

CASE REPORT

Obstetrics

Conservative management of classic Couvelaire uterus with postpartum hemorrhage: A case report

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Abstract

Background: Couvelaire uterus is an uncommon outcome of severe placental abruption and can only be diagnosed by visual inspection of the uterus or biopsy.

Case presentation: A 28-year-old gravida 2 para 1 presented with labor-like pain and vaginal bleeding at 38 weeks + 6 days. She gave no history of hypertensive disorders in pregnancy or trauma. The fetal heart rate was not detected by cardiotocography. An emergency cesarian section revealed a fresh stillbirth male with placental abruption in a Couvelaire uterus. She developed immediate postpartum hemorrhage, which

was managed with uterotonics, uterine balloon tamponade, and was transfused 1.5liters of blood. She was discharged on the third postoperative day and was stable on three distinct postnatal clinic visits.

Conclusion: Couvelaire uterus can be managed conservatively as it resolves spontaneously. This case highlights one of its fatal fetal and maternal complications when the opportunity for timely intervention is missed.

Keywords: Couvelaire uterus, placenta abruption, fresh stillbirth, antepartum hemorrhage

Introduction

Couvelaire uterus, also called uteroplacental apoplexy, is an uncommon, non-fatal illness in which placental abruption leads to bleeding in the uterine myometrium (1,2). When hemorrhage from placental blood vessels penetrates the decidua basalis, it causes placental separation and infiltration in the uterus' lateral regions (3). The diagnosis of Couvelaire uterus can only be made by direct visualization of the uterus, during a cesarian section, or biopsy, as a forensic specimen (2). As a result, its occurrence in the literature may be under-reported. Couvelaire uterus complicates nearly 5% of all cases of abruption (3,4). The management of the Couvelaire uterus is

conservative. Hysterectomy is not required and should be avoided (3).

Case presentation

A 28-year-old gravida 2 para 1 presented to the labor ward at the Kenyatta National Hospital (KNH) after four hours of labor-like pain and vaginal bleeding at 38 weeks + 6 days. She gave no history of hypertensive disorders during pregnancy or trauma. She had one antenatal care visit at a peripheral facility at 37 weeks, but no obstetric ultrasound scan was done. The first pregnancy was an uncomplicated vaginal delivery of a live female infant. On admission, her blood pressure (BP) was 128/80 mmHg with tachycardia of 120 beats per minute (BPM). The fetal heart rate was not detected by cardiotocography. She was scheduled for an

emergency cesarian section, and a fresh stillborn male weighing 3.270kg was extracted from the uterus. The placenta delivery revealed blood clots of approximately 1liter concealed due to a complete placental abruption (Figure 1). There was no uterine rupture, and no broad ligament hematoma was noted. A Couvelaire uterus was also visualized (Figure 2). Other pelvic organs were grossly normal in appearance. Hysterorrhaphy was done in two layers (Figure 3). The abdomen was closed in layers, and the patient was transfused with 500mls of blood.

The patient developed profuse vaginal bleeding with a well-contracted uterus in the immediate postpartum period. Paracentesis was negative. She was administered carbetocin 200mg and tranexamic acid 2gm intravenously (IV). She was scheduled for an examination under anesthesia. Intraoperatively, placental tissues were not found inside the uterine cavity. Given that the vaginal bleeding was not subsiding, a uterine balloon tamponade (UBT) was inserted, and the bleeding was arrested. The patient was pale in appearance and was transfused 1liter of whole blood. The uterine balloon tamponade was removed 24 hours postoperatively. She was not anemic anymore; however, she had slight thrombocytopenia (Table 1). There was no evidence of acute kidney injury or disseminated intravascular coagulopathy (DIC). Given the vaginal bleeding, the complete placental abruption, along with the fetal death, the severity of the placenta abruption was categorized as Class 3. She was discharged on the third postoperative day on analgesics and hematinics. She was stable on three distinct postnatal clinic visits.



Figure 1: After removing the placenta, part of the removed blood clots can be seen along with the incised uterus. More blood clots in the uterus are seen.



Figure 2: Posterior side of the uterus clearly showing a typical Couvelaire uterus appearance.



Figure 3: No uterine rupture was noted posteriorly, and there was no broad ligament hematoma.



Figure 4: Hysterorrhaphy in two layers.

Table 1: Trends in the laboratory evaluation of the patient

Parameters	Reference range	Results		
		Pre-transfusion	Day 1 post-transfusion	Day 2 post-transfusion
Hemoglobin (g/dl)	9.5-15	7.5	8.5	9.2
Platelets (x10 ⁹ /L)	150-400	85	100	105
WBC (x10 ⁹ /L)	5.6 – 16.9	15.49	15.55	15.34
Urea (mmol/L)	4.2 – 8.2	4.8	5.4	5
Creatinine (mmol/L)	42 – 99	101	96	95
INR	0.8-1.1	1.1	1	1

INR: International normalized ratio

Discussion

The mechanism of the Couvelaire uterus consists of blood infiltration in the uterine myometrium due to the establishment of a substantial retroplacental hematoma (5). Hemorrhage at the deciduo-placental junction is a critical component in its pathogenesis (1). Although uncommon, placental abruption is linked to disproportionately high rates of perinatal morbidity and mortality. It is also a common cause of vaginal bleeding in the second half of pregnancy, accounting for 20-25% of all antepartum hemorrhages (1,6). Placental abruption usually presents with painful vaginal bleeding, if overt, accompanied by uterine contractions and an abnormal fetal heart rate pattern. The specific cause of abruption is unknown. However, the associated risk factors include maternal age, low social-economic status, previous history of abruption, cigarette smoking, trauma, maternal hypertensive disorders, polyhydramnios, multiple pregnancies, and thrombophilia (7). Placental abruption can be categorized into two types: concealed when the bleeding stays within the uterine cavity; or revealed when the bleeding drains through the cervix and becomes evident as it was in this case. Its severity has been classified from class 0 to 3 with class 0 or 1 usually linked with a partial, marginal separation; whereas, class of 2 or 3 indicates complete or central separation (8). The diagnosis of Couvelaire uterus can only be made by direct inspection of the uterus, during a cesarean section, or biopsy, as a forensic specimen (2,3). The outer layer of the uterus has a characteristic bluish, purplish discoloration (9).

The ability of the uterus to contract is unaffected in cases of Couvelaire uterus, and decompression usually allows for spiral artery constriction to accomplish hemostasis (2). The spiral arteries did not constrict as expected in this case, resulting in postpartum bleeding that was successfully managed with uterine balloon tamponade. Couvelaire uterus is related to a higher frequency of

postpartum hemorrhage and blood transfusion, as in this case, as well as disseminated intravascular coagulation (DIC) and poorer fetal outcomes compared to placenta abruption without it (1). Hysterectomy may be required as a life-saving intervention where uterotonics, uterine balloon tamponade, and bracing sutures fail to establish adequate hemostasis as in the event of DIC (1,2). The management of Couvelaire uterus is conservative most of the time (2,3,9).

Conclusion

Couvelaire uterus can be managed conservatively as it resolves spontaneously. This case highlights one of its fatal fetal and maternal complications when the opportunity for timely intervention is missed.

Consent for publication

Informed consent for publication was obtained from the patient.

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Declarations

Conflict of interests

The authors declare no conflicts of interest.

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