Uterine Rupture at 26 Weeks of Pregnancy Following Laparoscopic Salpingectomy with Resection of the Interstitial Portion: A Case Report

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Uterine rupture in pregnancy can occur in patients with a history of uterine surgery such as myomectomy and Cesarean section. Here, we report a case of spontaneous uterine rupture that occurred in the early third trimester in a pregnant woman who had previously undergone laparoscopic removal of the right fallopian tube and interstitial portion for treatment of interstitial pregnancy. The patient presented with sudden onset of abdominal pain at 26 weeks of gestation. Detailed ultrasonography and magnetic resonance imaging led to diagnosis of uterine rupture. In emergency laparotomy, the fetus was delivered by Cesarean section, the placenta and membranes were removed, and the uterus was preserved with closure of the rupture and wound. This case highlights the importance of close follow-up of a pregnant patient who has previously had a uterine incision. The case also raises the question of whether the prevalence of uterine rupture may increase as more patients are treated with laparoscopic surgery of the uterus.

Key words: interstitial pregnancy, laparoscopic salpingectomy with cornual resection, uterine rupture

INTRODUCTION

The standard surgical therapy for interstitial pregnancy has been laparotomy with resection of the cornual portion of the uterus or hysterectomy [1]. Due to recent advances in laparoscopic surgery, laparoscopic salpingectomy with corneal resection is now an option [2]. Uterine rupture after salpingectomy with cornual resection is a rare but serious complication in pregnancy that can induce massive hemorrhage and frequently requires hysterectomy [3−5]. Here, we report a case of uterine rupture that occurred at 26 weeks' gestation in a patient with a history of interstitial pregnancy treated with laparoscopic salpingectomy with cornual resection.

CASE REPORT

A 45-year-old, gravida 2, para 0 woman had an ectopic (interstitial) second pregnancy that was treated by laparoscopic salpingectomy with resection of the interstitial portion. Four years later, in her third pregnancy, an ultrasound scan showed an intrauterine singleton pregnancy. At 26 weeks, the patient complained of constant abdominal pain and visited a community hospital where a tentative diagnosis of uterine rupture was made based on ultrasonography and magnetic resonance imaging (MRI) findings. She was transferred and admitted to our hospital for surgical treatment.

At admission, her vital signs were stable. Blood pressure was 110/70 mmHg, the abdomen was flexible, and the fetal heart rate was 140 bpm. Laboratory data revealed severe anemia with a hemoglobin concentration of 5.6 g/dL, suggestive of intraperitoneal hemorrhage. Detailed ultrasonography showed the intrauterine amniotic sac protruding into the abdominal cavity, indicative of uterine rupture. MRI provided similar findings and clearly identified the site of uterine rupture as the right interstitial region (Fig. 1). The sac protruded into the peritoneal cavity while the fetus was in the uterus with a cephalic presentation. The placenta was located in the anterior portion of the uterine wall and was not related to the area of rupture. Emergency laparotomy confirmed the imaging findings (Fig. 2). Massive intraperitoneal hemorrhage (estimated blood loss of 1345 ml) was found. A boy with a birth weight of 774 g was delivered by Cesarean section with Apgar scores of 4 and 7 at 1 and 5 minutes, respectively. The rupture was closed in two layers with absorbable sutures. The postoperative course of the mother was uneventful and she was discharged on day 7.

DISCUSSION

Uterine rupture is a serious complication of pregnancy that may be fatal for the mother and fetus [1−3]. An increased risk of uterine rupture is associated with uterine scars such as those caused by Cesarean section or myomectomy [6]. Conservative surgery for interstitial pregnancy involves resection of the cornual portion of the uterus [7], thus leaving the patient at risk for uterine rupture in subsequent pregnancies. In a report of 5 cases of uterine rupture during pregnancy after salpingectomy with cornual resection, Arbab *et al.* suggested that this procedure could at-

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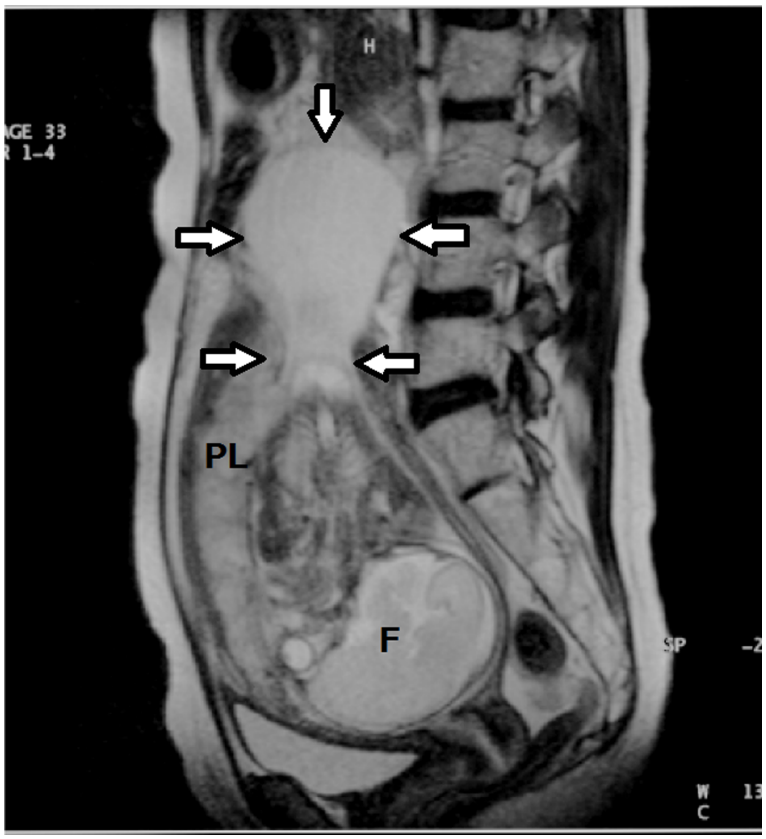

Fig. 1 MRI showed a bulky protrusion of the amniotic sac into the abdominal cavity (arrows). F, fetal head. PL, placenta.

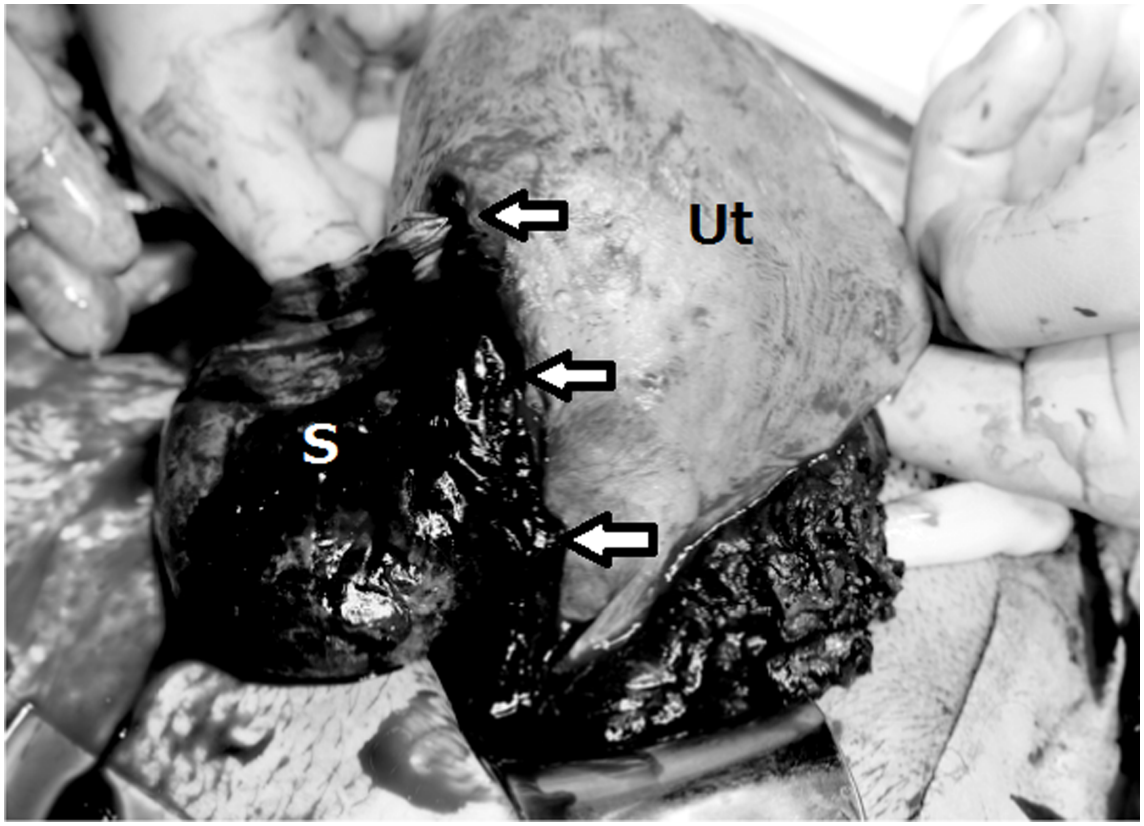

Fig. 2 Laparotomy revealed amniotic sac protrusion from the right uterine horn scar (arrows). S, protruded sac. Ut, uterus.

tenuate the uterine musculature in the cornual region and that this could lead to rupture of the uterus in a subsequent pregnancy [4].

Laparoscopic uterine surgeries such as laparoscopy-assisted myomectomy may also be associated with uterine rupture in subsequent pregnancies [8]. Ayoubi

et al. described a case of uterine rupture at 20 weeks of gestation in a woman who had previously undergone laparoscopic salpingectomy with cornual resection [3]. The patient in the present case had undergone a similar operation and uterine rupture occurred at 26 weeks in the subsequent pregnancy. Several authors have questioned the quality of the uterine scar after a laparoscopic myomectomy; thus, a scar after laparoscopic uterine suture could be inferior to that after normal manual suture [8].During laparotomy, hemostasis is generally achieved by closing the uterine defect in a layered fashion. On the other hand, at laparoscopy, bleeding from the edges of the uterine incision is mostly controlled with bipolar coagulation forceps and the uterine defect is usually closed in only one or two layers. The technical difficulty of laparoscopic suturing and the smaller number of sutures used to close the uterine defect could allow a hematoma to form within the uterine wall, leading to a weakened incision line. Further, extensive use of electrocautery could cause more damaged tissue to be incorporated into the uterine closure site than occurs at laparotomy. Therefore, an uterine scar after laparoscopic myomectomy might not be as strong as that after a traditional myomectomy, not only due to how the defect is closed but also due to how it is created. [8, 9] However, there is a lack of evidence for this conclusion and more studies are needed to examine this hypothesis. Nevertheless, for appropriate hemostasis to be done, the laparoscopist should always aim for advanced laparoscopic suture skills with prudent use of electrocautery.

A history of interstitial pregnancy treated with surgical conservative therapy appears to be associated with uterine rupture in a subsequent pregnancy, but the extent of the risk is unclear. Pregnant patients with such a history should be closely monitored and informed of possible signs or symptoms of uterine rupture, so that an earlier diagnosis of uterine rupture can be made. With accumulation of more cases, a more appropriate management approach should emerge.

We have succeeded in preserving the uterus in this case. No reliable evidence exists on how such patients should be managed in a subsequent pregnancy. However, most obstetricians would agree that they carry an increased risk for re-rupture of the uterus in a next pregnancy. Therefore, prenatal visits at a high-risk care unit from an early stage of pregnancy may be a practical option for the management of such patients in their subsequent pregnancies.

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