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Instruments and Techniques

Laparoscopic Ultrasound-Guided Repair of Uterine Scar Isthmocele Connected With the Extra-Amniotic Space in Early Pregnancy

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ABSTRACT We present a video of an ultrasound-guided laparoscopic surgical management of a large uterine scar isthmocele connected with the extra-amniotic space in early pregnancy. A case of a pregnant patient who was diagnosed with a large isthmocele connected with the extra-amniotic space on routine ultrasound at 8 weeks of gestational age is presented. The uterine defect was successfully sutured laparoscopically under ultrasound guidance. The pregnancy continued uneventfully, and a healthy baby was delivered via cesarean section at 38 weeks gestational age. Journal of Minimally Invasive Gynecology (2015) ■, ■–■ Published by Elsevier Inc. on behalf of AAGL.

Keywords: Isthmocele; Laparoscopic repair; Uterine scar dehiscence

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The rate of caesarean section (CS) has increased markedly in the last decade, exposing women to a greater risk of complications in future pregnancies, such as placenta accreta, uterine rupture, and ectopic caesarean scar pregnancy. An important role in this pathological process seems to be played by an inappropriately healed caesarean scar [1–3]. After a CS, the presence of a uterine caesarean scar defect (USD) is frequent, with incidence ranging from 24% to 70% [3–5]. This defect, also called isthmocele, is diagnosed on transvaginal ultrasound (TVUS) and is characterized by a myometrium gap in the site of the caesarean scar [3–5].

Isthmocele-associated symptoms are abnormal uterine bleeding, including postmenstrual spotting and prolonged menstruation and infertility [6]. In these cases, the recommended treatment is the surgical repair of the caesarean scar. Various techniques for isthmocele repair with excellent outcomes have been described [7–10].

The management of USD in pregnancy remains a matter of debate, however. In particular, there is a lack of studies evaluating the risks and benefits of a surgical repair compared with conservative treatment in subsequent pregnancies. We present a surgical technique for laparoscopic ultrasound-guided repair of a large uterine scar isthmocele connected with the extra-amniotic space in the first trimester of pregnancy.

Case Report

A 29-year-old woman, gravida 3 para 1, was referred to our hospital at 8 weeks of gestation for management of an incidental finding on TVUS of a wide USD connected with the extra-amniotic space. She had undergone CS 2 years earlier owing to breech presentation and an early miscarriage. At admission, ultrasound confirmed a very thin uterine scar with a wide interruption of the myometrium and a 25 × 25-mm herniating isthmocele connected to the extra-amniotic space of the early pregnancy (Fig. 1).

Given the entity of the defect and the early gestational age of the patient, decision was taken to attempt a surgical repair of the uterine defect to reduce the risk of perinatal complications. Laparoscopic ultrasound-guided repair of USD was performed under general anesthesia at 13 weeks gestation.

Disclosures: None declared.

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Fig. 1

Transvaginal ultrasound (Voluson 730; GE Ultrasound, Glattbrugg, Switzerland) of a uterine scar dehiscence at 13 0/7 weeks gestation connected with the extra-amniotic space. A, cervix; B, scar dehiscence with herniation of the isthmocele; C, bladder; D, gestational sac.

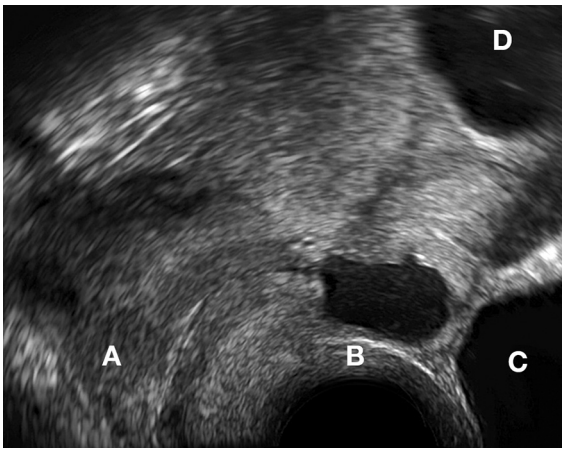
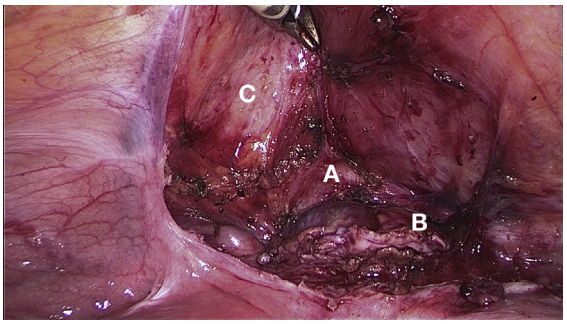


Fig. 2

The bladder was separated from the anterior wall of the uterus until a dehiscence of 25 × 25 mm with herniation of the amniotic sac was identified. A, cervix; B, scar dehiscence with herniation of the isthmocele; C, bladder.



Antibiotic prophylaxis with Augmentin (amoxicillin and clavulanic acid) was given. A uterine manipulator was not used. Pneumoperitoneum (CO_2) using the Veres technique, with an intraabdominal pressure of 10 mmHg, was performed to reduce the risk of possible hemodynamic or respiratory adverse effects. A 10-mm optical trocar was placed in the umbilicus, and a 30° scope was used. Three 5-mm ancillary trocars were placed in each lower abdominal quadrant laterally and suprapubically in the midline.

The intra-abdominal procedure started with opening of the bladder peritoneum with a bipolar hook. The bladder was carefully separated from the anterior wall of the uterus to leave sufficient myometrial tissue around the protruding isthmocele in which to place the sutures (Fig. 2). To minimize the risk of rupturing the membranes of the amniotic sac, the procedure was performed under continuous TVUS. The edges of the myometrial defect were reapproximated with 3 interrupted sutures. To avoid confusion, the threads were kept in tension extracorporeally. A synthetic polyfilament 2-0 (PremiCron; B. Braun Surgical S.A., Barcelona, Spain) was used (Fig. 3). The isthmocele was gently pushed under the cervico-isthmic segment, and the sutures were tied. The procedure ended with the peritonealization of the bladder peritoneum using a continuous absorbable suture (V LOC). The patient was discharged on postoperative day 2 in good clinical conditions. The pregnancy continued uneventfully, and no signs of USD were identified on routine sonographic controls (Fig. 4). A healthy newborn was delivered by an uncomplicated elective caesarean delivery at 38 weeks gestation.

Discussion

Herniating isthmocele due to USD is a newly recognized entity, which will be diagnosed more often in the future owing to the increasing rate of CSs. Several studies have observed that patients with a previous CS are at increased risk for uterine rupture or dehiscence in subsequent pregnancies [11,12]. Notwithstanding, controversy remains about the obstetric importance of an isthmocele when detected early in pregnancy. Only a few studies have evaluated the relationship between the presence of USD and the risk of uterine rupture in subsequent pregnancies. Vikhareva Osser et al [13] found that patients with a larger USD were at increased risk for uterine dehiscence and rupture in subsequent pregnancies compared with patients with smaller defects, suggesting a direct relationship between USD size and risk of pregnancy complications. Similar results have been reported by Warnick et al [14]. Unfortunately, owing to the small number of studies, the retrospective study design, and small sample size, predicting which type of USDs are more likely to lead to obstetrical complications and which are not is not possible. Some previous studies have demonstrated that near-term sonographic measurement of the lower uterine segment thickness is predictive of uterine rupture [11–17]. Moreover, Bujold et al [18] reported that patients between 35 and 38 weeks gestation with a

Fig. 3

Three sutures were placed using a synthetic polyfilament.