

Postpartum uteroplacental apoplexy: A case report

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Abstract

Uteroplacental apoplexy is a very rare pathology characterized by extravasation of blood in the myometrium secondary to a massive retropla-

cental hematoma. Its diagnosis must be made in a timely manner to allow for effective intervention and avoid life-threatening maternal and fetal complications.

Key words: Uteroplacental apoplexy, Couvelaire uterus, obstetric emergency.

Introduction

Uteroplacental apoplexy is a life-threatening complication, primarily due to premature separation of the normal placenta by blood infiltration of the endometrial layer, which occurs in approximately 1% to 5% of pregnancies worldwide. (1-3) It 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: (4)

- 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 be-

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.

Clinical presentation of the case

The patient was a 25-year-old, multigravida patient (second pregnancy) at 38.5 weeks gestation based on the date of her last menstrual period, with a history of previous cesarean section 5 years prior for macrosomia (4200 g) in a rural environment. On admission, an obstetric ultrasound was performed, revealing a single live fetus, active, with a heart rate between 100 and 110 beats per minute, cephalic presentation, and an amniotic fluid index of 8. The patient was admitted to the hospital for labor monitoring due to obstetric pain and irregular uterine activity, with a diagnosis of pregnancy at 38.2 weeks with prodromal labor, previous cesarean section, and risk of loss of fetal well-being.

After 5 hours of hospitalization, the patient was transferred to the delivery room for vaginal delivery, with a female newborn of 3600 grams, length of 51 cm, with Apgar score 8-9 and Silverman 00. After the birth of the previous shoulder, 10 IU oxytocin was indicated as prophylaxis for obstetric hemorrhage as part of the hospital protocol; how-

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ever, as transient uterine atony occurred, it was decided to suspend oxytocin and administer a dose of 100 mcg carbetocin IV. The response was good, ending the obstetric event, with an estimated bleeding during delivery of 600 cc.

Two hours after delivery while in the recovery area, the nursing staff reported transvaginal loss of abundant blood, approximately 500 cc; misoprostol 800 mcg was administered rectally without response, and the event was immediately protocolized as obstetric hemorrhage. The patient was placed on a double IV and moved to the operating room where Zea clamping was performed without a favorable response, with bleeding estimated at 1600 cc (delivery plus postpartum). Next, an exploratory laparotomy was performed, revealing a uterus with a mottled infiltrate predominantly in the bilateral cornual area (**Figures 1 and 2**). A clinical diagnosis of uteroplacental apoplexy was made, and a successful obstetric hysterectomy was performed. Post hysterectomy bleeding was quantified at 600 cc, for a total blood loss of 2200 cc (cesarean section 600 cc, recovery 1000 cc, and trans-hysterectomy of 600 cc); 2 erythrocyte concentrates and 2 fresh frozen plasma units were transfused during the surgery. Laboratory results are provided in **Table 1**. The surgical specimen was sent to pathology to establish the definitive diagnosis. The patient was moved to the obstetric intensive care unit to continue management, where 1 red blood cell concentrate (RBC) and 1 fresh frozen plasma unit were transfused. Diagnoses of immediate pathological surgical puerperium secondary to uterine atony, Couvelaire uterus, obstetric hysterectomy, and World Health Organization (WHO) grade III anemia were made.

Histopathology confirmed the diagnosis of uteroplacental apoplexy grade II according to Page's classification (**Figure 3**) with obstetric hemorrhage grade IV. The obstetric hemorrhage protocol was initiated with stepwise management of uterotonics, Zea clamping, transfusion of blood products, and obstetric hysterectomy with 48 hours of follow-up in the intensive care unit, where the patient improved without complications and was discharged.

Discussion

Uteroplacental apoplexy, also known as Couvelaire uterus, is a rare pathology with an estimated prevalence of 5 to 16.5%; in most cases, the diagnosis cannot be established because it is performed by laparotomy. (3) It is characterized by extravasation of blood in the uterine musculature that can reach the uterine serosa, and in the most severe cases, the hemorrhage can reach the broad ligaments, the ova-

ries, and the peritoneal cavity, secondary to the formation of a massive retroplacental hematoma. (2)

The main etiologic factor is attributed to bleeding at the decidual-placental interface, which can lead to fetal death, maternal hypovolemic shock, disseminated intravascular coagulopathy, and acute renal failure. The main risk factor is premature placental abruption, but other factors include arterial hypertension, advanced maternal age, polyhydramnios, multiparity, abdominal trauma, intrauterine growth restriction, and abuse of illicit substances such as cocaine. (1,4)

Diagnosis of uteroplacental apoplexy, or Couvelaire uterus, can be made clinically with the presence of dark red genital bleeding as the main symptom, which is present in up to 78% of cases, in addition to increased uterine tone. Direct visualization of the uterus reveals a retroplacental infiltrate, and the diagnosis is confirmed by biopsy, which microscopically reveals a hematoma in the decidual zone with an area of focal necrosis along and hemorrhagic infarction. (5)

It should be noted that the etiology of uteroplacental apoplexy in most cases is due to premature rupture of the normal-insert membranes, but there were reports of cases in which the cause was unknown. It may be related to the use of uterotonic drugs that cause contraction of the muscle fibers, generating massive accumulation of lochia with the consequence of hematologic infiltration of the myometrium. (5-7)

Uteroplacental apoplexy is considered an obstetric emergency that should be managed immediately by a multidisciplinary team with the intention of performing an emergency cesarean section or exploratory laparotomy to save the life of the fetus and the mother. (6,8,9) Maternal complications include hypovolemic shock (5-15%), disseminated intravascular coagulopathy (10%), acute renal failure, and ischemic necrosis of distal organs (Sheehan's syndrome). For the fetus, mortality occurs in 4 of 1,000 cases, representing 15% of total perinatal mortality, with the main causes being asphyxia, prematurity, and severe anemia. (10-12)

Conclusions

Uteroplacental apoplexy is a rare obstetric pathology. The case presented herein occurred in the immediate puerperium period, with no history of abruption or other risk factors, only uterine atony and use of uterotonics. The histopathologic report was key to the diagnosis, confirming hematic infiltration between muscle fibers. We concluded that the use of uterotonics was the cause, provoking contraction

of the muscle fibers and generating massive accumulation of lochia, with the consequence of hematic infiltration of the myometrium. Attending physicians and residents working in obstetric units should be familiar with the presentation of uteroplacental apoplexy and obstetric hemorrhage protocols. Alt-

hough these cases are rare, they do occur, and the timing of intervention is critical to saving the life of the fetus and mother. Risk factors such as preeclampsia, coagulopathy, placenta previa, uterine rupture, and amniotic fluid embolism should be considered.

Table 1. Laboratory results

	Hospital admission	Post-operative event	Day 1 obstetric ICU	Day 2 obstetric ICU
Hemoglobin (g/dl)	11.0	7	9	9.2
Hematocrit (%)	42	49	41	39
MCV (fl)	81	75	79	75
MCH (pg)	29	28	30	27
Platelets ($\times 10^3/\mu\text{l}$)	245	169	175	174
Leukocytes ($10^3/\mu\text{l}$)	15	28	19	15
Lactate (mmol/l)	-	5.1	3.6	1.8

Legend: ICU=Intensive Care Unit; MCV=mean corpuscular volume; MCH=mean corpuscular hemoglobin.

Figure 1. A predominant infiltrate is observed in the bilateral corneal region

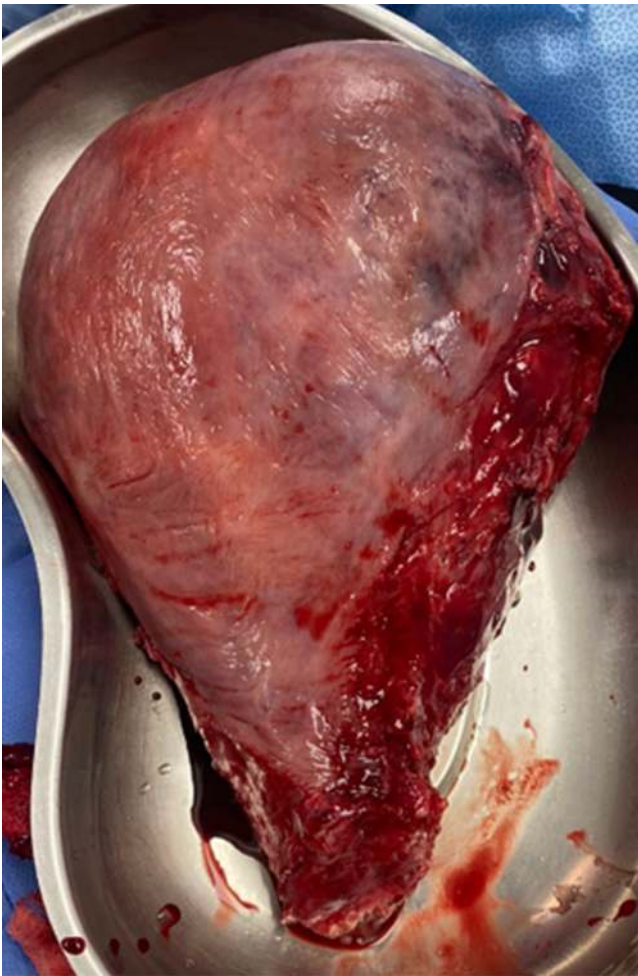


Figure 2. Formalin-embedded uterine sections show an approximately 30% infiltrated zone

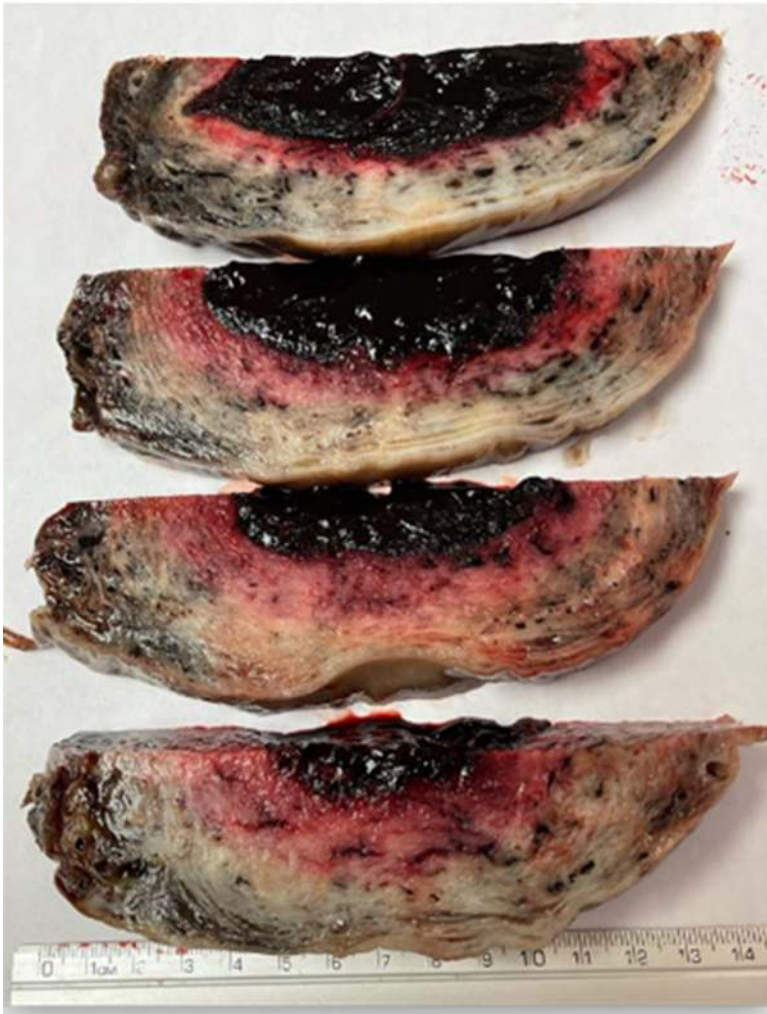
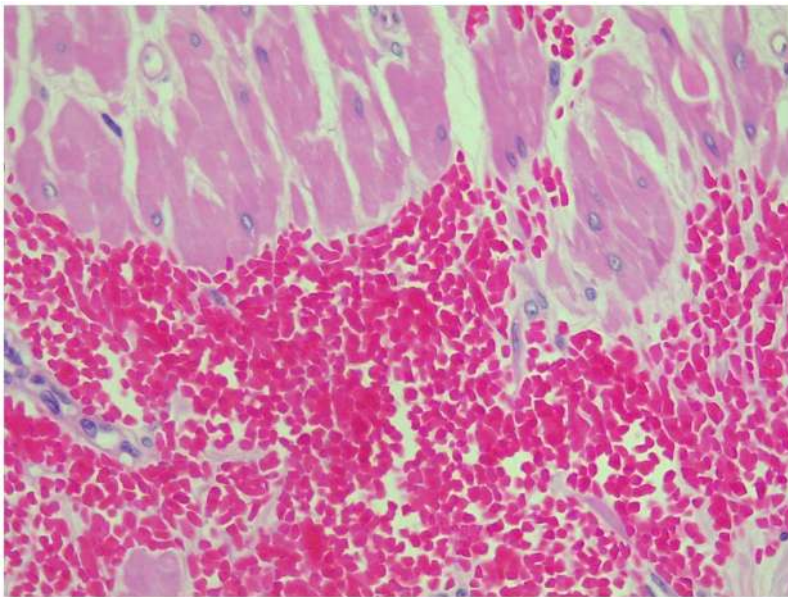
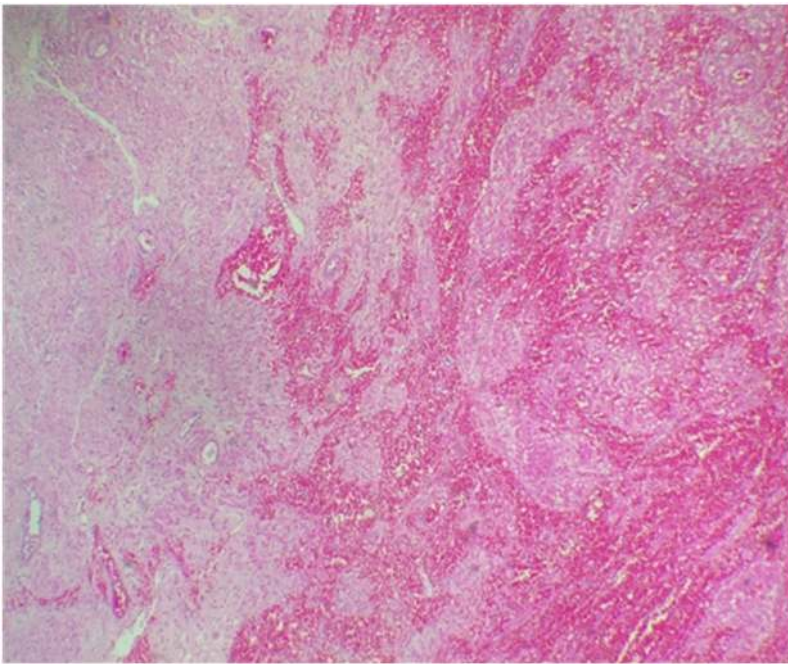


Figure 3. Photomicrograph showing transition zones of recent hemorrhage between muscle fibers (hematoxylin and eosin staining, 4x)



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