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RESEARCH ARTICLE

A UTERINE RUPTURE NOT TO OVERLOOK IN THE CONTEXT OF RETROPLACENTAL HEMATOMA

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Abstract

Objective: To report a rare case of uterine rupture in the context of a Couvelaire uterus in a patient with no history of uterine surgery or manipulation and to discuss the clinical challenges and management strategies for such cases.

Case Summary: A 34-year-old multiparous woman presented at 34 weeks' gestation with intrauterine fetal death (IUFD) and preeclampsia. Despite an unremarkable history with no prior cesarean deliveries or intrauterine interventions, she developed sudden hemodynamic instability and was diagnosed with uterine rupture during an emergency laparotomy. Intraoperatively, a large posterior uterine rupture was identified and repaired. Postoperatively, the patient experienced uterine atony and significant hemorrhage, necessitating additional surgical interventions including Tsirulnikov ligation and the B-Lynch uterine compression technique. The patient recovered well following intensive care management.

Discussion: Uterine rupture in an unscarred uterus is an exceedingly rare event, particularly in the absence of classic risk factors. This case occurred in the context of a Couvelaire uterus, where extensive intramyometrial hemorrhage due to placental abruption may have weakened the uterine wall. The nonspecific clinical presentation, including the absence of abdominal pain or vaginal bleeding, poses diagnostic challenges. Immediate surgical intervention is crucial, especially in low-resource settings where advanced treatment options may be limited. This case underscores the importance of maintaining a high index of suspicion for uterine rupture, even in patients without typical risk factors, and highlights the need for adaptable management strategies.

Conclusion: Uterine rupture should be considered in the differential diagnosis of acute abdomen in pregnancy, regardless of the patient's obstetric history. Early recognition, prompt surgical management, and flexible treatment strategies are essential for optimizing outcomes in such rare but potentially life-threatening situations. Further studies are needed to improve understanding and management of this rare complication.

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Introduction:

Utero-Placental Apoplexy, also known as Couvelaire Uterus, is a critical obstetric complication typically occurring in the third trimester and often associated with labor. It is characterized by placental abruption followed by acute intradecidual hemorrhage resulting from the rupture of uterus-placental spiral arterioles, leading to the development of a retroplacental hematoma (RPH). The hemorrhage may infiltrate the uterine wall and extend into intra- and retroperitoneal areas, posing a significant risk for maternal morbidity and mortality (1). Although rare, Couvelaire Uterus can be complicated by uterine rupture, particularly in patients without prior cesarean sections or intrauterine procedures (2).

This report presents a case of Couvelaire Uterus complicated by uterine rupture in a 34-year-old woman with no history of cesarean delivery or intrauterine manipulation.

Case Report

A 34 year old woman, gravida 4, para 3 (G4P3), presented at 34 weeks' gestation. Her obstetric history included two intrauterine fetal deaths at 8 months of gestation, occurring 12 and 7 years earlier, in the context of undocumented preeclampsia, and a vaginal birth of a living child 10 years ago. She had no history of cesarean section, intrauterine procedures, vaginal bleeding, trauma, or abdominal pain. Her surgical history was otherwise unremarkable.

During the current pregnancy, she was diagnosed with preeclampsia and managed with methyldopa (500 mg) and nicardipine hydrochloride (50 mg). She presented to a physician, who detected intrauterine fetal death (IUFD), and was referred to the obstetrics department of Al Farabi Regional Hospital for further management.

On admission, the patient was conscious, with a blood pressure of 150/90 mmHg, a pulse rate of 84 beats per minute, and a respiratory rate of 18 breaths per minute. There were no neurosensory signs of arterial hypertension. Obstetric examination revealed a uterine height of 28 cm, an unfavorable cervix (Bishop score of 1), no fetal heart sounds, and no uterine contractions or vaginal bleeding. An ultrasound confirmed IUFD with an estimated fetal weight of 2400 g and a fundal placenta, without signs of RPH. Laboratory tests showed a hemoglobin level of 11.5 g/dL.

One hour after admission, the patient experienced sudden hemodynamic instability with a drop in blood pressure to 80/40 mmHg and maternal tachycardia of 140 beats per minute. Hemoglobin decreased rapidly from 11.5 to 5.8 g/dL. An emergency laparotomy was performed under general anesthesia via a Pfannenstiel incision. Intraoperative findings included 2 liters of hemoperitoneum and a non-viable fetus floating in the abdominal cavity. A large posterior uterine rupture extending from the fundus to the left utero-sacral ligament was identified. Both tubes and ovaries were intact. After delivering the placenta, a 4×2 cm RPH was identified, and the uterine rupture was repaired with continuous sutures in two layers using vicryl monofilament medium-term absorbable suture (No. 2, ½ circle needles, 40 mm) .

The patient developed uterine atony with significant vaginal bleeding. An oxytocin infusion (40 IU) and administration of five intrarectal misoprostol tablets were given due to the unavailability of sulprostone, along with 1 g of intravenous tranexamic acid. However, these measures failed to control the atony and postpartum hemorrhage. Given the lack of access to embolization techniques, a triple Tsirulnikov ligation combined with uterine compression using the B-Lynch technique was performed (4). Clots were removed, the abdomen was irrigated, and a pelvic drain was placed and removed two days later. The patient received four units of blood and six units of fresh frozen plasma intraoperatively and was transferred to the maternal ICU at Mohammed VI-Oujda University Hospital. She received an additional unit of blood and two units of fresh frozen plasma and was administered antibiotics.

Four days postoperatively, the patient was transferred to the Department of Gynecology and Obstetrics at Mohammed VI University Center Hospital. Laboratory tests revealed hemoglobin of 11 g/dL and platelets of 100,000/µL. The patient was discharged on the 10th postoperative day with iron supplements and antibiotics. At her four-week follow-up, the patient had no complaints, and physical examination was unremarkable. Ultrasonography at 4 weeks and 3 months postoperatively showed no abnormalities. The patient's menstrual cycle resumed normally.

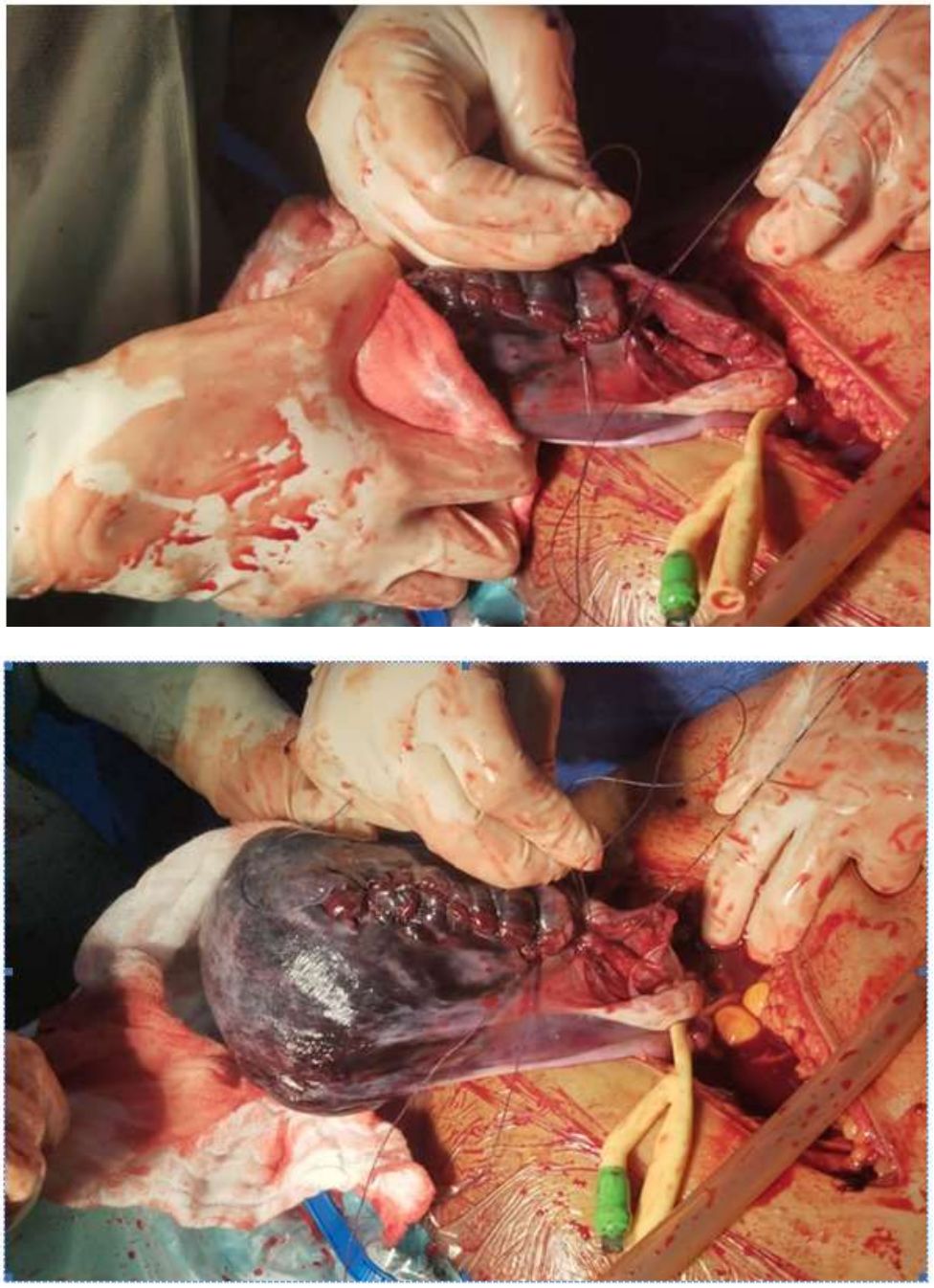

Figure 1:- Perioperative procedure.

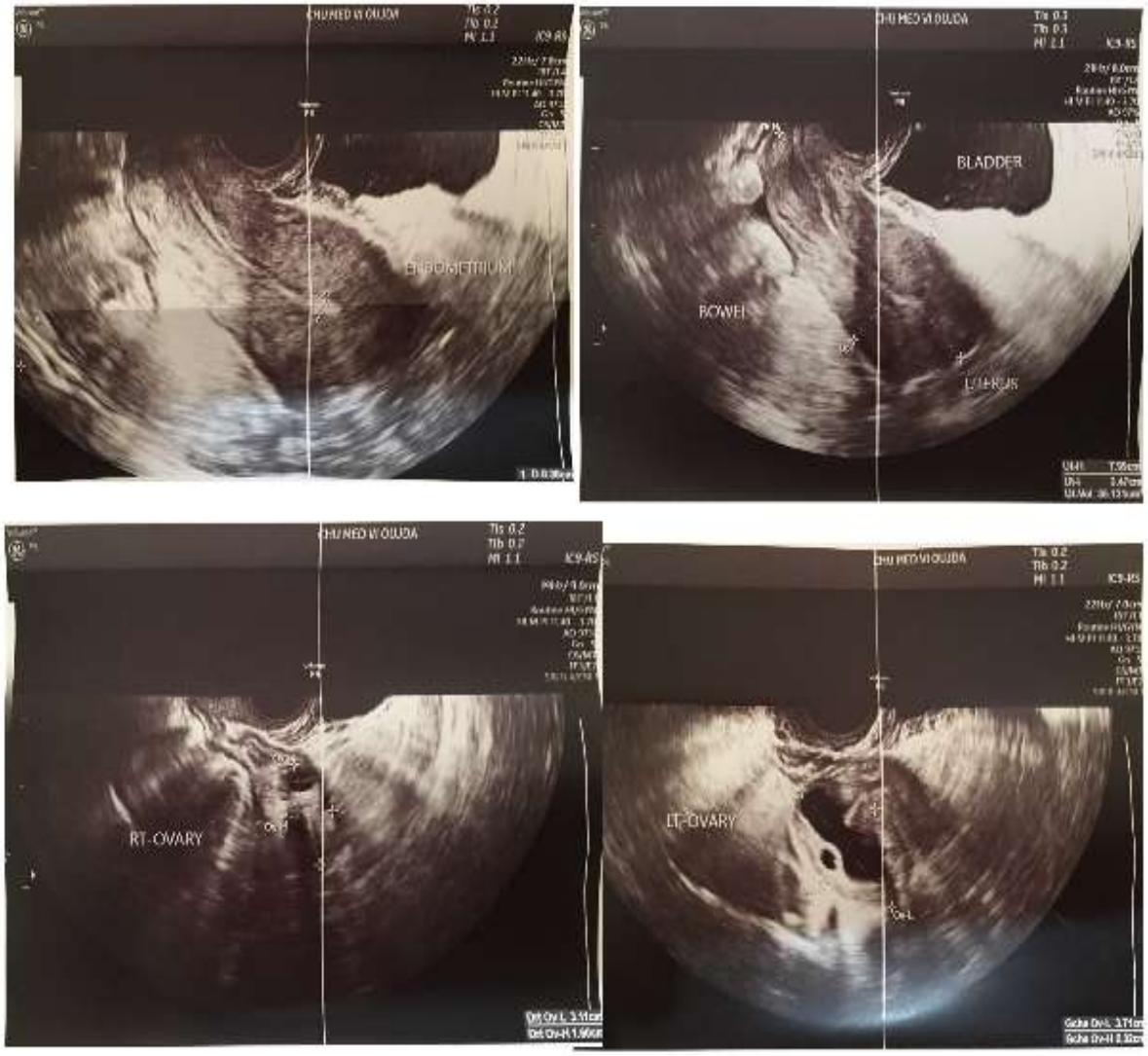

Figure 2:- Ultrasonography three month later.

Discussion:-

Uterine rupture is a rare but severe complication, particularly in primigravid women without a history of uterine surgery or manipulation. It is often associated with significant maternal and fetal morbidity and mortality. While uterine rupture is commonly linked to conditions such as prior cesarean delivery or myomectomy, spontaneous rupture in an unscarred uterus is exceptionally rare and is frequently precipitated by other risk factors, such as uterine anomalies, trauma, or obstetric interventions (1, 2).

In our case, the uterine rupture occurred in the context of a Couvelaire uterus, which is characterized by extensive hemorrhage infiltrating the myometrium due to placental abruption (3). This condition, although rare, can weaken the uterine wall and increase the risk of rupture, particularly when combined with other factors like multiparity, advanced maternal age, and preeclampsia (4, 5). The patient had no history of cesarean delivery or intrauterine surgery, making this an unusual presentation that underscores the importance of considering uterine rupture even in patients without classic risk factors.

The clinical presentation of uterine rupture can vary widely, often complicating timely diagnosis. In many cases, as illustrated by our patient, signs and symptoms may be non-specific, such as sudden onset of abdominal pain, hemodynamic instability, and signs of fetal distress (6). The lack of specific symptoms in our case, including the absence of abdominal pain or vaginal bleeding before the onset of shock, highlights the difficulty in making a

prompt diagnosis. The use of ultrasound, while helpful in identifying fetal demise or placental location, may not always detect RPH or uterine rupture, necessitating a high degree of clinical suspicion and readiness for surgical exploration (7, 8).

The management of uterine rupture requires immediate surgical intervention. In this case, an emergency laparotomy revealed a large posterior uterine rupture, which was successfully repaired. However, the occurrence of uterine atony post-repair and subsequent postpartum hemorrhage required additional interventions, including a triple Tsirulnikov ligation and the B-Lynch uterine compression technique. These conservative surgical measures are crucial in settings where access to advanced interventions such as uterine artery embolization is limited (9). Our patient's management highlights the need for flexible and adaptive surgical strategies, particularly in low-resource settings where advanced care options may not be readily available (10).

The rarity of uterine rupture in unscarred uterus calls for more detailed reporting and study of such cases to better understand potential risk factors and optimize management strategies. Current literature indicates that even in the absence of a uterine scar, factors such as advanced maternal age, preeclampsia, multiparity, and Couvelaire uterus could contribute to an increased risk of rupture (11). Given the diverse presentations and potential for rapid deterioration, clinicians should maintain a high index of suspicion, particularly in high-risk patients or those presenting with signs of acute abdomen during pregnancy.

Our case underscores the importance of prompt surgical intervention and a multidisciplinary approach to manage complications effectively. This approach is essential to improve maternal and fetal outcomes in such rare but potentially life-threatening situations. Additionally, it emphasizes the need for accessible and comprehensive obstetric care, particularly in low-resource settings where delays in diagnosis and treatment can have catastrophic outcomes (12).

Conclusion:

This case report highlights the need for vigilance in diagnosing uterine rupture, even in patients without a history of uterine surgery or manipulation. While rare, uterine rupture in the context of a Couvelaire uterus poses a significant threat to maternal and fetal health. Early recognition, prompt surgical management, and adaptable strategies tailored to the available resources are crucial for favorable outcomes. Further research and case reports are needed to better understand the risk factors and management options for this rare but serious complication.

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