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Case Report

Spontaneous hemoperitoneum in pregnancy: a rare case report

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ABSTRACT

Spontaneous hemoperitoneum in pregnancy (SHiP) is a rare but life-threatening condition with an estimated incidence rate of 0.04 per 1000 births. It is characterized by the accumulation of blood in the peritoneal cavity without trauma or obvious cause in pregnancy and up to 42 days postpartum that lead to significant maternal and perinatal complications. SHiP mostly occurs in third trimester of pregnancy with an incidence of 27% in the second trimester. A 40-year-old multigravida female at 30 weeks of gestation who presented with acute abdominal pain. Urgent imaging revealed a small amount of free fluid in perihepatic and perisplenic space with blood clots highly suggestive of hemoperitoneum. An emergency laparotomy was performed which confirmed the diagnosis and approximately 1-1.5 litres of hemoperitoneum with 1 litre of blood clot from pouch of douglas were evacuated. Caesarean section was performed at the same time placenta was delivered with intact membranes. There was atonic post-partum haemorrhage (PPH) which was not medically managed, so in view of doubt of rent in lower uterine segment with increased vascularity over the post surface, atonic PPH and general condition of the patient, total abdominal hysterectomy was done. Total blood loss was 3.5 litres. Both mother and baby recovered without further complications. This case highlights the importance of early recognition and prompt surgical intervention in SHiP to prevent maternal and fetal morbidity and mortality. Given its rarity and non-specific presentation, SHiP remains a diagnostic challenge and requires a high index of suspicion in pregnant women with acute abdomen and hemodynamic instability.

Keywords: Pregnancy, Spontaneous hemoperitoneum, Third trimester, Acute abdomen

INTRODUCTION

Hemoperitoneum, a rare yet life-threatening complication, can occur during any stage of pregnancy, though it is more. It commonly observed in the first trimester due to conditions such as ectopic gestation or rupture of haemorrhagic cysts. However, reports of hemoperitoneum in the later stages of gestation and the postpartum period have also been documented. A variety of obstetric and non-obstetric factors, including uterine rupture, placental abruption, endometriosis, HELLP syndrome-associated liver rupture, splenic vessel rupture, gastric ulcer perforation, and cholecystitis, have been identified as potential causes.[1] Prompt detection and appropriate management of this condition are crucial to minimize the significant maternal and neonatal morbidity and mortality. In this case report, we present an unusual case of spontaneous hemoperitoneum in the third trimester of pregnancy, its management, and the patient's outcome.

CASE REPORT

A 40-year-old multigravida with previous 2 cesarean sections presented to gynae casualty at 30 weeks of gestation with pain in abdomen, nausea and vomiting from 1 day. On examination, she had pallor, pulse rate (PR) - 120/min, blood pressure (BP) - 112/70 mm hg and respiratory rate (RR) was 22/min. On per abdomen examination, fundal height corresponded to 32 weeks' pregnancy, uterine contour and basal tone was normal,

fetal heart rate 140 bpm. On local examination there was no vaginal bleeding.

Emergency abdominal ultrasonography (USG), revealed a normal intrauterine pregnancy with a single alive fetus. On the pouch of Douglas, there was an echogenic image with 95×88×53 mm suggestive of a blood clot, small amount of free fluid in the perihepatic and peri splenic space.

The complete blood count showed Hb-7.7 g/dl, TLC-22,800, coagulation profile liver and kidney function tests were normal. Arterial blood gas analysis showed increased lactate-3.78 mmol/l.

The patient was taken up for emergency laparotomy. Intraoperatively, there was 1-1.5 litres of hemoperitoneum with-1 litre of blood clots from pouch of Douglas. Adhesions present between the pareities, uterus adhered to rectus sheath in lower part, anterior surface of the uterus appeared normal, on posterior surface sinuses were present with no active bleeder (Figure 1). A male baby of 1.5 kg was delivered by LSCS simultaneously and was shifted to neonatal ICU for monitoring and pre term care. Placenta delivered with intact membranes, there was atonic PPH, which was not controlled medically, so in view of atonic PPH and poor general condition of the patient, decision for caesarean hysterectomy was taken. Total abdominal hysterectomy was done, systematic exploration of abdominal cavity was done, no bleeder was identified, intraabdominal drain was placed and vaginal toileting done. Total blood loss was 3.5 litres. Intraoperatively patient received 3 packed red blood cells and 4 fresh frozen plasma. Postoperatively, the patient had an uneventful recovery and was discharged in stable condition along with baby on day 15.

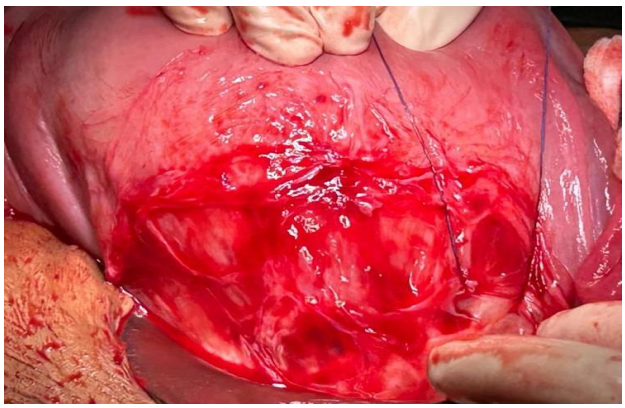

Figure 1: Posterior surface of uterus with congestion in lower part.

DISCUSSION

Spontaneous hemoperitoneum in pregnancy (SHiP) is a rare but serious obstetric emergency characterized by the accumulation of blood in the peritoneal cavity without any apparent trauma. The condition is challenging to diagnose preoperatively due to its elusive nature and varied causes. Prompt recognition and intervention are critical to preventing maternal and fetal morbidity and mortality.

SHiP presents a diagnostic dilemma due to its rarity. Often, it is diagnosed during surgery when a cause of intra-abdominal bleeding is not immediately evident. In 37% of cases, the cause remains unidentified even after surgical exploration. SHiP is more likely to present in the third trimester of pregnancy. 61% of cases occur before labor onset, highlighting the importance of vigilant monitoring during this period. An additional 20% of cases present during the intrapartum or puerperal period, indicating that SHiP can occur at any point in the late stages of pregnancy or shortly after childbirth.[2]

SHiP presents with nonspecific symptoms such as abdominal pain, hypotension, and signs of shock, which may mimic other obstetric conditions.[3] The variability in presentation necessitates a high index of suspicion, particularly in women with known risk factors or atypical abdominal pain during pregnancy.

The development of SHiP has long been a subject of intrigue with various hypotheses proposed to explain its underlying causes. One theory suggests sudden changes in intravascular pressure following events like coughing, defecation, or bearing down that may contribute to the condition. Another hypothesis points to the role of friable vessels resulting from chronic inflammatory conditions such as endometriosis, as well as the lack of valves in the affected vessels and increased demand during pregnancy.

The process of necrosis and shedding of decidualized endometriotic lesions during the intrapartum and postpartum periods, coupled with hemodynamic changes, may also play a role in the development of SHiP.[4] A review of case reports by Lier MCI revealed that three-fourths of pregnant women with spontaneous hemoperitoneum had evidence of endometriosis, while 25% had deciduosis. In cases of postpartum period, deciduosis was noted in 63% of cases, with the remaining instances attributed to endometriosis. Furthermore, histopathological examinations have documented the presence of ectopic decidualization, with or without a background of endometriosis, among women who have experienced SHiP.[4]

Mazzocco et al did a prospective population-based cohort study, set in maternity units from nine Italian regions covering 75% of the national births and found that twenty-nine cases met the adopted definition of spontaneous hemoperitoneum in pregnancy with an estimated incidence rate of 0.04 per 1000 births. Laparotomy was done as surgical treatment in 27 cases (93%), and most women underwent a cesarean delivery (92.6%), and concluded that maternal age ≥35 years, multiple pregnancies and assisted reproductive technology were associated to a

higher risk of the condition. Two women of 29 died and 70% of births occurred preterm.[5]

SHiP can vary onset from 6 weeks of gestation to 30 days postpartum, most commonly in the third trimester. The mean period of gestation at the time of presentation is 32.3 weeks among women with spontaneous conception with no evidence of endometriosis but was observed at 28.6 weeks among women with IVF conception with endometriosis and 30.9 weeks among women with endometriosis but conceived spontaneously. The earliest and most common presenting symptom was acute pain in the abdomen of 94.9% of the patients, followed by hypovolemic shock in 47.5%, a fall in hemoglobin in 62.7%, and signs of fetal distress on the cardiotocograph in 40.7%.[2] An ultrasound/MRI can also be used as an imaging modality to notice the presence of free fluid in the abdomen and rule out other surgical emergencies. Free fluid in the abdomen can be detected in 62.7% of cases using imaging. With advanced gestation, however, it becomes difficult to estimate the exact amount and the source of bleeding.

As most SHiP are venous in origin, there will be a significant amount of blood loss accompanied by hemodynamic instability. Presence of hypovolemic shock, worsening anemia with signs of fetal distress prompts for surgical intervention. Surgical intervention which can range from simple haemostatic suturing of the bleeder to adnexectomy or hysterectomy. The median reported amount of blood loss/hemoperitoneum is 2000 ml, and such profound loss of blood necessitates transfusion of various blood and blood products. Cesarean section at the time of laparotomy is performed if there is evidence of fetal distress. There have been case reports of continuation of pregnancy to term following initial laparotomy for SHiP (15.6%). Adverse perinatal outcomes such as stillbirth, neonatal death, miscarriage, cerebral palsy, and maternal mortality have been reported to be 1%. However, a recent systematic review found the feto maternal and perinatal mortality was minimal or absent. High rates of preterm caesarean section and prematurity (54.5%) contributed majorly to the maternal and neonatal morbidity. The recurrence of SHiP in the same or subsequent pregnancy has been reported in up to 8.5% of women.

CONCLUSION

Spontaneous hemoperitoneum in pregnancy is a critical obstetric emergency requiring prompt recognition and management to minimize adverse outcomes. A multidisciplinary approach involving obstetricians, anaesthesiologists, and surgeons is essential for optimal care. Increasing awareness of SHiP's clinical presentation and potential causes can improve early diagnosis and intervention, ultimately enhancing maternal and fetal prognosis.

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