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Rupture of Unscarred Uterus: A Rare Cause of Abdominal Pain in Pregnancy

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Uterine rupture is rare during pregnancy and its associated with high maternal and fetal mortality [1]. The incidence rate of uterine rupture is 5,3 per 10000 deliveries among unselected pregnant women [2]. The most common risk factor of uterine rupture is previous caesarean section and uterine surgery [3]. Other risk factors include multiparity, a short length of time (less than 18 months) since the last caesarean section, the number of previous caesarean sections, single-layer closure instead of two-layer closure, placenta previa, fetal malpresentation, macrosomia, forced amnio-infusion, multiple gestation, cephalopelvic disproportion and the use of prostaglandins or oxytocin for labor induction [4,5]. In more than half of cases of ruptured unscarred uterus no evident risk factor can be found [1]. Rupture of unscarred uterus is very rare, involving 1: 17,000–20,000 deliveries, however it's associated with high rate of maternal and perinatal morbidity and mortality [6,3]. The rupture could be traumatic or spontaneous [6]. The distribution of causes of uterine rupture varies from one country to another. In developed countries most uterine ruptures are associated with scarred uterus or trauma. In developing countries rupture occur mainly spontaneously in an unscarred uterus [7]. This may be related to multiparity in developing countries that causes weakening of the uterine wall. In the study of Schrinsky et al. 32% of women who had unscarred uterine rupture had a parity of greater than four [8].

The most common clinical presentation of uterine rupture is fetal heart abnormality in cardiotocography (CTG), mainly bradycardia. Uterine rupture may also be presented as abdominal pain, altered uterine contractions, hypotension, shock, hematuria, shoulder tip pain, scar tenderness and vaginal bleeding. The most common combination of these symptoms is an abnormal fetal heart rate with abdominal pain [4]. Sometimes the presentation is atypical with lack of abdominal pain and peritoneal irritation. Uterine rupture can also be asymptomatic [1]. Maternal tachycardia along with sudden severe fetal heart deceleration followed by abdominal pain and vaginal bleeding should raise suspicion of uterine rupture. In some cases the rupture will be manifested initially as severe abdominal pain and uterine tenderness. In extreme cases it might be possible to detect the fetal parts in the abdomen and a contracted uterus nearby [5]. Rupture of uterus mainly occurs during labor, but also can happen during pregnancy [9,7]. Diagnosis of uterine rupture may be delayed to the post-partum period [1]. Uterine rupture can occur at any site, however rupture of posterior wall is very rare [4]. The rupture may be small and the fetus will remain inside the uterine cavity. Rarely it can be large and the fetus can be found outside the uterine cavity [4,7].

Hemoperitoneum in pregnancy is one of the complications of uterine rupture. Some of clinical features reflect bleeding and peritoneal irritation. However other obstetric and non-obsteric causes of hemoperitoneum should be considered in the differential diagnosis. These causes include ectopic pregnancy, placental percreta and erosion of blood vessels by endometriosis [4].

The initial diagnosis can me made depending on clinical features [5]. Ultrasound examination can add additional information about the state of the fetus and presence of free fluid inside the abdominal cavity due to bleeding or a non-vascularized mass due to clot formation. There are no diagnostic radiologic or clinical criteria for diagnosis of uterine rupture [4]. The definitive diagnosis can be established at time of delivery where the defect can be shown [5].

Initial diagnosis of unscarred uterine rupture should be managed by immediate laparotomy and caesarean section. Intravenous fluid resuscitation is necessary for patients as they develop hemorrhagic shock [5]. Blood loss associated with hemoperitoneum and associated surgical intervention may be severe leading to hypovolemic shock, so blood transfusion is needed. Further management of the uterine defect depends on the clinical state of the mother, extent of uterine rupture and desire to preserve fertility, and the final decision should be done intraoperatively. An attempt may be undertaken to suture the defect if the defect is small, along with use of uterotonic agents. Uterine B-Lynch may be needed to treat the bleeding from secondary uterine atony [3]. This may be extremely important for patients who desire to preserve fertility [6]. A further hemostasis control can be achieved by ligation of internal iliac or uterine arteries [5]. A successful pregnancy ended by planned caesarean section after uterine rupture and suturing have been reported [3]. The recurrence risk of uterine rupture is assessed between 4 and 19% at a subsequent pregnancy. Total or subtotal hysterectomy may be needed if the injury is extensive and the bleeding is severe [6].

Counseling should be offered for patient after suturing the uterine defect regarding risk of uterine rupture in the future pregnancies and options of sterilization. Depending on the initial extent of the defect and the period after the surgical intervention, a planned caesarean section should be considered for the future pregnancy [5].

Prevention of unscarred uterine rupture without risk factors before labor is nearly impossible [10]. Uterine rupture should be considered in pregnant patients with abdominal pain with or without abnormal CTG even in the absence of surgical intervention of the uterus in the past history. Hemoperitneum can increase possibility of bleeding from the ruptured site that can be detected by ultrasound scan. Uterine rupture without evident risk factors is associated with non-specific signs and symptoms leading to delay of diagnosis. Considering uterine rupture in the differential diagnosis of abdominal pain may fasten the decision about obstetrical intervention since uterine rupture is associated with high maternal and perinatal morbidity and mortality [4].

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