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Feto-maternal outcome in couvelaire uterus

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Introduction

Couvelaire first described the entity in 1911. It is a rare non-fatal complication of severe concealed abruptio placenta, which is estimate to complicate 5% of all cases of abruption. Couvelaire uterus or uteroplacental apoplexy is a rare complication of abruptio placentae whose etiology is unknown.

The entity is infrequently reported and the incidence is difficult to estimate because the diagnosis is made by direct visualisation or biopsy on laparotomy. Placental abruption is the premature separation of the normally implanted placenta after foetal viability and before the delivery of the baby which can be revealed and concealed or mixed[1].

There is massive intravasation of blood into uterine musculature up to the serous coat. Immediate manage ment is usually conservative and hysterectomy is usually not required. We present a case series of 10 cases of clinically unstable previable pregnant patients with suspected placenta abruption and Couvelaire uterus. This is an uncommon presentation found during visual inspection of the uterus that has dark purple patches with ecchymosis. A Couvelaire uterus does not affect the uterine ability to contract and decompression usually allows constriction of spiral arteries to achieve haemo stasis. A hysterectomy may be indicated as a life- saving measure if haemostasis cannot be achieved adequately in view of disseminated intravascular coagulopathy.

Our case highlights the importance of early recognition of a clinically unstable previable pregnant patient with suspected abruption and early surgical recourse with emergency hysterotomy for life- saving measures.

Materials and methods

The aim of this study is to collect cases of abruption placentae with Couvelaire uterus and conduct retro spective case series study to determine the feto maternal outcome and describe the diagnosis, treatment moda lities. We are reporting 10 cases of Couvelaire uterus all of them diagnosed clinically, intraoperatively. All cases were managed surgically and the fetomaternal outcome was determined.

Case report

Case 1: A 31-year-old female primigravida presented with a sudden onset of generalized abdominal pain at 35 weeks and 3 days of gestation at 11 pm with no relief from simple analgesia. There was no vaginal bleeding. Normal foetal movements were reported. She had no significant past medical history. On examination, there was generalized abdominal tenderness and an irritable uterus was noted. Her vital signs normal. A bedside USG revealed a single live intrauterine pregnancy, cephalic, with a posterior placenta with no notable retroperitoneal clot or separation and normal Urine dipstick revealed only trace blood. Her haemoglobin level, platelet count, C-reactive protein, liver, kidney function tests and coagulation profile, were unremarkable. Her uterus was tender and palpated as 'woody' without any relaxation. A decision for emergency caesarean section (CS) was made. On routine CS entry, there was a massive amount of blood at the level of rectus sheath.

It was then immediately recognized that an intra peritoneal bleed was a high possibility. More blood was visualized on entry to the peritoneal cavity. On entry of the uterus, placenta was on view and a live male infant of 2940 g and the placenta was delivered quickly without difficulty.

The uterus was exteriorized and 300 ml of retroperitoneal clot was evacuated. There was active bleeding from the posterior uterine wall from the level of fundus to bilateral uterosacral attachment, with bleeding into the myo metrium and serosal layers resulting in significant dark purple patch and prominent haematoma in the area. This is diagnostic of a Couvelaire uterus with an associated intraperitoneal bleed.

Her post-operative recovery was complicated by preeclampsia requiring magnesium sulphate infusion and regular anti-hypertensive medications.

Case 2: A 29-year-old primigravida,32 weeks of gestation, Her LMP was 14 Jan, 2021 and EDD was 21 Oct, 2021. Her blood pressure (BP) was 150/90 mm Hg. All her routine antenatal investigations were normal including ultrasonography. In view of her high BP recording, she was advised admission for monitoring of her BP and follow up. On 28 Aug 2021 she developed severe pain abdomen and backache associated with nausea and vomiting. This was followed by loss of foetal movements. She was brought to labour on the same day. Clinical examination revealed, pallor, pulse 98/minute, BP 150/96 mmHg. Uterus was 32-34 weeks in size, tense, tender and rigid. It was not possible to palpate foetal parts. Foetal heart sounds were absent. Vaginal examination revealed, cervix 1- 2 cm dilated, 30-40% effaced and station -1. Clinical diagnosis of abruptio placentae with IUFD was made. Routine urgent investi gations including coagulation profile were normal except for haemoglobin of 9.2gm/dL. Oxytocin drip was started to assist vaginal delivery with close monitoring. Pallor and tachycardia had increased although BP remained around 150/90mm Hg. She was taken up for emergency caesarean delivery. On opening up of abdomen Couvelaire uterus was noted. There was blood in peri toneal cavity and placenta was totally separated with a large retroplacental clot. A still born female weighing 1500 grams was delivered. Total blood loss was around four litres. She was given six units of fresh blood and the patient made satisfactory recovery till fourth post operative day.

Case 3: Mrs. Gayatri was a 35-year-old Gravida 2, Para 1+0, She booked for antenatal care at 11 weeks gestational age with a blood pressure of 160/100 mmHg. The ultra sound report confirmed a viable intrauterine preg nancy at 11 weeks plus 2 days. She was commen ced on nifedipine 20 mg twice daily, but she did not

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adhere to her antihypertensive medications in spite of repeated counselling. The blood pressure remained un controlled and fluctuated between 150/100 mmHg and 160/110 mmHg. On November 11, 2021, at 29 weeks and 4 days gestational age, she was admitted as an emer gency with severe abdominal pain, vomiting, and a pulse rate of 97 beats/min with blood pressure of 180/120 mm Hg. The was board-like, tender, and there was no foetal heart sound. The cervix was posterior, firm, and tubular. The cervical os was closed. Diagnoses of severe hyper tension, preterm placental abruption, and IUFD were made. Her abdominal ultrasound confirmed IUFD but did not reveal any retro-placental blood clots.

Cervical ripening was commenced with 100 µg vaginal misoprostol at 4 hourly intervals; however, the cervix remained unfavorable for induction after 6 doses of administration. At about 36 h following admission, the patient complained of weakness, and dizziness. Her pulse rate was 128 beats/ min, and the blood pressure was 90/ 60 mmHg. The cervix was still tubular, and the cervical os was closed. In view of the deteriorating clinical con dition, she was counselled on the emergency caesarean section which she consented to. She was transfused with two units of fresh whole blood preoperatively. Following the transfusion, the pulse rate, blood pressure, and bedside clotting time became 107 beats/min, 110/70 mm Hg, and 9 min, res pectively. The intraoperative findings were a 1.25 kg female fresh stillbirth, postero-fundal placenta with about 1.5 L of retro-placental blood clots, and a Couvelaire uterus. She received one more unit of fresh whole blood intra operatively.

Postoperative recovery was satisfactory. The blood pressure at discharge on the 6th postoperative day was 140/90 mmHg.

Case 4: Mrs. Sophiya age 27, Primigravida, Past History-NAD, LMP -Oct 29, 2021, EDD August 5, 2022.

Physical examination

NAD. Laboratory findings: NAD. On 2 Oct, up to 6:30 PM patient was apparently normal, while patient was at dinner, she was suddenly seized with continuous cramping abdominal pains. In twenty minutes, the pain became more severe, and the woman was sent to the hospital. On her way there she began to bleed profusely, vomited, and fainted. Examination at the time revealed the bag of waters unruptured; F. H. R. 140 to 150, irregular and indistinct; head presenting at station 1 plus; cervix undilated; moderate haemorrhage; uterus globular, contracted, and extremely tender. It was difficult to outline foetal parts. The pains were still constant. After consultation, caesarean section was performed. On laparotomy, free blood was found in the peritoneal cavity. Right half of the uterus was blackish red and numerous black areas which simulated throm botic vessels were scattered throughout the involved side. The mottled appearance extended to the lower uterine segment anteriorly and to the pelvic floor posteriorly. On incising the uterus a clot, the size of a hand, was present between the placenta and uterine wall. Membranes and live foetus delivered. No hysterectomy was performed.

Case 5: Mrs. Kalawati, age 32, G2A1. Past History-NAD. L. M. P.-March 7, 2021; during Pregnancy-much nausea and emesis; oedema of extremities toward evening; constipation. Laboratory findings: NAD. On November 20, 2021, the patient began to, have shooting pains in the abdomen, examination at the time showed nothing abnormal. Bed rest was advised. The following day the pains increased in severity, especially when the uterus would contract. Bed rest was continued and sedatives administered. Four days after the onset, at 7 PM, while the patient was at dinner, she was seized -with

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sudden, sharp, continuous abdominal pain. Thirty minutes later the woman began to have a show of blood and mucus per vagina. She was immediately hospitalized, and examination showed the uterus to be in tetanic contraction, globular in shape, and extremely tender. F. H. R. in L. L. Q. 124, very weak. B. 0. W. intact. Cervix 50 per cent effaced and two centimetres dilated. There was profuse vaginal bleeding. The patient complained of severe constant abdominal pain. On laparotomy it was noticed that the subcutaneous tissues were markedly oedematous. Free fluid was found in the peritoneal cavity. Upon the lower left portion of the uterus and broad ligament there was a large, dark, Haemorrhagic area 6 by 8 centimetres in diameter. On section of the uterus, 100 cubic centimetres of free blood escaped. A live baby was delivered without delay. About three-fourths of the placenta was separated from the uterine wall. After injection of oxytocin the uterus contracted satisfactorily, and the Haemorrhagic areas cleared up. On closer inspection of the placenta, the dark pathologic area was seen to be almost necrotic. The remainder of the tissue was apparently normal.

Case 6: Mrs. Nagma, age 23yrs, G3P1L1A1, Past History – Previous caesarean delivery, miscarriage at three months, L. M. P.-May 10, 2021, EDD-17 Feb 2022, Physical Examination-NAD. Measurements normal. Blood pressure, 120/72. Laboratory Findings. - Moderately heavy trace of albumin. Normal coagulation and bleeding time. During pregnancy- nausea and vomiting during first two months. She had history of fall from stairs, soon after the fall, she experienced abdominal pain, vomiting, and slight vaginal bleeding. She was put to bed and sedatives given. The bed rest was continued till day of delivery, February 22, 2022. Vaginal spotting was present during the course of observation. Patient delivered normally, the first stage lasting twelve hours, the second one and one-half hours, and the third stage seven minutes. The placenta showed a large dark area involving one-third of the maternal surface, indicating a premature separation. Mother and baby left hospital in good condition in ten days.

Case 7: A 33-year-old patient, G2P1L0,35 + 2 gestation presented to our obstetric unit because of severe abdominal pain that had started a few hours before presentation. The patient had no significant medical or obstetric history. She had last seen her gynecologist 4 weeks prior to this presentation because of a self-limited episode of generalized oedema, however because hypertension and proteinuria had been excluded was discharged home without further follow-up. On presentation, no foetal heart beat could be found, which was confirmed on an ultrasound scan. The scan also showed a retroplacental hematoma of approximately 13 × 8 cm. On clinical exam, the abdomen was hard and tender. The patient was normotensive, however was extremely pale. Laboratory examinations showed an Hb 11.6 g/l, platelets of 211 G/l. The digital vaginal exam showed an unfavorable cervix. A delivery by emergency caesarean section was indicated. Intraoperatively the uterus was livid and showed signs of intramural bleeding compatible with a beginning Couvelaire uterus.

Case 8: The patient was a 34-year-old, G2A1, 38 + 4 weeks gestation with heavy vaginal bleeding. Her obstetric history included a missed abortion 1 year prior. In this pregnancy, bilateral notching in the uterine arteries was noted on anatomy scan at 21 weeks gestation which was performed at a private ultrasound practice. She was put on Aspirin 150 mg. She regularly measured her blood pressure at home and noted occasional high blood pressures up to 140/90; however, these episodes were self-limited. She had been checked by her gynecologist regularly, on presentation, a foetal

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bradycardia was noted on ultrasound scan, placental abruption was suspected, and an emergency caesarean section performed. The patient was delivered of a male foetus. The neonate was initially nonresponsive to stimulation, a systolic, and apnoeic. On the 4th post operative day, the patient had hypertension up to 155/90 mmHg. She complained of visual changes, oedema, and a mild headache. Laboratory findings - a borderline protein/ creatinine ratio (24.5 mg/mmol). Base hyper tension and elevated liver enzymes, we diagnosed Pree clampsia. During the hospitalization period, the laboratory findings improved and the patient could be discharged home in good physical condition.

Case 9: A 34-year-old, Primigravida, 38 + 2 weeks gestation. She presented to our obstetric unit with vaginal bleeding. Prior to presentation, the pregnancy had been completely uneventful. On examination foetal heart sound absent and emergency caesarean section was per formed, an intraoperative blood and urine sample were sent for preeclampsia investigations. Laboratory findings showed a protein-creatinine ratio of (156.6 mg/mmol). The blood pressure rose to 144/90 on the first post operative day. The male foetus was delivered and needed admission to the neonatal intensive care unit. He recovered well, and the patient and neonate could be dis charged home in good physical condition on post operative day 5.

Case 10: A patient came into Gynae. & Obst. emergency of age 26 year, primigravida with 40+6 weeks gestation with complain of slight bleeding per vaginum, with severe anaemia (pallor +++) and haemo dynamically stable (Pulse-94 bpm, B.P. – 130/90 mmHg SpO2- 98%), Per abdominal examination shows uterus was term size, tense, tender and woody hard with no foetal heart. Per vaginum- slight bleeding with internal os open. The patient underwent to emergency caesarean section and delivered IUD Male of B.W. 3kg and also evidenced partially placental separation.

A massive hemoperitoneum was found. The uterus appea red purplish all over, with the typical appearance of a Couvelaire uterus; it thus suggested placental abruption. During caesarean section patient vitals suddenly deteri orate (Pulse-132 bpm, B.P.- 80/40 mmHg, SpO2- 86% Urine Output- 200cc) then she was intubated and intensive care was given. Intraoperatively, patient was transfused four unit of FFP and two unit of PCV. On second postoperative day patient self-extubated herself and vitals returned to normal (Pulse-90 bpm, B.P.- 140/80 mmHg, SpO2- 98% and Urine Output- 1600cc over 24 hrs) Patient discharged on satisfactory condition on day 8th and with proper counselling of B.P. Monitoring.

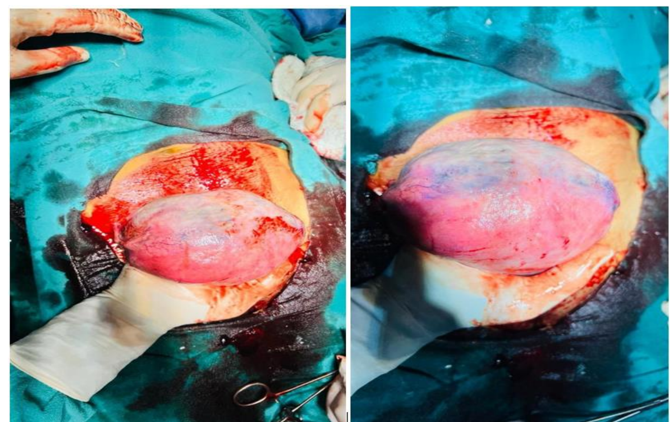

Figure 1: Intraoperative pictures of Couvelaire Uterus

Results

Out of the total 10 cases we studied, 8 were multiparous females, 2 primigravida.2 patients had history of abruptio placenta in their previous pregnancies. 4 cases were admitted from OPD (in view of ultrasonography showing retroplacental haemorrhage) and 6 were admitted from causality who presented with bleeding per vaginum, with severe pain lower abdomen. 3 cases were preterm and 7 cases full-term. All 9 patient was taken for emergency caesarean section, 2 were intra uterine death (fresh IUD)

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and 7 were alive babies and 2 babies was shifted to FBNC. 1 were delivered normally (delivered IUD Male).

Conclusion

We concluded that patients with Couvelaire uterus had an increased risk of maternal complications such as postpartum haemorrhage and disseminated intravascular coagulation which resulted in increased need for blood trans fusion, prolonged hospital stay, and maternal morbidity and mortality. During caesarean section, hysterectomy is not per se indication in Couvelaire uterus. Present study further highlights that adverse neonatal outcome such as low birth weight and neonatal death were more frequently associated with Couvelaire uterus. Thus, the presence of Couvelaire uterus may be considered as severe form abruption and such patients should be anticipated for higher incidence and risk for maternal and neonatal morbidity.

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