, such as rupture of the uterus and uncontrolled haemorrhage, which may lead to loss of the uterus.

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The true incidence is uncertain as there are only 18 published cases in the English medical literature between 1978 and 2001. Between 2002 and mid 2003, however, 25 additional cases were reported [1]. This may reflect the increasing caesarean section rate, assisted reproductive techniques, tubal surgery and the increase in pelvic inflammatory disease. The use of transvaginal ultrasound also allows for earlier detection of this condition [2]. Thus within certain recognised subgroups of the obstetric population ectopic CSP may not be as rare as previously thought and should be on the list of differential diagnoses in women who are diagnosed with ectopic pregnancy with a previous caesarean scar.

Case report

A 34-year-old woman with a history of two pregnancy terminations and two miscarriages and a lower segment caesarean section 2 years previously was admitted to our hospital complaining of one week history of low abdominal pain, dysuria and vomiting after seven weeks of amenorrhoea, and a positive pregnancy test. On admission, her vital signs were stable and there was mild lower abdominal tenderness with normo-active bowel sounds. Pelvic examination revealed closed but mildly tender cervix and no vaginal bleeding. The uterus was 6 weeks size with mild adnexal tenderness. Transvaginal ultrasound scan revealed a well-defined gestational sac containing a fetal pole with a crown–rump length of 26.9 mm and fetal heart activity. The gestational sac was just above the internal cervical os (Fig. 1). There was also a large amount of free fluid in the pelvis. Quantitative assay of the beta-HCG was 58,028 IU; her haemoglobin level was 11.2 g/dl.

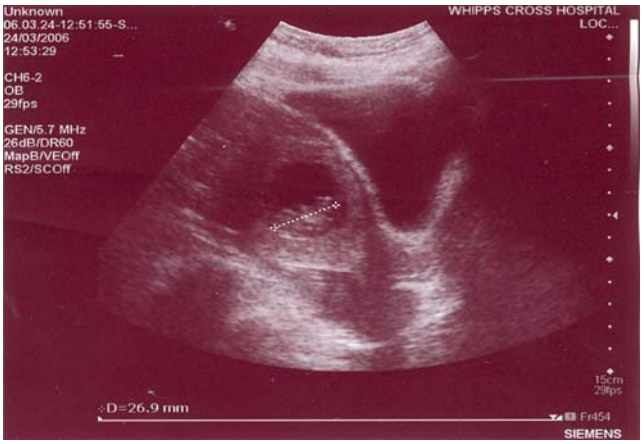

Fig. 1 Gestational sac just above the internal cervical os and containing fetal pole with crown–length of 26.9 mm (caesarean scar pregnancy)

She was admitted with a working diagnosis of ruptured corpus luteum with a coexisting intrauterine pregnancy and a possible urinary tract infection. She started antibiotics, analgesia and antiemetics with the objective of conservative management to allow resorption of the peritoneal fluid.

A repeat full blood count on the 3rd day of admission revealed a haemoglobin level of 6 g/dl with a normal clotting profile. At that time the patient was stable, but in view of the change in the haemoglobin level an urgent repeat trans-vaginal ultrasound was performed which showed a mass between the bladder and the uterus and large amount of free fluid.

The patient was counselled of the possibility of a coexisting ectopic pregnancy, a ruptured corpus luteal or ovarian cyst. Laparoscopy was then performed. Intraoperatively, the ovaries and tubes were normal, there were no adhesions, 2 liters of haemoperitoneum was found and aspirated and bleeding noticed from the left angle of the caesarean section scar. Within the scar was located the ectopic pregnancy. The bleeding was stopped injecting Pitressin (Argipression 20 IU/ml) diluted in 20 mls of normal saline. The ectopic pregnancy was then evacuated and the defect closed with three "figure of 8" sutures one on each angle and a further one in the middle. A suction dependent drain was left in the peritoneal cavity and removed the following day. The patient had a blood transfusion of 5 units which was commenced intraoperatively. She made an uneventful recovery and was discharged on the third postoperative day with a haemoglobin level of 11 g/dl. She was followed up with serial beta-HCG estimations on the fourth and sixth days and weekly till her pregnancy test was negative.

Histopathology revealed blood clots, necrotic chorionic villi and trophoblastic tissue consistent with ectopic pregnancy.

Discussion

The incidence of CSP is thought to be about 1:1800 in women attending early pregnancy assessment units [2].

The pathophysiology of this condition is not clear. Although many theories for explaining its occurrence have been postulated, the most accepted is that the blastocyst enters into the myometrium through a microscopic dehiscent tract. This may be created through the trauma of a previous caesarean section or from any other uterine surgery, such as a myomectomy [3], or following manual removal of the placenta [4].

The diagnosis of CSP can be clinically difficult as in our case. But due to the severity of possible complications, it is important to make a diagnosis as early and accurately as possible. Transvaginal ultrasonography has been reported as the most useful tool for the diagnosis [2] but this has to be coupled with an index of suspicion. Suggested criteria for ultrasound diagnosis include:

1. The presence of a gestational sac in the anterior part of the isthmic portion of the uterus with a diminished layer of myometrium between the bladder and the sac.
2. The inability to displace the gestational sac from its position above the internal os with the vaginal probe. This has been described by Jurkovich and his colleagues as the "sliding organ sign" to distinguish it from incomplete miscarriage.

Colour Doppler ultrasound can also be helpful in establishing diagnosis; others have used magnetic resonance imaging [5].

In our patient the diagnosis was made at laparoscopy, however on reviewing the scans the diagnosis could have been made earlier and possible problems anticipated.

Earlier ultrasound diagnosis may allow for medical management of CSP with methotrexate [6]. This can be administered systemically, locally or in combination. With medical management there is a risk of uterine rupture and haemorrhage up to 15 days post-administration thus patients need to be followed up after injection. To reduce the risk of haemorrhage, some have combined medical management with uterine artery embolisation [7].

Diagnosis is sometimes not made until uterine rupture occurs and the patient develops haemoperitoneum and hypovolemic shock [8]. Though uterine conservation is possible in these instances and in many such cases by laparotomy, hysterectomy may be the only effective treatment available.

Increasingly since Lee CL et al. [9] claimed to have performed the first successful laparoscopic resection of a

CSP, laparoscopy is becoming a tool not only for diagnosis but also for treatment of these cases as demonstrated in our patient.

Laparoscopy confers known benefits over laparotomy in the management of benign gynaecological conditions [10]. It may also be superior to medical management as it provides a better overall health related quality of life for the patient [11]. However successful management of CSP by laparoscopy depends on accurate pre-operative investigations based on high index of suspicion and surgeon experience.

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