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Case Report

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COUVELAIRE UTERUS AND ABRUPTION PLACENTA: A CASE REPORT

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ABSTRACT

Couvelaire uterus is a complication observed in severe cases of placental abruption. Close monitoring and early identification can prevent serious maternal and fetal outcomes. There are very few reported cases of Couvelaire uterus rupture in the literature, as it is a very rare entity. This syndrome can only be diagnosed through direct visualization during cesarean section or biopsy, or both. Due to this diagnostic challenge, its prevalence is often under-reported and underestimated in the literature. We present a rare case of Couvelaire uterus in a 35-year-old woman with preeclampsia, where the uterus was preserved.

INTRODUCTION

Couvelaire uterus, is also known as uteroplacental apoplexy. First described in the medical literature by Dr. Alexandre Couvelaire, a French obstetrician in 1912. It is a rare but non fatal condition, that occurs due to extravasation of blood into the uterine musculature and surrounding tissues.[1] It has a typical association with abruption placenta, that is premature separation of the placenta, that enables blood to penetrate through the myometrium and parametrium.[1,2]

This condition is usually diagnosed through direct visualization of the uterus during a cesarean section. Characteristically, it appears bluish or purplish in color, mottled by ecchymosis.[3] The incidence is challenging to determine, with some estimates as high as 20%, while others place it as low as 5%. Consequently, its prevalence may be underreported and underestimated in the literature.[4]

In this report, we present a rare case of uterine rupture with preservation of the uterus in a young multiparous woman with a high-risk pregnancy.

CASE REPORT

Our case report describes a 35-year-old patient, para 3, gravida 3, currently estimated at 33 weeks of gestation, who was referred from a birthing center to our hospital for hypertension and lower limb edema.

The patient's medical history included obesity with a BMI of 39 kg/m²; otherwise, she had no underlying medical conditions apart from gestational hypertension diagnosed at 24 weeks of gestation, for which no medication was being used. She had no toxic habits.

On general examination upon admission, Her vitals were a blood pressure reading of 150/91 mmHg, a pulse rate of 81 beats per minute, a temperature of 36.6 °C saturating 99% on room air, and she presented with neurosensory signs such as headaches and lower limb edema. Urinary dipstick showed 2 crosses of proteinuria.

her gynecologic and abdominal examination, revealed a gravid abdomen, fundal height was 28 cm, the abdomen was not tense, the uterus was soft, no uterine contractions, bleeding, or leucorrhea were noted.

The patient's other vital signs were normal at the time of admission, and fetal heart rate monitoring showed reactive and fluctuating patterns with a baseline rate between 130 and 140 beats per minute.

Obstetric ultrasound was performed initially, showed a single viable foetus with estimate weight of 2000g pregnancy, cephalic presentation, fœtal heart rate were 140 beats per minutes, and anterior fundal placenta.

Initial blood test was performed, which returned with no notable abnormalities.

The patient was hospitalized with a diagnosis of preeclampsia, and calcium channel blocker therapy was initiated with close monitoring of various parameters.

36 hours after admission, the patient suddenly experienced painful uterine contractions with minimal dark vaginal bleeding. On examination, the patient had a heart rate of 110 beats per minute, blood pressure of 18/11 mm Hg, with neurosensory signs including severe headaches and tinnitus.

Suspecting retro placental hematoma, the patient underwent obstetric ultrasound, and due to the diagnosis of placental abruption and fetal bradycardia (90 to 100 beats/min), the patient was immediately transferred to the operating room for emergency cesarean section. At delivery, the baby had an Apgar score of 5 at 1 minute and 8 at 5 minutes, and the placenta was detached by more than 70%. Large clots were observed behind the placenta, all of which were removed. the diagnosis of Couvelaire uterus was made intraoperatively and the uterus was soft, boggy, blue, and Couvelaire. (**Figure 1, Figure 2**) Diffuse hematomas were also visible on the posterior aspect of the uterus but did not reach the parametria.

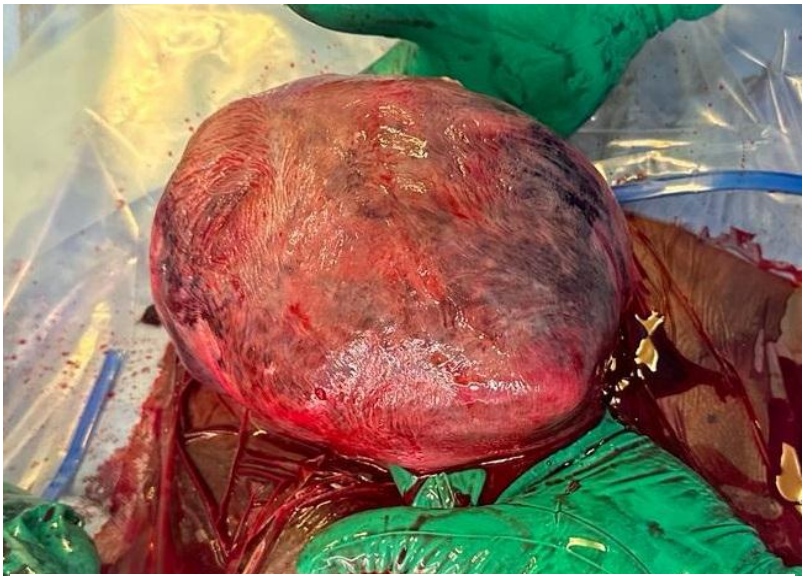

Figure 1: Couvelaire Uterus's Diagnosis Was Made Intraoperatively.

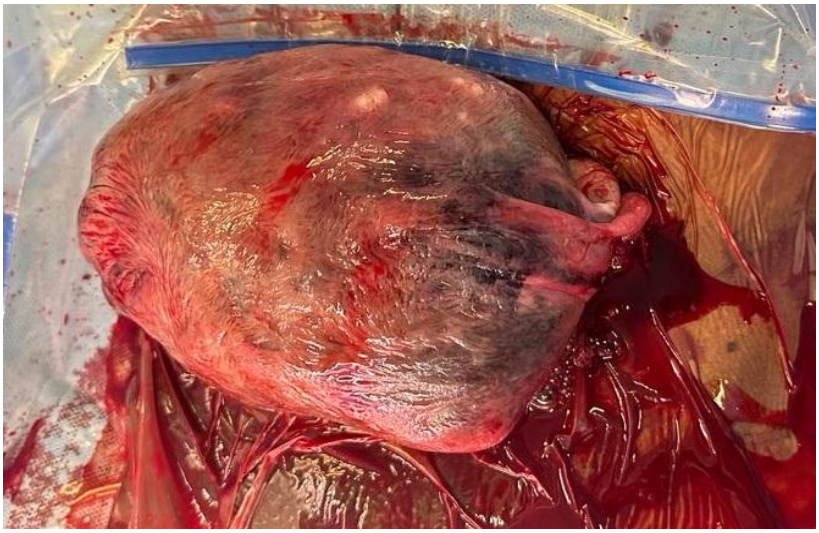

Figure 2: The Uterus Was Soft, Boggy, Blue, and Couvelaire. The Hematomas Did Not Reach the Parametria.

Due to continuous bleeding, the patient received transfusion of 3 units of packed red blood cells. Additionally, to maintain the uterus and control its atony, compressive sutures were applied, and oxytocin (40 U/L IV), misoprostol (1000 µg rectal), and tranexamic acid (1 g IV) were prescribed to the patient. Once hemostasis was ensured, the uterus was repositioned in the abdomen, and a drain was inserted for the patient. The treatment was conservative for our case, with no postoperative complications.

The patient was transferred to the intensive care unit (ICU) and remained hospitalized in the ICU for 4 days before being transferred to the obstetrics department after stabilization of her blood pressure.

DISCUSSION

Couvelaire uterus, also referred to as uteroplacental apoplexy, is a rare phenomenon occurring in approximately 5% of cases involving placental abruption[1,5] occurs when vascularization of the placenta sustains damage, leading to hemorrhage that separates the basal decidua from the placenta and penetrates deep into the uterine musculature, and in the most severe cases, the hemorrhage can reach the broad ligaments, the ovaries, and the peritoneal cavity, secondary to the formation of a massive retroplacental hematoma.[6]

Uteroplacental apoplexy can be divided into four grades according to the degree of separation between the placental surface and the uterine wall according to Page's classification:[7]

1) Grade 0 with incidental finding of separation in an uncomplicated delivery.
2) Grade I with the presence of mild pain, mild bleeding, and clots but with an intact fetus.
3) Grade II represents a 30-50% separation between the placental and uterine walls, with abdominal pain, clots, internal and external hemorrhage, fetal involvement, and increased mortality in up to 20-30% of cases.
4) Grade III is similar to grade two, but the onset is acute, with maternal and fetal involvement, with probable shock, and in all cases, the fetus dies.

Although the exact etiology of Couvelaire uterus is unknown, it has been associated with: premature placental abruption, placenta previa, coagulopathy, preeclampsia, ruptured uterus from a transverse lie and amniotic fluid embolism[8], but other factors include arterial hypertension, advanced maternal age, polyhydramnios, multiparity, abdominal trauma, intrauterine growth restriction, abuse of illicit substances such as cocaine and marijuana, maternal smoking, and obesity.[2,7,9] In our case, CU was associated with preeclampsia, obesity and premature placental abruption.

Women with placental abruption are at increased risks of perinatal morbidity and mortality, fetal death, maternal postpartum hemorrhage, maternal hypovolemic shock, disseminated intravascular coagulopathy, acute renal failure and cardiovascular disease.[10]

At present, there are no defined diagnostic clinical criteria for placental apoplexy (PA). According to the New Jersey-Placental Abruption study, the most common indication for a clinical diagnosis of abruption was the presence of retroplacental clots or bleeding (77.1%), followed by vaginal bleeding accompanied by uterine hyper tonicity (27.8%), and vaginal bleeding with no reassuring fetal status (16.1%).[11] Direct visualization of the uterus typically reveals a retro placental infiltrate. Confirmation of the diagnosis involves biopsy, which under microscopic examination demonstrates a hematoma in the decidual zone accompanied by areas of focal necrosis and hemorrhagic infarction.[12]

In the case of our patient, vaginal bleeding was observed, and the uterus was extremely hypertonic, with the condition of the fetuses was uncertain. The diagnosis of couvelaire uterus was made by visual inspection.

Research has indicated that transabdominal sonography can be instrumental in detecting retro placental hemorrhage, even in the absence of vaginal bleeding but in the presence of fetal bradycardia. This enables physicians to make urgent decisions, such as opting for pregnancy termination or performing a cesarean section, to mitigate the risk of intrauterine fetal demise or hypoxic brain injury resulting from delayed diagnosis.[13]

The management of uteroplacental apoplexy (PA) with Couvelaire uterus (CU) depends on the patient's condition. There have been instances where conservative management of CU has been successful.[14]

Hysterotomy is typically reserved for obstetric indications and maternal hemodynamic instability, among other reasons, in cases of Couvelaire uterus (CU). A hysterectomy is usually not necessary as the uterine muscles maintain their contractile ability despite blood extravasation into the myometrium.[15] Hysterectomy may be considered in cases where there is profound myometrial damage or uncontrolled bleeding despite conservative measures such as hemostatic brace sutures or uterotonics.[16] In our case, despite severe uteroplacental apoplexy (PA), the uterus was preserved with successful control of bleeding, with no postoperative complications.

In pre-viable pregnancy, there is no standard recommendation regarding the mode of delivery. Therefore, the decision is left to the attending obstetrician and is individualized based on the specific circumstances of each case.[17]

CONCLUSION

Uteroplacental apoplexy is an extremely rare obstetric pathology, making its identification challenging. Hence, the importance of close vigilance and timely decision-making cannot be overstated as they can prevent adverse maternal and fetal outcomes.

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Guarantor of Submission

The corresponding author is the guarantor of submission.

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Competing interests
The authors declare that they have no competing interests.

Consent for publication
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Ethics approval and consent to participate
Ethics approval has been obtained to proceed with the current study. Written informed consent was obtained from the patient for participation in this publication.

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