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Non-Laboring Uterine Rupture of an Unscared Uterus before Term Discover during Obstetric Ultrasound

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Abstract

Uterine rupture is defined as the occurrence of communication between the abdominal and uterine cavity and may be complete or incomplete depending on the degree of involvement of the different layers of the uterus and surrounding organs. It is a rare complication whose consequences often involve the maternal and fetal prognosis. The majority of uterine rupture occurs on the scarred uterus, its incidence in France is estimated according to the series between 1/1000 and 1/2000 births, it represents 30% of causes of maternal death in the developing countries. The authors report here a case of uterine rupture outside of labor at 33 weeks of age in 32 years old woman, gravida 9 para 8, with no history of uterine surgery discovered during obstetric ultrasound for abdominal pain. During the interrogation, she was alarge multipara and had a child of 15 months. The abdominal ultrasound showed a right lateral corporeal rupture with hemoperitoneum of medium sized and a dead fetus. The emergency laparotomy revealed a right lateral uterine wound approximately 15 cm long with intra-abdominal placenta and a haemoperitoneum of medium sized of about 600 cc and a bladder lesion. After opening the amniotic sac, there was extraction of a dead fetus. The uterine and bladder lesions were repaired followed by bilateral tubal ligation. The patient received 500 cc of whole blood during and 500 cc after the procedure. The postoperative follow-up was simple. This case contributes to the knowledge of this rare and atypical event, and emphasizes the importance of maintaining a suspicion.

Keywords

Uterine Rupture, Multiparity, Obstetrical Ultrasound, Unscarred Uterus,

Short Interval between Pregnancies, Outside of Labor, Term

1. Introduction

Uterine rupture is defined as the occurrence of communication between the abdominal and uterine cavity. The complete uterine rupture occurs when the visceral peritoneum was damaged, resulting in direct communication between amniotic and peritoneal cavity, a tear of the myometrium can extend to the bladder or the broad ligament. An incomplete uterine rupture is a subperitoneal dehiscence of the myometrium, without opening of the serosa [1]. Uterine rupture is rare but a catastrophic obstetric event with high fetal and maternal morbidity and mortality. It most commonly occurs in women with prior uterine scar, but other risk factors include grand multiparity, fetal macrosomia, history of gestational trophoblastic disease, prolonged labor, and labor augmentation with misoprostol or oxytocin. In developed countries, the majority of uterine ruptures occur on scarred uterus [2]. Its incidence in France, whether the uterus is scar or not, is estimated according to series between 1/1000 and 1/2000 births [3]. In developing countries, it represents 30% of the main causes of maternal death [4]. The vital prognosis of the mother and the child is most often committed when the uterine rupture occurs on an unscarred uterus [5]. Uterine rupture in a woman with an unscarred uterus, outside of labor and before term is an exceedingly rare event. Here we report a case of non laboring uterine rupture at 33 weeks of age in a 32 years old patient with no history of uterine surgery, discovered during obstetric ultrasound for abdominal pain.

2. Presentation of the Case

Ms. D., age 32, gravida 9 para 8 was, admitted to the Emergency Department of the Ngaoundere Regional Hospital on May 23, 2017 at 10:30 pm for atypical abdominal pain and vaginal bleeding for 3 days and she was referred from a peripheric health centre. During the interrogation, she had a child of 15 months, a poor prenatal check up and denied having any medical and surgical history specially concerning uterus, no associated loss of fluid. On physical examination, her general condition was degraded, the conjunctiva were colored. The blood pressure was 110/60; the pulse at 112/min and the temperature was 38˚C. The abdomen was distended. The palpation was painful, the uterus was soft. The vulva was stained with blood and the digital examination showed an open cervix at 2 - 3 cm. No fetal heart tones were found per Doppler. A diagnosis of intra uterine fetal death was made. An ultrasound performed urgently and demonstrated a lateral right side uterine rupture (See **Figure 1**) with a relatively abundant hemoperitoneum (see **Figure 2**) and the fetus of 33 weeks with no heart tones to be outside of uterus showing in **Figure 3**. The preoperative hemoglobin level was 8.2 g/dl. Under general anesthesia and antibiotic coverage,

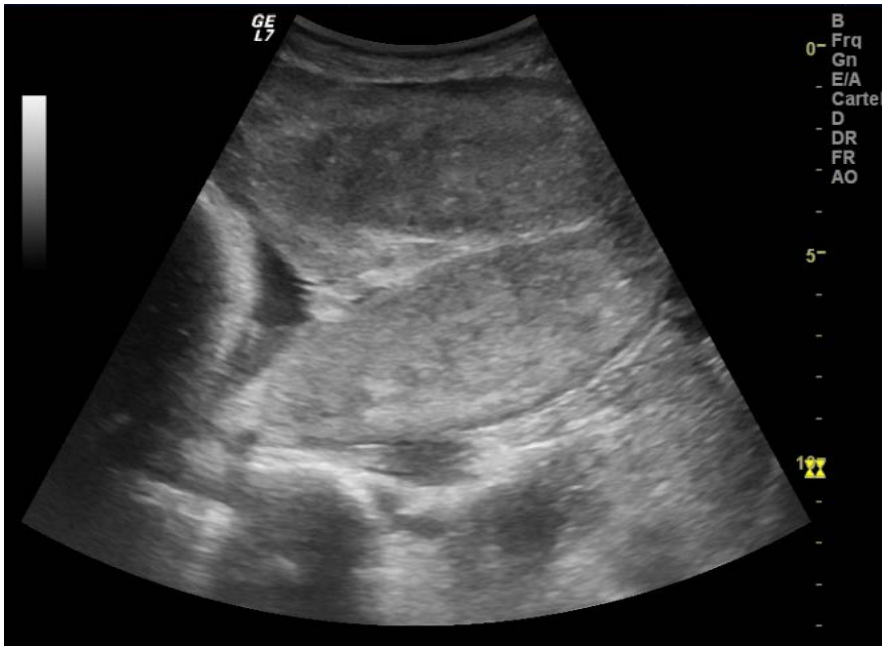

Figure 1. Axial ultrasound scan showing right lateral uterine rupture (white arrow).

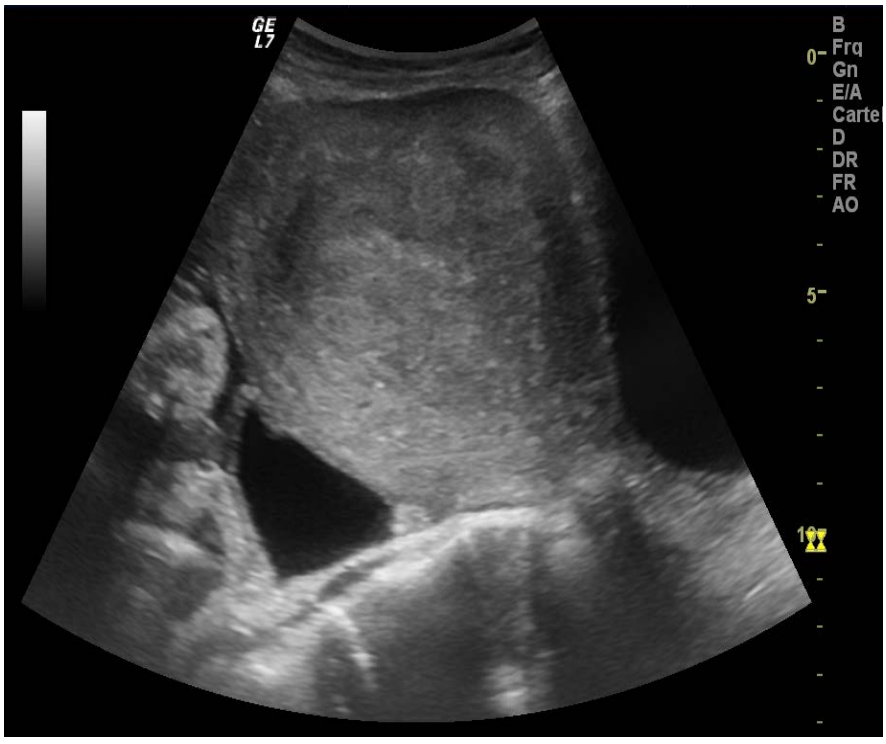

Figure 2. Sagital ultrasound scan showing a retracted uterus (black star) and a medium-sized hemoperitoneum (white arrow).

an emergency laparotomy was performed. After a medial umbilical incision, up entering the abdominal cavity the fetus was found to be outside the uterus with placenta and a medium-sized hemoperitoneum of about 600 cc. A right lateral uterine wound about 15 cm in length was founded (see **Figure 4**). After opening

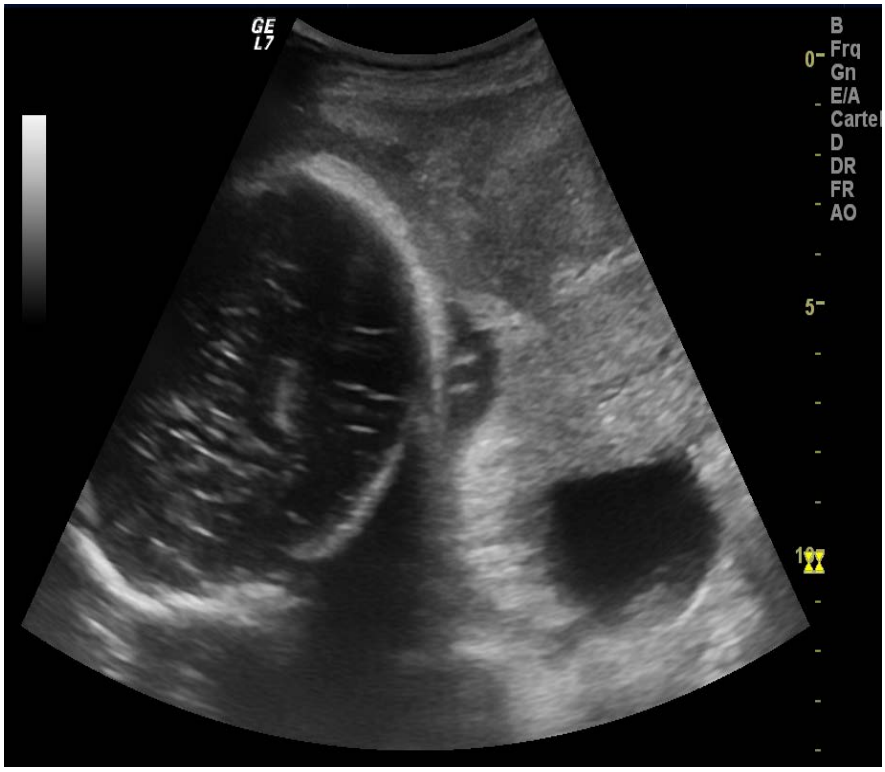

Figure 3. Sagital ultrasound scan showing the head of dead fetus (white star) inside abdominal cavity.

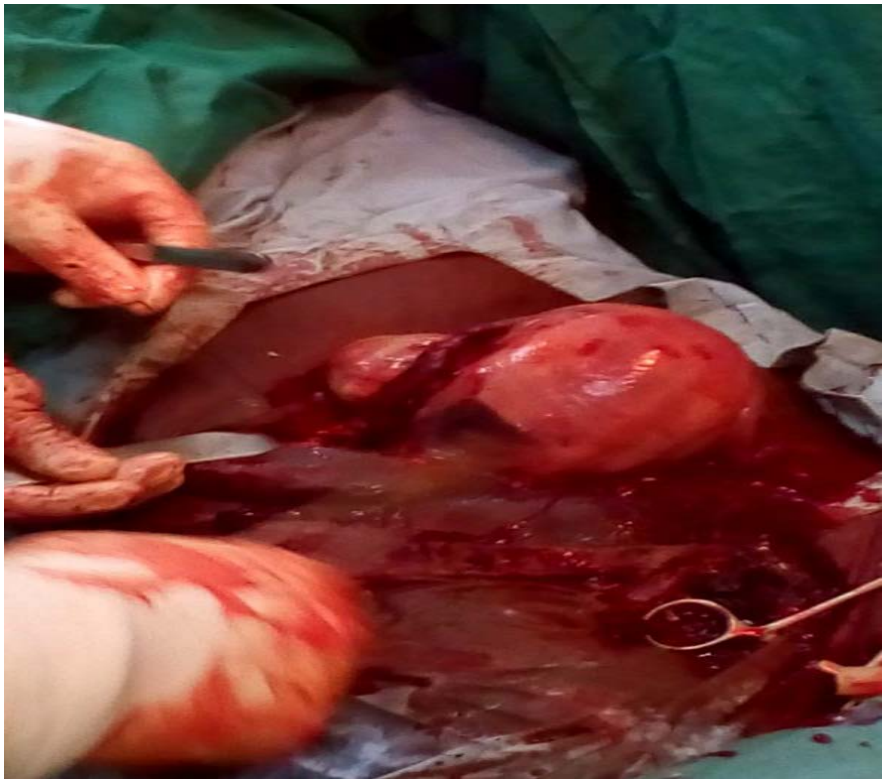

Figure 4. Laparotomy showing right lateral uterine rupture (white arrow) after fetal extraction and externalization of the uterus.

the amniotic sac, there was extraction of a male dead fetus weighing 2700 g. The uterine breccias was repaired in two planes at Vicryl No. 2 and then bilateral tubal ligation and the bladder lesions was also repaired. The patient received 500 cc of whole blood during and 500 cc after the procedure. The level of hemoglobin at day 3 was 10.5 g/dl. The level of hemoglobin at day 4 was 10.7 g/dl. The patient was discharged from the hospital on the 10th day after a well-attended procedure. The postoperative consequences were simple.

3. Discussion

The rupture occurring on gravid uterus remains one of the very critical situations during which the life of the mother and the child are threatened. Its incidence is variable. In a study conducted in Yaoundé, Cameroon, in a series of 6511 deliveries, there were 30 cases of uterine rupture; a frequency of one uterine rupture for 217 deliveries. The rupture occurring on non cicatricial uterus during labor accounted for 70% in this series [4]. The incidence of uterine rupture on non-scarreduterus is very low in developed countries, around 1/20,000 deliveries, not exceeding 30% of all uterine rupture [6]. Factors predisposing to spontaneous ruptures on non-scarred uterus are: mechanical obstructed labor (20% - 40% fetopelvic disproportion), large multiparity (4 children), short interval between pregnancies (<18 months), maternal age early or advanced, and a low socio-economic level, uncontrolled use of oxytocics, congenital uterine malformations such as pseudo unicorn uterus, placenta accreta or percreta placentation abnormalities [5] [6] [7]. Our patient was a large multiparous with 8 children and large multiparity is generally recognized as one of the etiological factors associated with a high risk of uterine rupture on a healthy uterus [8], which acts by altering the uterine wall, which becomes weakened. Moreover she was never followed up during her pregnancy and the interval between this pregnancy and her last child was 15 months. Ignorance and/or financial limitations would be the causes [4]. Given the inadequacy of health coverage and culture in developing countries, most female parturients do not have easy access to health facilities for adequate surveillance of pregnancy and childbirth [9] [10] [11]. Uterine rupture on the healthy uterus in the majority of cases involves the lower segment, preferably the anterior surface. The corporeal ruptures as in our case showing in figure 1arevery rare and concern mainly the horn and the uterine fundus like guiliano says [12]. They are very often the fact of an anterior scar (Hysterotomy, hard curettage after abortion, myomectomy) but no surgical history was found in this patient. The uterine rupture of non-scarred uterus occurring outside the labor is very rare, Ritu R and Manju P reported one case in 2011 and according to them that was the fourth knowing case reported at that period [13], also only 13 cases of uterine rupture on non-scarred uterus outside of the labor was reported between 1969 and 2013 [14]. In general it is negligible in high resource countries especially outside of labor. In 12 years review of 188819 deliveries at southern California women and children Hospital, USA only 13 uterine

ruptures occurred among women with an unscarred uterus, three of these cases involved motor vehicle accidents, there were only 10 ruptures of a previously unscarred uterus during labor yielding a rate of one uterine rupture per 16,849 [15]. But in developing countries the incidence of unscarred uterine rupture remains high. Its occurrence is significantly associated with grand multiparity, lack of antenatal care and low socio-economic status of the patients [16], all this characteristics are present in our patient. This rare uterine rupture can occur with devastating consequences like Bladder lesions which should be repaired. After the clinical examination the diagnosis of intra uterine fetal death was made. The diagnosis of uterine rupture is very difficult to make especially outside any labor and uterus scar. However, some authors claim that abdominal pain is stimulated and increased by fetal movements and fetal heart rate abnormalities may be precursors of uterine rupture [11] [12]. Bujold *et al.* have described uterine deformities occurring before rupture or concomitant to rupture, particularly an hourglass shape; which may be signs of pre-rupture or eventual rupture [17]. All these signs were absent in our case and the clinical presentation were very poor, the main sign were the atypical abdominal pain, no fetal movement and absence of fetal heart tones. However, ultrasonography remains highly contributive to positive and differential diagnosis [18]. It was decisive for detecting rupture, to specify the seat and the extent (see **Figure 1**), while the diagnosis was not evoked by clinical examination. The therapeutic management is surgical (see **Figure 4**). It must be performed without delay for haemostatic and restorative purposes. In case of late management as in our case, the patient may show signs of shock which increases its feticidal character, which may explain the extraction of a dead fetus. Ultrasound has revealed an intra peritoneal fetus (see **Figure 3**), at this stage efforts should be made to save the life of the mother. The patient was referred 3 days after the onset of pain. During the procedure, a hemoperitoneum of approximately 600 cc was discovered and the uterus was retracted (see **Figure 2**). We believe that this hemoperitoneum would have been greater if the fetus and the products of conception had not been externalized outside the retracted uterus, which resulted in reducing the bleeding and keeping the mother alive until the day of the procedure. This case demonstrates the emergency of improving the care provided to pregnant women, especially in rural areas. Uterine rupture remains a major problem in developing countries because of aggressive and unwise obstetric manipulations often carried out by untrained births attendant or physicians with inadequate experiences, transportation deficiencies and the hospitals are poorly staffed and badly equipped to handle obstetrics emergencies [15]. In our case atypical abdominal pain and vaginal bleeding started since 3 days and she had been referred from an peripheric health center where there is no adequat equipment and experienced births attendant or physicians, also the transportation of the patient from the peripheric center to our hospital was also very difficult, as Yibrah B *et al.* as already noted [15]. This problem could be solved by education, communication and information concerning

complications in obstetric, the establishment of an efficient reference system to reduce the delay of management in cases of suspicion of uterine rupture. One could also think to sensitise women against the great multiparity and very short space between pregnancies that have been identified as risks factors for uterine rupture in this case.

4. Conclusion

Spontaneous rupture on non-scarreduterus outside of labor before term remains rare. But it is life-threatening for the mother and the fetus due to bleeding and shock when it occurs, hence urgently needs for early diagnosis and management. In this case, obstetric ultrasound is therefore a priority for detecting rupture, to specify the seat and the extent. The great multiparity and a short interval between pregnancies would explain the occurrence of this rupture in our case. Any persistent atypical abdominal pain on amenorrhea, especially in the third trimester, with or without associated signs, must therefore make suspect a uterine rupture because the management of this complication is a vital emergency. This case contributes to the knowledge of this rare event and emphasizes the importance of maintaining a suspicion.

Conflict of Interest

The authors declare that they have no conflict of interest in this article.

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