Successful management of a heterotopic Caesarean scar pregnancy: potassium chloride injection with preservation of the intrauterine gestation: Case report

L.J. Salomon, H. Fernandez¹, A. Chauveaud, S. Doumerc and R. Frydman

Service de Gynécologie-Obstétrique, Hôpital Antoine Béclère, Assistance Publique-Hôpitaux de Paris (AP-HP), 157 rue de la Porte-de-Trivaux, 92140 Clamart, France

¹To whom correspondence should be addressed. E-mail: herve.fernandez@abc.ap-hop-paris.fr

Caesarean scar pregnancy (CSP), in which the pregnancy is located in the scar of a previous Caesarean section, is a rare situation that carries a high risk of uterine rupture. Improved ultrasound imaging allows early diagnosis of this condition, but there is no standard management. We report the first case of CSP associated with a normal intrauterine pregnancy. Potassium chloride administered under transvaginal ultrasonographic guidance terminated cardiac activity in the CSP. The CSP resolved, and a healthy infant was delivered at 36 weeks. When the diagnosis is early and the patient asymptomatic, surgery can be avoided, the CSP can be terminated selectively and the intrauterine pregnancy thereby preserved.

Key words: Caesarean scar pregnancy/heterotopic pregnancy/selective embryo reduction

Introduction

One of the rarest forms of ectopic pregnancy is that located in the scar of a previous Caesarean section. There are few reports of such cases, and little is known about the best management for them. These pregnancies are challenging to diagnose and carry with them a high risk of bleeding and uterine rupture. Improved ultrasound imaging allows early diagnosis of this condition, but there is no standard management. We report the first case of CSP associated with a normal intrauterine pregnancy. Potassium chloride administered under transvaginal ultrasonographic guidance terminated cardiac activity in the CSP. The CSP resolved, and a healthy infant was delivered at 36 weeks. When the diagnosis is early and the patient asymptomatic, surgery can be avoided, the CSP can be terminated selectively and the intrauterine pregnancy thereby preserved.

Case report

A 36-year-old woman, gravida 4, para 1, with two early miscarriages, one ectopic pregnancy managed by a conservative surgical treatment and an emergency lower segment transverse Caesarean section, sought treatment at our centre after failure to conceive for >2 years.

Routine check-up found no evidence of abnormalities to explain her secondary infertility. She underwent a successful IVF cycle, with three embryos transferred. Her β-hCG values were normal, and she had no signs or symptoms of an ectopic pregnancy. Routine vaginal ultrasonographic (US) examination at six weeks revealed two gestational sacs (Figure 1). One embryo was normally implanted into the uterine cavity, and the other appeared to be located in the anterior isthmic wall. Both had cardiac activity, crown–rump length and yolk sac that were normal for gestational age. The US examination was repeated at 8 weeks and confirmed a heterotopic pregnancy with one ongoing pregnancy in a normally implanted sac and one in a sac located in the previous Caesarean scar (Figure 1). The cervix was normal, and the pelvic examination unremarkable.

Discussion with the patient and her husband and among the department staff resulted in a decision to perform a selective embryo reduction of the CSP. During this procedure, performed under vaginal US guidance, potassium chloride was injected directly into the cardiac area of the embryo (2 ml of 2 mEq potassium chloride), following the usual protocol for selective embryo reduction (Yaron et al., 1998). The next day, US examination confirmed the absence of cardiac activity in the CSP, while the intrauterine pregnancy continued. Careful US examination of the anterior uterine wall throughout the pregnancy revealed a persistent amorphous and heterogeneous mass, 3 × 3 cm in area, at the isthmus on the anterior wall of the uterus; there was no evidence of bleeding. The intrauterine pregnancy remained uneventful.

Premature rupture of the membranes occurred at 36 weeks. A healthy girl weighing 2800 g, was delivered by Caesarean section. Surgical exploration of the scar revealed no sign of uterine rupture, but found an amorphous bulging mass, 3 × 3 cm in area, along the lower segment. This mass was removed for pathological examination, which found placental and...
decidual tissues but no remaining elements consistent with an embryo.

Discussion

In 1948, the reported incidence of heterotopic pregnancy in the general population was 1 per 30,000 deliveries (Devoe and Pratt, 1948), but evidence suggests that assisted reproductive technologies increase this risk, which is estimated at 1% of such conceptions (Molloy et al., 1990).

From a strictly theoretical point of view, a CSP might be considered either intrauterine or ectopic, but in practice it appears to be very rare (Neiger et al., 1998). Little information is available about its exact incidence or pathogenesis. Diagnosis is usually made by US examination, but laparoscopy (Roberts et al., 1998), hysteroscopy (Lee et al., 1999) or even magnetic resonance imaging (Godin et al., 1997) can also be helpful. CSP carries with it a high risk of bleeding and rupture (Godin et al., 1997; Lee et al., 1999), which may necessitate hysterectomy (Marcus et al., 1999; Huang et al., 1998).

To our knowledge, this is the first reported case of twin gestation with one intrauterine pregnancy and one CSP. It was a particularly challenging case for us because we had to try to conserve our patient’s fertility and at the same time maintain the intrauterine pregnancy. Various management options for CSP have been described in the literature. Herman et al. experimented with expectant management to try to carry the CSP to term, but an emergency Caesarean delivery was finally necessary (Herman et al., 1995). Planned and emergency surgery for acute symptoms have been reported (Lee et al., 1999; Valley et al., 1998) but uncontrolled bleeding may require hysterectomy (Marcus et al., 1999; Huang et al., 1998). Successful medical treatment has generally used local and/or systemic methotrexate, because of its reported efficacy in tubal pregnancies (Stovall et al., 1991; Fernandez et al., 1993). It can be combined with a feticidal agent (Roberts et al., 1998) such as potassium chloride, as described for other heterotopic pregnancies (Monteagudo et al., 1996; Fernandez et al., 1993; Benilha et al., 1996).

In this case, the mother reported no symptoms, such as abdominal pain or bleeding, that might have required a surgical approach. Furthermore, such treatment would necessarily have exposed the intrauterine pregnancy to serious risks. Because the diagnosis was confirmed at an early gestational age and the patient was asymptomatic, conservative management was possible. We considered methotrexate to halt trophoblast proliferation and to reduce to the minimum the risk of bleeding and uterine rupture, but these effects were outweighed by its potential teratogenicity (Jordan et al., 1977; Timor-Tritsch, 1998). We therefore decided to inject potassium chloride selectively into the CSP. This action successfully terminated the CSP and prevented further development. The intrauterine pregnancy was not affected and remained uneventful. Moreover, to our knowledge, the minimum thickness of the remaining scar tissue to warrant a safety successful intrauterine pregnancy is unknown and cannot be used to improve the indication of the medical management in these rare cases.

In conclusion, potassium chloride can be injected under US guidance to terminate CSP. It should be the first-line treatment when an asymptomatic patient presents a CSP associated with a normal intrauterine pregnancy.

References


Submitted on June 26, 2002; accepted on September 9, 2002