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CASE REPORT

Spontaneous Uterine Rupture in Non-Gravid Uterus 10 Years after Caesarean Section

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Abstract

Spontaneous uterine rupture is life-threatening rare occurrence, whose diagnosis and approach requires a high index of suspicion and present as clinical challenges.

We present a rare case of spontaneous uterine rupture in a non-gravid uterus with a history of caesarean section.

A 36-year-old woman, with a history of caesarean section 10 years prior to the presenting episode, presents with major abnormal uterine bleeding. The patient denied any trauma history. Gynecological examination confirmed heavy uterine haemorrhage and transvaginal ultrasound revealed active hemorrhage originating from a vessel in uterine isthmus region, as well as the presence of fluid in the anterior cul-de-sac, suggesting moderate hemoperitoneum due to hysterorrhaphy uterine rupture.

Due to persistent hemorrhage and hemodynamic instability, she underwent urgent exploratory laparotomy, which confirmed a moderate-volume hemoperitoneum, uterine rupture due to total dehiscence of the hysterorrhaphy and active bleeding. After hysterectomy, the patient recovered fully.

Rupture of the uterus most often occurs during pregnancy and there are only a few cases described in the literature of spontaneous rupture of the uterus in a non-gravid woman. The etiology is still unclear, but there are several factors that can contribute to focal myometrial weakness predisposing it to spontaneous rupture. Diagnosis is based on clinical or radiologic identification of complete disruption of all uterine layers. Despite a thorough investigation, the etiology of the presented case remains uncertain, but a weakness of the uterine layers due to an anomalous hysterorrhaphy healing at the time of the cesarean section was pointed out as a possible cause. Treatment of uterine rupture is surgical.

In this case, despite being a young patient, it was not possible to avoid surgical treatment with hysterectomy. Uterine rupture should be a differential diagnosis in any non-gravid patient that presents with abnormal uterine bleeding, abdominal pain, hemodynamic instability and a history of uterine surgery.

Keywords

Uterine rupture, Hemorrhagic shock, Cesarean section

Abbreviations

Beta hCG: Beta human Chorionic Gonadotropin

Introduction

Uterine rupture is a rare occurrence in a pregnant woman, but it is even rarer when it occurs spontaneously in a non-pregnant woman [1,2].

It is a life-threatening condition and due to its rarity and nonspecific clinical presentation, diagnosis and treatment present as clinical challenges.

We present a rare case of spontaneous uterine rupture in a non-gravid uterus with a history of caesarean section.

Case Description

A 36-years-old G1P1 female, with a history of caesarean section 10 years before, due to a non-reassuring fetal heart rate tracing, presented to the gynecology emergency department with a 6 hours history of sudden onset of major abnormal uterine bleeding and abdominal pain. She was on combined

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oral contraceptive and denied failure to take it. She also denied previous episodes of abnormal uterine bleeding or any gynecological trauma history. By consulting the patient's file, it was possible to verify that the surgical report of the cesarean section reported difficult hemostasis at the left end of the hysterorrhaphy. On presentation, she was normotensive and normocardic.

Gynecological examination confirmed heavy uterine haemorrhage and no signs of infection. Vulvar, vaginal or cervical lesions were not observed and systems review was unremarkable, except for suprapubic tenderness on abdominal examination.

Gynaecological transvaginal ultrasound revealed a homogeneous myometrium, endometrial thickness of 5 mm, apparent active hemorrhage originating from the uterine isthmus region, as well as the presence of fluid in the anterior cul-de-sac and normal adnexa. Laboratory analysis revealed a haemoglobin of 10.4 g/dL and beta hCG of < 5 mIU/mL. Her urine analysis was normal. The patient was admitted for monitoring and maintained moderate uterine bleeding. Laboratory analysis was repeated 4 hours later and revealed a haemoglobin drop of 3.2 g/dL to 7.2 g/dL. In view of these findings, 1 g tranexamic acid intravenous was started, in addition to transfusion of 2 units of red blood cells. The patient remained hemodynamically stable and showed a reduction in the uterine bleeding volume loss. A new full blood count was repeated 6 hours later and revealed an improvement in hemoglobin levels to 9.8 g/dL. Six hours later, there was an exacerbation of the uterine bleeding, accompanied by hemodynamic instability, with hypotension (77/40 mmHg) and tachycardia (122 bpm). At this time, a new blood count was performed, which showed a drop in haemoglobin values to 7.6 g/dL. An ultrasound re-evaluation was performed and the colour doppler assessment allowed the identification of the origin of the hemorrhage in a vessel in the isthmic region of the uterus, as well as an apparent hysterorrhaphy dehiscence with extrauterine hyperechoic content in the anterior cul-de-sac, compatible with blood clots and moderate hemoperitoneum (Figure 1, Figure 2 and Figure 3). An exploratory laparotomy was proposed, with the eventual need for a hysterectomy, which the patient understood and consented to. An urgent exploratory laparotomy was performed and there was evidence of moderate volume haemoperitoneum, as well as complete disruption of all uterine layers with active bleeding, several pelvic adhesions and no other intraabdominal cause for her presentation. A total hysterectomy was performed uneventfully and it was possible to identify the perforated isthmic region in the specimen (Figure 4). The patient recovered fully and was discharged 3 days later.

Histopathology results revealed endometrial tubular glands, sparse stroma and complete division of all three layers of the anterior mid-section of the hysterorrhaphy, compatible with uterine perforation and no other evidence of an abdnormal pathological process.

Conclusions

A uterine rupture is a complete disruption of all three layers of the uterus: the endometrium (inner epithelial layer), myometrium (smooth muscle layer), and perimetrium (serosal outer surface) [3,4].

Rupture of the uterus is a rare occurrence and most often occurs during pregnancy or as result of trauma or by iatrogenic injury during a gynecological procedure [2,4]. There are only a few cases described in the literature of spontaneous rupture of the uterus in a non-gravid woman. The etiology of this entity is still

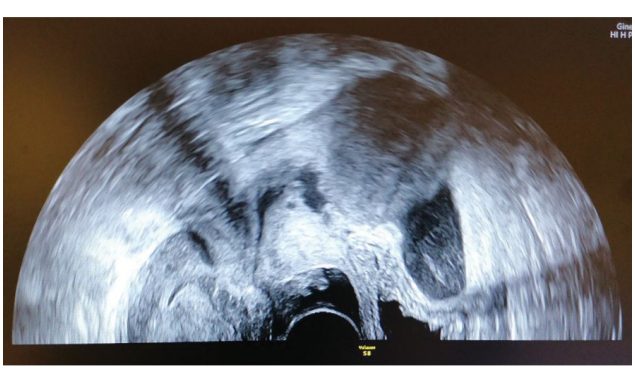

Figure 1: Gynecologic ultrasound showing uterine rupture.

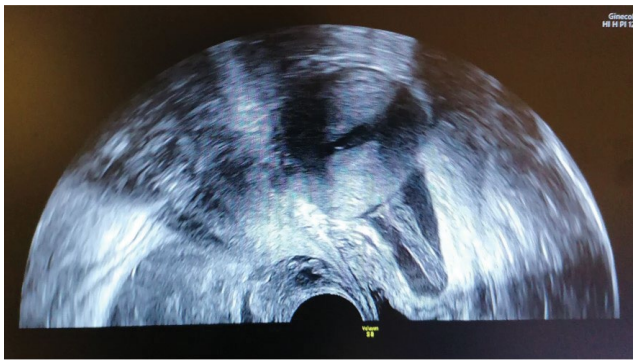

Figure 2: Gynecologic ultrasound showing clot in anterior cul-de-sac.

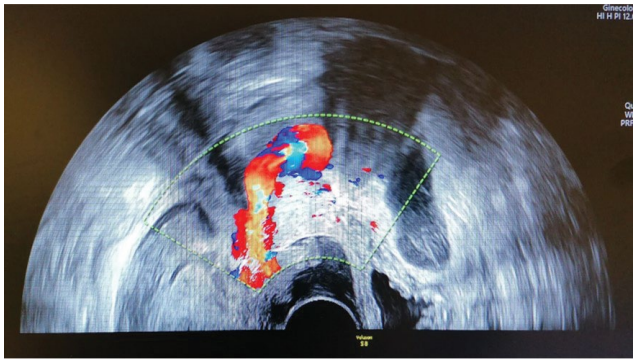

Figure 3: Gynecologic ultrasound - evaluation with Colour Doppler which allowed visualization of intrauterine vessel with active bleeding and extravasation by hysterorrhaphy.

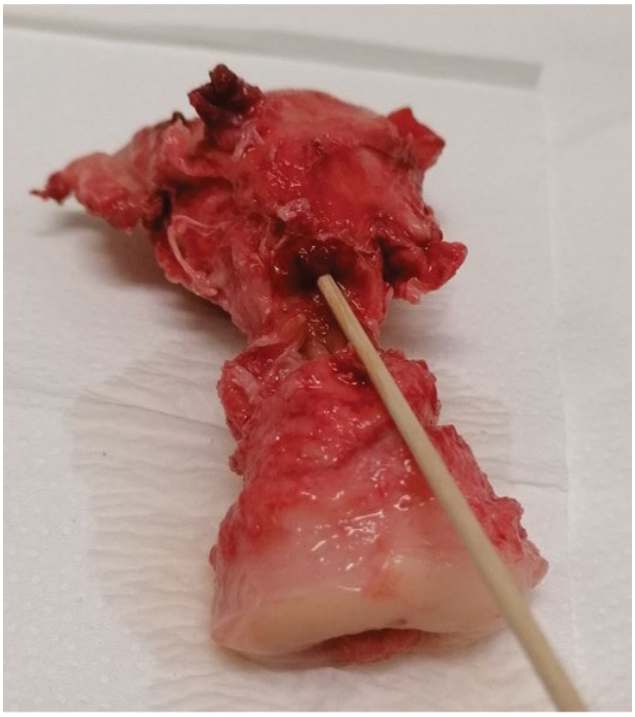

Figure 4: Surgical specimen - uterus, with a visible rupture of hysterorrhaphy.

unclear, but there has been reports of several factors that can contribute to its occurrence in non-pregnant women, such as congenital uterine anomalies, ischemia, leiomyomas, carcinoma, cervical stenosis, pelvic infection and prior instrumentation, transmyometrial surgical incision such as myomectomy or cesarean section [1,2,5,6]. These conditions may result in focal myometrial weakness predisposing it to spontaneous rupture.

The clinical presentation of rupture is nonspecific and may vary depending on the uterine site involved, which means a high index of suspicion is required to promptly make a diagnosis. Uterine rupture may present with minimal vaginal bleeding and patient discomfort or relevant change in vital signs, acute abdominal pain and major uterine bleeding [1,2]. The diagnosis of uterine rupture is based on clinical or radiologic identification of complete disruption of all uterine layers, including the serosal [4].

Despite a thorough and exhaustive investigation, the etiology of the presented case remains uncertain, but a weakness of the uterine layers due to an anomalous hysterorrhaphy healing at the time of the cesarean section was pointed out as a possible cause. It should be noted that the surgical report of the cesarean section reported a difficult hemostasis in the left extremity of the hysterorrhaphy.

Unlike other causes of abnormal uterine bleeding, which can be treated medically, spontaneous uterine rupture is a life-threatening condition and first-line treatment is surgical, through defect repair, where the myometrium is directly oversewn in two or three layers, or hysterectomy if the first is not possible. The optimal repair technique has not been established due to the rarity of this event, variability in location and extent of damage, and scarcity of long-term follow-up data [1,2,7].

In this case, despite being a young patient, it was not possible to avoid surgical treatment with hysterectomy, considering hemodynamic instability, the severity of the defect and the technical difficulties in carrying out primary repair and uterine preservation.

Although rare, it is potentially serious and fatal, if not identified and quickly treated. It should be a differential diagnosis in any non-gravid patient that presents with abnormal uterine bleeding, abdominal pain, hemodynamic instability and a history of uterine surgery.

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Conflicts of Interest Statement

The authors declare that there is no conflict of interest.

Authorship

All persons listed as authors met authorship criteria, concur in the submission, agreed to its publication, are responsible for its content and have given the corresponding author the authority to act on their behalf in all matters pertaining to this publication.

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