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CASE REPORT

Asymptomatic uterine rupture in a term pregnancy following a uterine perforation in a hysteroscopic procedure: a case report

Short title: Asymptomatic uterine rupture at term

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ABSTRACT

Background. Uterine perforation in gynecologic procedures may go unnoticed. Even when such a perforation is diagnosed; there are no standardized recommendations for the management, interval to the pregnancy, specific surveillance during pregnancy, and mode of subsequent delivery. We are reporting this case to raise awareness that previous uterine instrumentation is a red flag for possible uterine rupture in pregnancy.

Case presentation. This is a case report of a young lady who had an asymptomatic uterine rupture during pregnancy following a previous uterine perforation in a diagnostic hysteroscopy. Ultrasound for fetal surveillance did not report on uterine myometrial defect. Maternal and fetal outcomes were good.

Conclusions. The outcome of uterine rupture is likely to depend on the mechanism of the perforation, the size, the location of the perforation, the management of the perforation at diagnosis, and the interval between the perforation and the pregnancy.

Key words

Hysteroscopy; hysteroscopy complications; pregnancy; uterine rupture; uterine perforation.

Introduction

Uterine rupture during pregnancy is a life-threatening situation as it may result in maternal or fetal mortality or severe morbidity [1,2]. Mostly it occurs in a previously surgically scarred uterus by a previous cesarean section, myomectomy, or adenomyomectomy [2,3]. Uterine rupture following a uterine perforation in an otherwise unscarred uterus is a rarely reported event [3]. We are hoping that this case report adds to the pool of the available literature and increases awareness about the importance of history taking regarding complications related to any uterine instrumentation. We are also hoping that the accompanying pictures help the readers better understand the event of the uterine rupture.

Case Presentation

A 30-year-old G2P0A1 healthy lady undergoing antenatal care in her second pregnancy. Previously she had a diagnostic hysteroscopy and laparoscopy outside the country for delayed pregnancy. Then she had a spontaneous conception of her first pregnancy, ending in a complete miscarriage in the first trimester with no intervention required. The second pregnancy was a spontaneous conception singleton fetus complicated by an intrauterine growth restriction and breech presentation for which she was admitted electively at 37 weeks for cesarean section. The last obstetric ultrasound was a week prior to the cesarean section date and showed a baby boy, breech presentation, and a fundal placenta with a normal biophysical profile. The cesarean section was performed under general anesthesia as, through a Pfannenstiel incision and a transverse lower segment uterine incision. The findings were a clear amniotic fluid, a male baby, in breech presentation, with a birth weight of 2.3 Kg. After the delivery of the fetus, there was difficulty delivering the placenta by controlled cord traction. Then

the uterus was palpated through the abdominal incision and a bulge was felt in the uterine fundus. The uterus was then exteriorized as in Figure 1. The majority of the placental plate was protruding through a fundal defect of about 6 cm diameter to the left side of the fundus but not involving the uterine cornua. The defect and the bulging placenta were not covered by adhesions, omental or otherwise. The placenta was mildly adherent to myometrium at the edges of the defect. It was separated smoothly and completely through the defect as in figure 2. Then the fundal myometrial defect was closed in 3 layers. Following that, Pfannenstiel's incision of the cesarean was closed in 2 layers. The blood loss was about 700 ml and the patient tolerated the procedure well. Following the procedure, the findings were described to the patient and her family. They disclosed that she was previously informed about the uterine perforation during the hysteroscopy but there were no specific instructions if any precautions are required for future pregnancies and delivery. In this patient, the time interval between the uterine perforation in hysteroscopy and her cesarean delivery was 15 months. She and her newborn were discharged home post-operative day 2 and were in good health. She was provided with the information and the documentation and her family were also alerted to her future risk of uterine rupture and that she requires elective cesarean section in all her future pregnancies.

Discussion

The incidence of uterine rupture is increasing over the last few decades. [4] Uterine rupture occurs mostly in labor and in women with a scarred uterus. [4,5] Pre-labor uterine rupture is even rarer and usually identified during cesarean section with either elective or emergency cesarean section with an incidence of (3.7/10 000) for partial rupture [5]. In a scarred uterus, uterine rupture following a hysteroscopic, laparoscopic, dilatation and curettage or cervical dilatation is even rarer and being published only as case reports. These cases were summarized by Heemskerk et al in 2019 resulting in 14 cases [3]. Of those cases, 8 were with dilatation and curettage, 6 with laparoscopy, and 2 with hysteroscopy.

In our case, the mechanism of the perforation and the site were not clear from history and there were no operative reports available with the patient. The reported incidence of uterine perforation in hysteroscopy varies between 0.12-1.4% [6]. The damage to the uterine wall commonly occurs during cervical dilatation [6]. The site of the perforation is commonly the uterine fundus, the cervix and the anterior uterine wall [7,8]. The risk factors for uterine perforation include nulliparity, postmenopausal status, post-partum hemorrhage and uterine adhesions [7,8]. Also the involved instrument is variable depending on the performed procedure. In the uterine curettage procedure, the most frequently involved instrument was a sharp curette [9]. Although the verdict on the uterine position as a risk factor is controversial; we do believe that the acute angle of the uterine body in relation to the cervix is an important risk factor in both acute retroversion or acute anteversion which also being describes as hyperanteversion [10]. There are many uterine perforations go unrecognized [10]. However, a concomitant planned laparoscopy in the same setting is common especially for patients with infertility to rule out any pelvic pathology and for associated tubal patency testing [9]. If a laparoscopy was planned in the same setting, it may incidentally detect an unsuspected uterine perforation. There is no clear guidance of what is the most appropriate management plan for a gynecologic uterine perforation [3]. Factors that are likely to influence the risk of rupture is the mechanism of the perforation, site, size, the management performed at the time when the perforation occurred, and the interval to pregnancy [6,8,11]. In our patient, the uterine defect seen during the cesarean was fundal and relatively large. We are assuming that there was no energy involved in the

mechanism of the perforation as it was a diagnostic hysteroscopy. No information was available if energy was used to cauterize any bleeding at the site of the perforation laparoscopically. Ben-Baruch described the role of laparoscopy in confirming the diagnosis, assessing the uterine and other organ damage, and prioritizing patients for the need of laparotomy [9]. Scenarios where a uterine perforation is diagnosed and there is mild or no bleeding from the perforation site and no damage to the surrounding structures, surgeons might be hesitant to proceed to laparotomy to suture the site of perforation if laparoscopic suturing skills is not available. Many times surgeons use electrosurgery in variable degrees for hemostasis on the uterine wall at the site of the perforation [3,10]. This is hypothesized that it might result in poor vascularization and poor healing at the site of the perforation resulting in a possible increased risk of future uterine rupture [11]. However, although suturing is the likely better approach for hemostasis and improved uterine healing, there are case reports of uterine rupture in cases where the uterine perforation is sutured [11]. This is likely due to the other factors described earlier involved in determining the risk of future uterine rupture. There were reported cases of asymptomatic uterine rupture that was discovered at term during an elective cesarean section[12]. Like in that case, we do believe that such a large uterine defect could have been detected on ultrasound if who performed the test was cognizant and suspicious of such a risk in a patient with previous uterine scar [12].

Conclusion

Although asymptomatic uterine rupture in the third trimester following a uterine perforation is extremely rare, appropriate documentation, transfer of information, and vigilance in follow-up, especially during ultrasound assessment of pregnancy might enhance detection and earlier appropriate intervention.

Authors contribution

M. A: Data curation, conceptualization, writing, literature review, editing, validation.

V.G: Review and editing.

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Study registration

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Disclosure of interests

The authors declare that they have no conflict of interests, financial, personal, political, intellectual or otherwise.

Ethical approval

Case reports are exempted from the requirement of Ethical approval by the Institutional Research and Ethics committee.

Informed consent

Written informed consent was obtained from the patient for anonymized publication of this case report and accompanying images.

Data sharing

Data are available upon a reasonable request to the corresponding author.

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Figure 1. It shows the placenta protruding through the uterine defect (white arrow) after exteriorization of the uterus.



Figure 2. It is highlighting the large size of the fundal defect (white arrow) after the placenta being separated.

