Case Report

Caesarean scar ectopic pregnancy Case report and literature review

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Abstract

Caesarean scar pregnancy (CSP) is the rarest locations for an ectopic pregnancy. The incidence is increasing due to increasing number of caesarean sections. Delay in diagnosis can lead to significant maternal morbidity and mortality. We describe a case of a 30-years-old lady, para 2, (both by caesarean section) and with a viable 10 weeks intrauterine pregnancy who presented with acute abdomen. The diagnosis was suspected by open laparoscopy. At Laparotomy, the amniotic sac with a viable fetus was found attached to the caesarean section scar and partially protruding through a small rupture. The sac was removed, and ruptured scar repaired, hence preserving the uterus and future fertility.

Introduction

Ectopic pregnancy is one of the leading causes of morbidity and mortality among fertile women accounting for 9% of the pregnancies-related deaths. Pregnancy implantation within previous caesarean scar (caesarean scar pregnancy (CSP)), is one of the rarest locations for an ectopic pregnancy. The first case was in 1978 and to date 161 cases had been reported. The incidence of CSP is increasing as more caesarean section being performed worldwide. With increased index of suspicion and liberal use of transvaginal sonography, more cases of caesarean scar pregnancy are being diagnosed in early pregnancy, thus allowing early interventions and preservation of uterus and fertility. However, a delay in either diagnosis or treatment can lead to uterine rupture, hysterectomy, and significant maternal morbidity and mortality.

This is a case report and review of literature of a rare case of first trimester caesarean scar pregnancy with viable fetus in the process of rupture, where uterine repair could be done, thus preserving the future fertility.

Key words: Caesarean section, ectopic pregnancy, caesarean scar pregnancy

Case presentation

A 30-year gravida 3, para 2, with 12 weeks confirmed intrauterine pregnancy presented to the emergency Obstetrics department with acute abdomen. She had two previous deliveries by caesarean section (CS). The first was an emergency CS due to failure to progress and fetal distress, and the second delivery was by elective repeat CS three years ago. She was a known case of peptic ulcer disease. She gave no history of contraception. Her current pregnancy was diagnosed by ultrasound at two months gestation with a report showing eight weeks intrauterine viable pregnancy. Six days prior to admission she was hospitalized in the surgical ward because of acute abdominal pain diagnosed as an exacerbation of peptic ulcer for which she received treatment and was discharged after improvement. Five days later she reported an episode of minimal painless vaginal bleeding. She was seen by an obstetrician and a transabdominal ultrasound examination showed a viable 10 weeks intrauterine pregnancy. She was diagnosed as threatened miscarriage and advised for bed rest.

Four days later she reported to the emergency department with acute abdominal pain with no vaginal bleeding. On examination she was pale, tachycardic, and hypotensive. Abdomen examination showed generalized tenderness with signs of peritonitis. Her haemoglobin was 07 gm%. Ultrasound examination showed a 12 weeks viable intrauterine gestation with evidence of free fluids in peritoneal cavity suggestive
of perforated peptic ulcer. A surgeon was consulted and an urgent open diagnostic laparoscopy was carried out. The panoramic pelvic view revealed haemoperitoneum, enlarged uterus with normal tubes and ovaries. Upper abdominal view showed no significant surgical cause. A formal Laparotomy was then performed. An enlarged 12 weeks uterus was found with normal tubes and ovaries, and haemoperitoneum of 500 cc and clots was evacuated. An upward extended incision was made to explore the upper abdomen. No source of bleeding was found; the liver, spleen, stomach, duodenum, bowels, mesentery, and large vessels were normal. A thorough repeat examination of the pelvic organs revealed an intact-looking uterus and healthy normal tubes and ovaries, however on the anterior aspect of the antverted pregnant uterus at the level of the vasico -uterine fold a small hole could be felt and a bulge was noticed with partial protrusion of the amniotic sac through a small ruptured CS scar with brisk bleeding. The sac was found attached to the scar and was gently removed (Video clip). A sensation of fetal movement could be felt during manipulation and the intact sac was removed with visible active fetal movement. Careful digital exploration of the cavity was made and the ruptured scar was closed in two layers with Vicryl 01 suture. Repeat examination of the pelvic organs revealed an intact-looking uterus and healthy normal tubes and ovaries, however on the anterior aspect of the antverted pregnant uterus at the level of the vasico -uterine fold a small hole could be felt and a bulge was noticed with partial protrusion of the amniotic sac through a small ruptured CS scar with brisk bleeding. Haemostasis was secured and the abdomen closed. The patient was transfused with three units of blood. Her postoperative course was uneventful and was discharged in good condition in her fourth postoperative days.

Discussion

Caesarean scar pregnancy (CSP) is one of the rare forms of ectopic pregnancies where the gestational sac is fully or partially implanted within a previous caesarean section scar. The gestational sac is separated from the endometrial cavity and is completely surrounded by the myometrium and the fibrous tissue of the scar. The incidence of CSP has been estimated to range from 1/1800 –1/2500 of all pregnancies\(^1\). It has been estimated that 6.1% of women with at least a previous Caesarean section and diagnosed as ectopic pregnancy will be CSP \(^3\).

Little is known about the mechanism and aetiology of SCP. The most probable mechanism through which this can occur is invasion of the myometrium through a microscopic tract. The tract is believed to develop from trauma due to previous uterine surgeries like caesarean sections, dilatation and curettage, myomectomy, or other interventions like manual removal of the placenta, and Intra uterine contraceptive device (IUCD) insertions\(^4\). However, there is no clear correlation between the risk of CSP and the number of previous CS as most CSP occur after one previous CS \(^5\). The presence of a CS scar in the uterus may also cause lower implantation of the gestational sac secondary to a more global effect of the prior surgery on the endometrium rather than just the physical presence of a scar\(^6\). The risk of scar implantation might be proportional to the size of the anterior uterine wall defect possibly due to larger surface area induced by the scar. Elective CS for breech presentation in a previous pregnancy appears to be most frequently associated with future risk of CSP \(^7\). This may be related to the possibility of a higher
uterine incision due to a poorly formed lower segment.

Most women have a normal pregnancy following a CSP. The risk of recurrence has been reported to be 3.2% -5% in women with one previous CSP treated by dilatation and curettage with or without uterine artery embolization. Factors associated with increased risk of recurrence include: lower uterine segment thickness less than 5mm, gestational sac bulging into the utero-vesical fold, and caesarean delivery in rural community hospital.

Caesarean scar pregnancy has diverse clinical presentations. It can present with minimal vaginal bleeding, abdominal discomfort, sometimes asymptomatic or may present with severe pain, substantial haemorrhage and collapse. Given the potential for serious life threatening complications, accurate and reliable diagnostic methods are required. Combined trans-abdominal and transvaginal ultrasound scan with Doppler facilities if available, has a high accuracy rate in the diagnosis of CSP. During an ultrasound examination in early pregnancy after a prior caesarean section certain features should be checked for. According to a recent review, the following findings should raise the suspicion level for a Caesarean Scar Pregnancy: 1.Absence of fetal parts in the uterine cavity or cervical canal; 2.development of the gestational sac in the anterior uterine wall at the isthmus (presumed site of the previous lower segment caesarean section scar); 3.a thin myometrial layer between the bladder and gestational sac; 4. Triangular-shaped gestational sac. 5.Gestational sac that is close to the bladder and uterine wall; 6. Evidence of functional trophoblastic circulation on Doppler examination, defined by the presence of an area of increased peri trophoblastic vascularity on colour Doppler examination; or presentation of arterio-venous malformation in the area. Where accurate diagnosis by ultrasound scan is difficult, such as in patients with large fibroids or at a later gestation, MRI provides crucial information.

Based on ultrasound scan findings and pregnancy progression, CSP is classified into two types: Type one or endogenic CSP, is where implantation occurs on the scar and the gestational sac grows towards the cervico-isthmic or uterine cavity, and type two or exogenic CSP, occurs when the gestational sac is deeply embedded in the scar and the surrounding myometrium and grows towards the bladder. However when the gestational sac is seen in the lower part of the uterine cavity, it can be difficult to differentiate between spontaneous abortion in progress, cervico-isthmic pregnancy and caesarean scar pregnancy. Even when the patient presents with symptoms, the diagnosis may be missed; it has been found that about 13% of CSP are missed or misdiagnosed.

Although CSP is the rarest form of ectopic pregnancy, it is very important to consider this possibility in patients with the above-mentioned risk factors. This is because early diagnosis of the condition, can offer treatment options capable of avoiding uterine rupture, haemorrhage and risk of hysterectomy, and hence preservation of the uterus and future fertility.

In the presented case, the diagnosis of CSP has been missed and delayed because the condition was not suspected and the possibility of an ectopic pregnancy had been excluded based simply on the repeated ultrasound findings of intrauterine pregnancy and the absence of the very rare (heterotopic pregnancy!)

There are no universal treatment guidelines for caesarean scar pregnancy. The pathological trophoblastic invasion associated with CSP can lead to severe
pregnancy complications, such as massive haemorrhage, placenta praevia, placenta accreta and uterine rupture, and due to these problems termination of pregnancy is recommended. Hence, in these women issues concerning early detection are of utmost importance and it is the corner-stone to reduce serious complications related to the CSP across all three trimesters.

There are a wide variety of treatments used for CSP, including D&C, systemic Methotrexate, local injection of methotrexate, uterine artery embolization, laparoscopic or hysteroscopic surgical treatments, and others. The relative rarity of CSP makes it hard to know which approach is best and therefore the standard of care on this is still evolving.

Case reports found that many of these treatment procedures were associated with significant morbidity in 44% of cases. According to a recent survey, Dilatation and curettage (D&C) was the most common treatment used for CSP, but it was associated with high rate complications (62%), and often resulted in significant haemorrhage. Systemic administration of methotrexate to the mother was associated with a 62% morbidity rate. This was because secondary treatments were often needed and these had a high complication rate. Uterine artery embolizations (UAE) had a reported complication rate of 46%, so authors recommended against UAE as a single treatment option for CSP. However, UAE is often used in conjunction with or after other therapies to help reduce severe bleeding. A recent study has shown that UAE procedure using methotrexate appeared to be safe and effective treatment for CSP and causes less morbidity than current approaches. Other studies have shown that ultrasound-guided methotrexate injection directly into the gestational sac was associated with the least maternal morbidity.

When combined with an intramuscular injection of methotrexate, the complication rate was less than 10%. One problem was that many care providers did not realize that methotrexate treatment results in a temporary increase in HCG levels, leading them to use unnecessary secondary interventions that led to serious complications.

Operative hysteroscopy had a much better complication rate of 18%. Other treatment options include Laparotomy or laparoscopy with excision of the gestational sac and repair of the uterus.

Nearly all authors believe that there is little choice but to end the pregnancy because the growing pregnancy will quickly become life-threatening to the mother. The condition places parents in the very difficult position of having to make a choice to end a pregnancy. Continuing the pregnancy in hope of being the rare exception that results in a live baby is understandable, but with the substantial risk of uterine rupture, catastrophic haemorrhage, with a high risk of hysterectomy and loss of future fertility.

The lesson to be learned from this case is that: always the golden role of: clinical judgment, high index of suspicion, multidisciplinary approach, and individualization of cases is superior and has better outcome.

Secondly, for early recognition of this rare cases, early pregnancy full descriptive report including all previously mentioned criterias using both trans-abdominal and transvaginal ultrasound and the use of colour Doppler and multi-dimensions machines if available, in all cases of intrauterine gestational sac and prior C section is important. Such evaluation approach very early in pregnancy can make the diagnosis of CSP possible and in this way makes conservative treatment of...
the uterus and hence reproductive function.

Due to the limited reported number of CSP, information concerning both the natural history and treatment are scarce. Decision concerning the possibility to perform a conservative treatment cannot rely on robust and evidence-based data and poses challenging problems to the treating obstetricians because the mode of treatment of CSP is often related to the severity of symptoms, the serum levels of free-Beta-hCG and the surgical experience.

In conclusion, CSP is increasing due to increasing number of caesarean sections. Prompt diagnosis and treatment of the condition requires considerable expertise and high index of clinical suspicions to reduce associated morbidity and mortality. The management of CSP is not well established, but a conservative treatment of the uterus is feasible early in pregnancy. However, a larger series of cases are necessary to validate this hypothesis. Early recognition of the condition, well selected patients and treatment modality, available surgical expertise, multidisciplinary approach, and a strict adherence to the follow-up program, are the cornerstone for better management of this rare condition.

References