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Spontaneous Uterine Rupture in the Second Trimester of Pregnancy Associated with Red Degeneration of Fibroid

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A thirty-nine year old woman with history of infertility was admitted at the 14th week of gestation complaining of acute abdominal pain. Ultrasound revealed a large intramural fibroid bulging into the uterine cavity showing signs of degeneration. It was pressing on the gestational sac with a normal intrauterine pregnancy. The internal cervical os was funneling indicating incompetence of the internal cervical os. A diagnosis of threatened abortion associated with red degeneration of fibroid and cervical incompetence was made. McDonald cerclage was performed. Six days after discharge, she was readmitted with acute abdomen. Laparotomy revealed hemoperitonium due to a spontaneous rupture of the uterine fundus, through which the fetus was extruded in the peritoneal cavity. A discussion of clinical management is presented in the light of the current literature.

Spontaneous uterine rupture in the second trimester of pregnancy is a very rare event[1]. Usually, it is either associated with cases of trophoblastic tumor, or pathological invasion of the placenta through uterine wall, for example, placenta increta or percreta[2]. Uterine malformation associated with pregnancy located in a rudimentary horn may cause spontaneous perforation or rupture of the uterus at an early stage of pregnancy[3]. It may also happen in cases of uterus scarred due to previous myomectomy, in previous Cesarean section scars, or previous operative laparoscopy[4,5]. Exceptionally, there are cases of spontaneous uterine rupture associated with red degeneration of fibroid in a gravid uterus.

In this report, we will discuss the course of events, difficulties in the diagnosis of uterine rupture. A discussion on spontaneous uterine rupture in early pregnancy will also be presented with a particular emphasis on the etiological factors.

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THE CASE

A Bahraini, married, woman who is thirty-nine year old, G2 P0 Ab1, at 14 weeks of gestation. She was admitted through Accident and Emergency, complaining of persistent upper abdominal pain mainly in the epigastric region of 2-3 days duration. There was no radiation and no other associated signs or symptoms. She had history of 17 years infertility during which the couple were investigated and found to have a male factor, and she had anovulatory cycles. Her anovulation was associated with hyperprolactinaemia for which she received Parlodel (bromocreptine) 2.5 mg. tablets twice daily. She was also a known case of hypothyroidism and was taking L-thyroxin 100 u mg. tablet daily.

Her vital signs were normal, and physical examination elicited no abnormal findings. Abdominal examination, however, revealed a central abdominal mass corresponding to 28-30 weeks of gestational size and arising from the pelvis. On pelvic examination there was no bleeding or any vaginal discharge. Ultrasonic pelvic and abdominal scans showed linear amniotic sac with 14 weeks size live fetus. The sac was displaced from below by a large intramural fibroid measuring 11.6 by 7.5 cm. in diameter. The cervical length was 2.5 cm. with funneling of the internal cervical os.

Preliminary investigations were reported as follows: Hb 8.7% gm, PCV 27%, WBC 8.1 (10^9/L), urinalysis was normal. Thyroid function tests: TSH 4.5 u IU/mL was high; T4 13.8 p mol/L suggestive of hypothyroidism. Blood iron investigations: serum ferritin 13 mg/mL.; Folate >45.5 m mol/L., B_{12} 229 p.mol/L, Iron 9 p.mol/ L.

An initial diagnosis of red degeneration of fibroid and cervical incompetence complicating 14 weeks gestation was made. The patient was transfused with two units of blood. She was seen by an endocrinologist who increased her dose of thyroxin. Examination of the eyes by an ophthalmologist revealed normal fundus. Over the next few days her symptoms gradually resolved. In view, of the long history of infertility, her anxiety about the possibility of abortion, she was counseled about the option of cervical cerclage suture and it was explained if she should develop uterine contractions, bleeding or rupture of membranes the suture would be removed.

McDonald cerclage was performed under general anesthesia. Postoperatively she was put on Yutopar (ritodrine hydrochloride) IV drip, but soon it had to be stopped because of severe palpitation. The postoperative period was uneventful.

Six days after discharge, she was readmitted through the emergency room complaining of severe upper abdominal pain and tenderness. The uterus corresponded to 30 weeks pregnancy size. The abdomen was soft and pelvic examination revealed no abnormality. Vital signs were normal. Ultrasound scan in the admission room showed an active intra uterine fetus with normal cardiac pulsation. The fibroid had a cystic space with high possibility of red degeneration. An IV line was started and the patient was given Panadol (Paracetamol) tablets.

Over the next five hours, her condition gradually worsen as she developed tachycardia, pallor, anxiety, peripheral cyanosis and breathlessness. Abdominal pain became mild and there was no blood loss per vagina. Shock measures were initiated including oxygen, and blood transfusion. Other investigations were performed: Arterial blood gases: pH 7.05, PCO_2 23.6, PO2 73.1, HCO_2 6.4, ABE 21.0. The Hb 3.3 G%, PCV 19, TC 28.8, Creatinine 201 u mol, urea 8.7 m mol/L, electrolytes were within normal limits and liver function tests were normal.

Ultrasound scan: Showed that the liver, gall bladder, spleen, kidneys were normal. The uterus was enlarged with an intrauterine pregnancy. The fetus, however, did not show any cardiac pulsation. The placenta was along the posterior aspect of the sac. There was a large fibroid with mixed echogenecity; approximately size is 12 x 10 x 9 cms. There was hypoechogenecity in the fibroid, which could be due to necrosis. The bladder was not distended. There was a large amount of fluid in the abdomen with some internal echoes and few swaying strands. The clinical setting of decreasing hemoglobin and the present findings suggested that it was hemoperitoneum.

The patient was taken to theatre for exploratory laparotomy. An initial paracentesis under ultrasound guidance revealed hemoperitoneum.

The findings on laparotomy revealed hemoperitoneum and fundal rupture of the uterus, through which, the fetus with his umbilical cord still attached, was extruded into the peritoneal cavity. The fibroid was bulging throughout the uterine cavity. The placenta was attached to the fundus near the site of rupture. The fetus and placenta were removed and the fundal rent was repaired and a redivac drain was inserted. The fetal weight was 70 gm. Total blood loss was 2700 ml and the patient received 4 units of blood during the operation.

From the second to the fifth postoperative days, she developed paralytic ilius, which was treated with nasogastric suction, IV therapy, correction of electrolytes, Cimetidine and antibiotics. Hemoglobin level on the third day was 12.1% gm.

She was discharged home on the fourteenth postoperative day with satisfactory healing of the wound.

DISCUSSION

We presented in this report a -39-year-old infertile woman at the 14^{th} week of gestation. She was found to have a normally gravid uterus with uterine fibroid showing signs of degeneration. Her condition progressed later into spontaneous rupture of uterus.

Rupture of a pregnant uterus is a serious threat to the mother's life and her unborn child. Most of the cases reported are due to dehiscence of previous Caesarean section or a rupture of myomectomy scar and usually occur in the third trimester or during labor[5,6]. We present here a case in which spontaneous rupture occurred at the 14^{th} week of

gestation, with no previous scar. To our knowledge no previous report of second trimester spontaneous rupture of uterus has been reported from the Kingdom of Bahrain. There are several issues, however, which need to be emphasized in this case. First, whether there was any relationship between the uterine rupture and the previous laparoscopy dye test with curettage, which were performed 13 years earlier? The possibility of an old silent uterine scar resulting in uterine rupture this time is remote possibility, but open to speculation.

Second, there is a possibility that the cerclage may have caused the rupture due to combination of increase in intrauterine pressure by the fibroid and uterine contractions. This is unlikely because the pain started prior to the first admission and any potential cause- effect relationship between the rupture and the stitch would have resulted in a rupture close to its site rather in the fundus of the uterus.

Third, proposing that the rupture of the uterus may be due to a red degeneration of the fibroid is again lacking in evidence because during laparotomy the uterine rent was found to be distant from the site of the fibroid[7].

It is likely that it was precipitated by a morbid invasion of the placenta at the uterine fundus. Again, we have no histopathologic proof to confirm this hypothesis.

CONCLUSION

The lesson learned from this case is that, although, uterine rupture is very rare in the second trimester of pregnancy, it should be taken into consideration in the differential diagnosis of acute abdomen, especially if there is a predisposing factor.

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