

Case Report

Uterine rupture during pregnancy after laparotomic myomectomy

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Abstract: There is a concern about the risk of uterine rupture in the subsequent pregnancy after myomectomy which is reported to be around 0.7-1%. Surgical methods often cause a scar in the myometrium, which may lead to weakening of the muscular wall. As a consequence, it may increase the risk for the obstetric calamity of sudden uterine rupture. In this study, a 39-year-old pregnant woman underwent a laparotomic myomectomy 3 years ago. At 36 weeks of gestation, she was admitted to a tertiary hospital because of severe abdominal pain and suspected uterine rupture. An emergency ultrasound examination showed a complete uterine rupture in the posterior wall of the uterus and a fetus was visualized in the right abdomen without fetal heartbeats. An emergent exploratory laparotomy was performed to repair the wound and save the life of the woman. This is an unusual case of complete uterine rupture following myomectomy that the stillbirth and placenta enclosed by amniotic sac in the right upper abdominal cavity. From this case, we suggest that when the uterine rupture is suspected, the ultrasonologist should carefully observe and accurately detect the rupture of the uterus and the ultrasound plays a very important role in uterine rupture diagnosis after previous scar.

Keywords: Uterine rupture, ultrasound, laparotomic myomectomy

Introduction

The incidence of uterine fibroids ranks first in benign tumors of female reproductive organs, but its absolute incidence is difficult to determine [1, 2]. It is generally believed that the incidence of uterine fibroids is 5% to 50%, which can be high up to 70% [3, 4]. The statistical method of morbidity is related to examination methods, and the size of uterine fibroids. In the management of uterine fibroids in women at childbirth age, many surgical or medical methods have been attempted, but laparotomic myomectomy (LTM) or laparoscopic myomectomy (LSM) remains the most widespread [5, 6]. Pregnancies occurred after abdominal and laparoscopic myomectomy are high risk for uterine rupture [7, 8].

Different factors increase this risk, such as congenital uterine anomalies, multiparty, previous myomectomy, labor induction, uterine trauma and previous uterine scar [8-10]. Second pregnancy in a scarred uterus is a

primary cause of uterine rupture in recent years, mainly including cesarean section and uterine myoma removal [11]. As the disease is an acute process, it is one of the most serious obstetric complications that lead to the death of mother and child. The risk uterine rupture after myomectomy is low, which is reported to be around 0.7-1% [12].

Here we report a case of complete uterine rupture in the 36th week of gestation following myomectomy. We want to investigate whether ultrasound could aid diagnosis of complete uterine rupture after previous scar.

Case report

A 39-year-old pregnant woman at 36-week gestation was admitted to a county hospital because of severe abdominal pain. Transabdomen ultrasound suggested the fetus died and placenta previa. She was transferred to a tertiary hospital under the suspicion of uterine rupture with a history of myomectomy. The

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Figure 1. Ultrasound showing complete uterine rupture in the posterior wall of the uterus.



Figure 2. A uterine defect of 15 cm in length on the posterior wall of the uterus.

pregnant woman underwent a laparotomic myomectomy 3 years ago. The myoma size was about 4.5 cm * 3.5 cm, and was located in the posterior wall of the uterus and protruding into the uterine cavity. The myoma was enucleated and two-layer suture was performed at the lesion. Three years postoperatively, the woman spontaneously became pregnant.

On physical examination, the patient was conscious, blood pressure was 126/68 mmHg, and heart rate was 85 bpm. Severe tenderness in the right flank abdomen was observed. On emergency ultrasound examination, a fetus was visualized in the right abdomen without fetal heartbeat, an enlarged uterus about 13 cm * 11 cm * 12 cm was located in the left pelvic cavity, and a complete rupture was showed in the posterior wall of the uterus (**Figure 1**).

Emergent exploratory laparotomy was performed. Entering into abdomen cavity, massive blood clots and about 1000 ml of hemoperitoneum were found. A uterine defect of 15 cm in length on the posterior wall of the uterus was observed (**Figure 2**). The stillbirth and placenta enclosed by amniotic sac on the right upper abdominal cavity (**Figure 3**). After delivering of the stillbirth and placenta, the wound was repaired using two-layer suturing (**Figure 4**). Intraoperative hemorrhage was about 500 ml, and no postoperative complications arose and the patient was discharged on day 4 postoperatively.

Discussion

Uterine scar is a primary cause of uterine rupture after a cesarean section years before. In recent years, it has shown that one of the most important risk factors of uterine rupture during pregnancy is following a myomectomy [13]. A recent meta-analysis suggested that the risk of uterine rupture after myomectomy was 0.75%, and about 0.32% in women with a prior cesarean section [14, 15]. Doctor Passerini suggested that the whole risk of uterine rupture was 0.93% (0.45% to 1.92%), and was 0.47% (0.13% to 1.70%) in women undergoing delivery and was 1.52% (0.65% to 3.51%) in women before the stage of labor after myomectomy [12]. There are two kinds of surgical methods to cure myoma, laparotomic myomectomy and laparoscopic myomectomy. A meta-analysis showed that the risk of uterine rupture was 0.4% following laparotomic myomectomy and 1.2% in laparoscopic myomectomy. But there is no significant difference in the incidences of a rupture during pregnancy following a laparotomic versus a laparoscopic myomectomy [14]. The size and number of removed myomas which enter the endometrial

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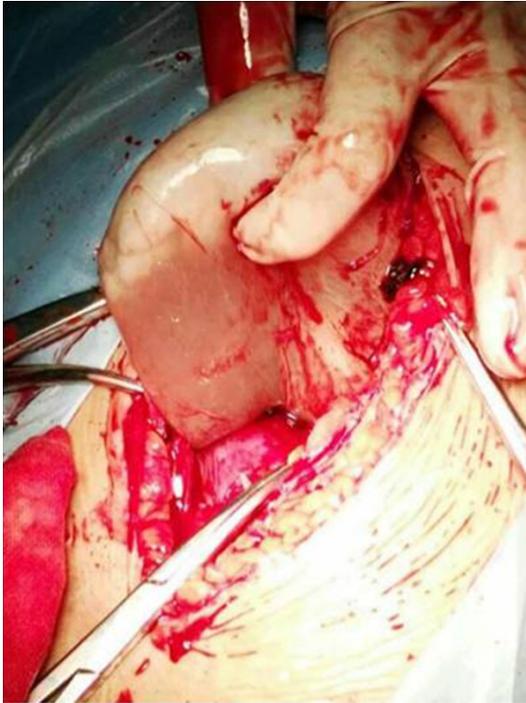


Figure 3. Fetal right leg enclosed by amniotic sac on the right upper abdominal cavity.



Figure 4. The wound is repaired using two-layer suturing.

cavity has been identified as a potential factor affecting the risk of uterine rupture in

subsequent pregnancies [16]. In this case, the patient underwent laparotomic myomectomy and the wound was repaired with two-layer suture 3 years ago. The main factor affecting uterine rupture was large myomas penetrated into the endometrium. When the myoma was enucleated, the operation destroyed the integrity of the uterus, including perimetrium, mesometrium and endometrium and increased the risk of uterine rupture during pregnancy following myomectomy.

Typical uterine rupture can be diagnosed by medical history, clinical manifestations and auxiliary examination [17]. Ultrasound is the first choice of the examination method because it can dynamically monitor the thickness of the uterus scar and the integrity structure of the local muscle fibers [18, 19]. However, it is mostly used for detection of incomplete uterine ruptures [20]. The accuracy and reliability of healing of the uterus scar by ultrasound are still worthy of discussion [21].

In this case, an abnormal uterus was found by ultrasound before the operation, the fundal wall of the uterus was imperfect and interconnected with the abdominal cavity, a stillbirth and placenta enclosed by amniotic sac on the right upper abdominal cavity. When it was diagnosed as complete uterine rupture, an emergency exploratory laparotomy was performed to save the life of the pregnant woman. Ultrasound is often interfered by the intestinal gas and hematoma in the abdominal cavity. It is difficult to diagnose when the rupture is small and the location is concealed without amniotic sac and fetus protruding. However, it is easy to detect complete uterine rupture as the rupture is more obvious. When the uterine rupture is suspected, the ultrasonologist should carefully observe and accurately detect the rupture of the uterus which is essential for the diagnosis of uterine rupture.

The case report shows that the ultrasound plays a very important role in complete uterine rupture diagnosis after previous scar and could timely save pregnant women's lives.

Disclosure of conflict of interest

None.

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