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Case Report

A Case of Spontaneous Uterine Fundus Rupture in Term Pregnancy: As A Risk Factor of Septum Resection Operation

Term Gebelikte Spontan Uterus Fundus Rüptürü Olgusu: Bir Risk Faktörü Olarak Septum Rezeksiyonu Operasyonu

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Abstract

Uterine septum is the most common Mullerian anomaly. Hysteroscopic surgeries offer increased fertility rates caused by Mullerian anomalies. Uterine rupture after hysteroscopic septum resection is a rare complication with a reported incidence of approximately 1-2,7%. Uterine rupture in pregnancy is a life-threatening complication. The primary risk factors for uterine rupture after a previous cesarean birth are previous uterine rupture. Also hysteroscopic surgeries such as septum resection are known risk factors for uterine rupture in pregnancy following the operation. In this report, a patient with a history of hysteroscopic septum resection due to uterine septum presented to our hospital at 37 weeks of gestation due to spontaneous premature rupture of membranes. After the procedure, the patient, who had her first pregnancy, but she had a history of previous cesarean section, was taken to emergency cesarean section. On observation, uterine rupture at the fundus level, which can be considered as a late complication of septum resection, was detected. In this case, we aimed to emphasize uterine rupture, which is an important complication that may occur in pregnancies after a history of septum resection. In rarely, uterine rupture may occur in pregnancies after hysteroscopic resection of the uterine septum. But there is no consensus on the management of pregnancies after hysteroscopic operations. Until more reliable methods are available, patients should be informed about the possible symptoms of uterine rupture and the physician should be aware of fetal and maternal well-being.

Keywords: uterin rupture; hysteroscopy; septum resection

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Öz

Uterin septum en sık görülen Müllerian anomalidir. Histeroskopik ameliyatlar Müllerian anomalilerin neden olduğu fertilite oranlarında artış sağlar. Histeroskopik septum rezeksiyonu sonrası uterus rüptürü nadir görülen bir komplikasyondur ve insidansı yaklaşık %1-2,7 olarak bildirilmiştir. Gebelikte uterus rüptürü hayatı tehdit eden bir komplikasyondur. Geçirilmiş sezaryen doğum sonrası uterus rüptürü için primer risk faktörü ise geçirilmiş uterin rüptürdür. Ayrıca septum rezeksiyonu gibi histeroskopik cerrahiler de operasyon sonrası gebelikte uterus rüptürü için bilinen risk faktörleridir. Bu olgu raporunda, uterin septum nedeniyle histeroskopik septum rezeksiyonu öyküsü olan bir hasta 37. gebelik haftasında spontan erken membran rüptürü nedeniyle hastanemize başvurdu. İşlem sonrası ilk gebeliği olan ancak daha önce sezaryen öyküsü bulunan hasta acil sezaryene alındı. Gözlemde septum rezeksiyonunun geç bir komplikasyonu olarak değerlendirilebilecek fundus seviyesinde uterus rüptürü tespit edildi. Bu olguda, septum rezeksiyonu öyküsü olan gebeliklerde ortaya çıkabilecek önemli bir komplikasyon olan uterus rüptürünü vurgulamayı amaçladık. Uterin septumun histeroskopik rezeksiyonu sonrası gebeliklerde uterin rüptür nadir de olsa görülebilir. Ancak histeroskopik operasyonlardan sonra gebeliklerin yönetimi konusunda bir fikir birliği yoktur. Daha güvenilir yöntemler bulunana kadar, hastalar uterus rüptürünün olası semptomları hakkında bilgilendirilmelidir ve uzman fetal ve maternal iyilik halini gözeterek karar vermelidir.

Anahtar Kelimeler: uterin rüptür; histeroskopi; septum rezeksiyonu

1. Introduction

The uterine septum represents the most common Mullerian anomaly and is associated with recurrent pregnancy loss and infertility (1). Spontaneous abortion is the most common complication with uterine septum and 60% of these cases are associated with pregnancy-related complications (2). Although outcomes during pregnancy vary due to the morphology of the septum, hysteroscopic resection of the intrauterine septum has been reported to reduce the miscarriage rate. Hysteroscopic surgery offers higher fertility rates while avoiding the risks of open surgery. Rupture of the uterus after septal resection is a rare complication with a reported incidence of about 1-2,7%. Damage to the myometrium is thought to be a predisposing factor for uterine rupture. Uterine rupture in a subsequent pregnancy may be considered a late complication due to myometrial damage (3). Uterine rupture is a life-threatening pregnancy complication for the mother and the fetus. The primary risk factors for uterine rupture are previous uterin rupture, previous fundal or high vertical hysterotomy, patients with a previous low vertical hysterotomy and induction of labour. After a previous classical hysterotomy with cesarean section, the reported risk of rupture varies widely in the literature, from 1 to 12 percent (4).

The incidence of rupture is higher in patients with a previous cesarean delivery who undergo induction of labour spontaneously (NIH statement 2010) 1.5 versus 0.8 percent (5).

Factors that are inconsistently associated with an increased risk of rupture include older maternal age, gestational age >40 weeks, birth weight >4000 grams, delivery interval less than approximately 18 months (especially<6 months), single-layer closure, especially if locked and more than one previous cesarean delivery (6). Hysteroscopic procedures such as septal resection are also known risk factors for rupture of membranes in pregnancy following surgery.

In this case report, we wanted to emphasize uterine rupture, which is an important late complication that can occur in pregnancies following hysteroscopic septal resections.

2. Case Report

A 31-year-old female patient applied to us in June,2024 with a complaint of rupture of membranes. She was 37 weeks pregnant, had normal pregnancy tests, no known comorbidities.

Ultrasound measurements were consistent with 36 weeks of gestation with a weight of 2765 grams and a positive fetal heartbeat with oligohydroamnion. In 2015, she had a cesarean section at 32 weeks. In 2021, the patient turned to an external center for secondary infertility.

Diagnostic laparoscopy and hysteroscopy were scheduled in the same session to make a differential diagnosis of bicornuate uterus and deep septum in the hysterosalpingography made during the examinations performed. We do not know if there are any complications during hysteroscopy. Preoperative hysterosalpingography image is available (Figure 1). 2 years after this operation, the patient became spontaneously pregnant.

The patient came to the emergency department with a complaint of amnion retention. An emergency cesarean section was planned because cervical dilatation progressed two centimeter in an hour on digital examination.

Under spinal anesthesia, the abdomen was opened through a Pfannenstiel incision. The uterus was introduced through

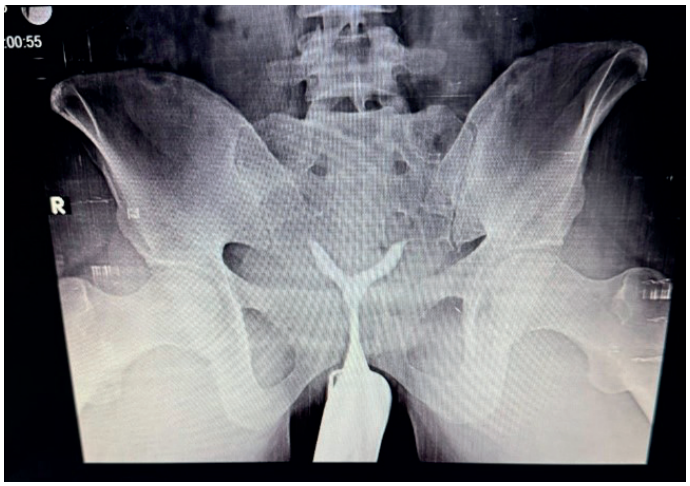

Figure 1. Preoperative hysterosalfingography image

a transverse incision in the lower segment and a single fetus weighing 2805 grams was born.

When the uterus was taken out of the abdomen, complete ruptured area of about three centimeters in length was noted, originating from the fundus (Figure 2). There was no free fluid in the abdomen. The incision was quickly closed with a single layer locked and the fundal perforated area was closed with a double layer without skipping (Figure 3).

However, after this procedure, the uterus was atonic, so rapid medical treatment was performed. 40 units of oxytocin, 1 ampoule of methylergonovine, 1 gram of transamine were administered. But there is no response to medical treatment. Therefore, further treatments were planned.

Compression sutures were not attempted as the fundus was extremely fragile. Therefore, an intrauterine tamponade was applied. No problems occurred postoperatively. The patient was discharged on the third postoperative day.

3. Discussion

Rupture of uterus during pregnancy poses significant risks to both the fetus and mother, with high mortality and morbidity rates. Hysteroscopic procedures such as septal resection are also known risk factors for uterine rupture in subsequent pregnancy. The 2010 statement from the National Institutes of Health (NIH) Consensus Development Conference reported no maternal deaths due to uterine rupture (7) but a 10-year review of severe maternal outcomes in Canada reported four maternal deaths among 1879 cases of uterine rupture in patients with no major preexisting medical conditions (8). While awareness of the prevention of uterine rupture following cesarean section has increased, not enough attention has been paid to cases caused by pregnancy following hysteroscopy. Complications

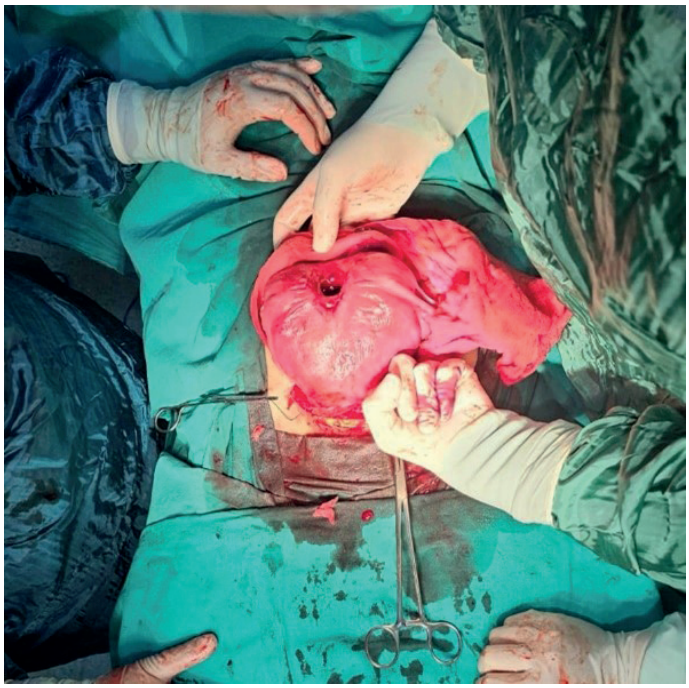

Figure 2. Image of the rupture area before repair

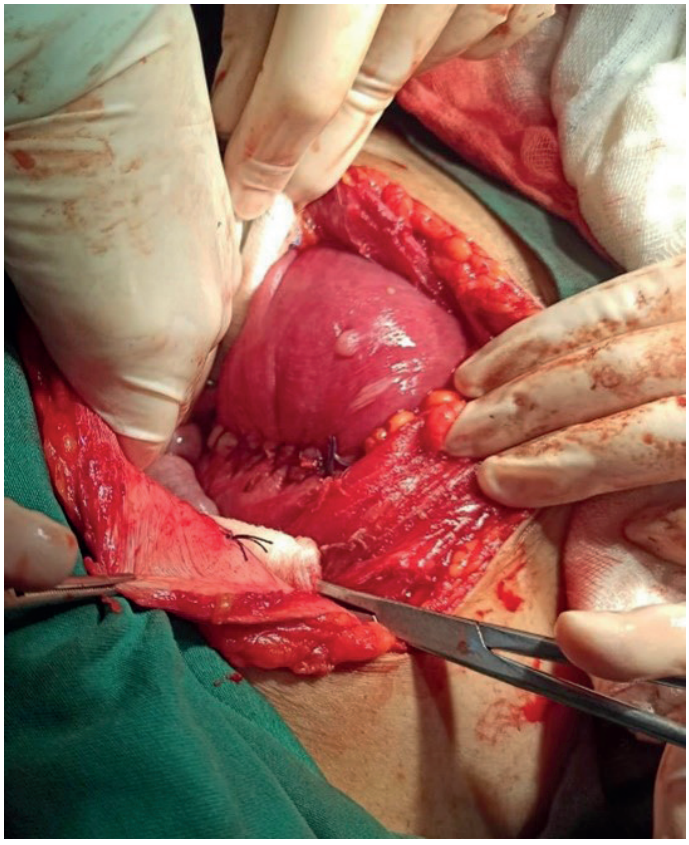

Figure 3. Image of the ruptured area after repair

can include uterine perforation during surgery, hemorrhages, development of intrauterine adhesions after surgery and uterine rupture in subsequent pregnancies. Although rare, uterine rupture can be fatal if not recognized in time.

Jansa et al. performed retrospective data analysis over 20 years and found 4 cases of rupture after hysteroscopy. In this article, which is similar to our case (case 4), there was a period of 2 years between hysteroscopy and pregnancy and there were no known complications during hysteroscopic surgery. When the patient was brought for elective cesarean section due to fetal macrosomia at 40 weeks' gestation, an approximately 4-cm-long perforation area was noted originating from the fundus, but no intra-abdominal hemorrhage was observed, similar to our case. The tear was reconstructed with sutures in a single layer. In contrast, in case 2, vaginal delivery was unsuccessful despite the administration of oxytocin and a cesarean section was performed at 38 weeks' gestation. The perforated area extending from the fundus to the left parametrium was observed intraoperatively. Although a uterine ligation was performed due to the heavy bleeding, followed by ligation of the hypogastric artery, the patient could not be stabilized and a hysterectomy was performed. The remarkable thing was that the patient became pregnant one month after the operation (9). The time between surgery and pregnancy therefore also influences pregnancy complications.

After the treatment of Asherman's syndrome, Deaton et al. reported a case of uterine rupture that was not due to uterine contractions but to dilation of the uterus during pregnancy. The patient underwent two hysteroscopic adhesiolysis procedures. After becoming pregnant, she had to be admitted to hospital at 25 weeks of pregnancy due to vaginal bleeding without contractions. She was hospitalized for 40 days with no signs of labor, but then an acute uterine rupture occurred, necessitating an emergency cesarean hysterectomy. The fundus was described as "paper thin from cornu to cornu" (10).

In our case, the myometrial tissue in fundal area was thinned and too friable to allow compression sutures as it was paper thin from cornu to cornu. Although the bleeding in our patient was not heavy, the lack of contraction of the uterus, especially in the fundus area, can be explained in this way.

4. Conclusion

A review of the literature indicates that cases of uterine rupture following hysteroscopic septum resection are solely documented in case reports.

The frequency and intensity of uterine contractions during pregnancy after septal resection is an important factor. In our case, premature rupture of membranes occurred. In addition, uterine contractions were present and cervical dilatation progressed rapidly on vaginal examination. All this shows that our patient was at high risk of uterine rupture.

Until more reliable methods are available, it is important to inform patients about the possible symptoms of uterine rupture, and physicians should keep the well-being of the fetus and mother in mind.

Author contribution

Study conception and design: AGY; draft manuscript preparation: AGY and KD; revision and supervision: AGY and KD. All authors reviewed the results and approved the final version of the manuscript.

Ethical approval

Written and verbal consent was obtained for this case report.

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Conflict of interest

The authors declare that there is no conflict of interest.

Yazar katkısı

Araştırma fikri ve tasarımı: AGY; araştırma metnini hazırlama: AGY ve KD; gözden geçirme ve denetim: AGY ve KD. Tüm yazarlar araştırma sonuçlarını gözden geçirdi ve araştırmanın son halini onayladı.

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