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## Case Report

# A rare case of spontaneous severe haemoperitoneum in a primigravida in the third trimester: a case report

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### ABSTRACT

Spontaneous haemoperitoneum in pregnancy (SHIP) is a rare but potentially life-threatening obstetric emergency characterised by sudden, non-traumatic intraperitoneal bleeding, most commonly occurring in the third trimester and associated with significant maternal and perinatal morbidity and mortality. We report the case of a 23-year-old primigravid woman at 36+2 weeks' gestation who presented with acute abdominal pain followed by fetal bradycardia and maternal haemodynamic instability. Emergency laparotomy revealed approximately 2 litres of haemoperitoneum with diffuse posterior uterine serosal bleeding in an intact uterus. Caesarean delivery was performed, and haemostasis was achieved using conservative surgical measures, including bilateral uterine artery ligation, allowing preservation of the uterus. Spontaneous haemoperitoneum should be suspected in pregnant women presenting with unexplained acute abdomen and fetal distress, as prompt diagnosis and early surgical intervention are critical for improving maternal and fetal outcomes.

**Keywords:** Spontaneous haemoperitoneum, Pregnancy, Uterine serosal bleeding, Fetal distress, Obstetric emergency

### INTRODUCTION

Spontaneous haemoperitoneum in pregnancy (SHIP) is an uncommon but catastrophic cause of acute abdomen during pregnancy, defined as spontaneous, non-traumatic intraperitoneal bleeding occurring during pregnancy or up to 42 days postpartum.<sup>1</sup> The reported incidence ranges between 4 and 4.9 per 100,000 births, with a disproportionate number of cases occurring in the third trimester.<sup>1,2</sup> Despite advances in obstetric care, SHIP continues to be associated with high perinatal mortality, reported to be between 31% and 36%.<sup>2</sup>

Several aetiologies of SHIP have been described, including uterine rupture, placental abnormalities such as placenta percreta, rupture of uterine or adnexal vessels, and endometriosis-related vascular fragility.<sup>1,4</sup> Endometriosis has been identified as a major predisposing factor in many reported cases, likely due to decidualisation and erosion of fragile utero-ovarian vessels during

pregnancy.<sup>4,5</sup> However, SHIP may also occur in women without identifiable risk factors.<sup>2,3</sup>

Recent literature has highlighted rupture of superficial uterine veins - particularly fundal or serosal vessels - as an exceptionally rare but important cause of massive haemoperitoneum in pregnancy.<sup>2,6</sup> Physiological changes of pregnancy, including increased uterine blood flow, venous dilatation, and elevated intra-abdominal pressure, may predispose these thin-walled vessels to rupture, even in the absence of uterine scarring or trauma.<sup>3,6</sup> Because early symptoms are often non-specific and imaging may fail to identify the bleeding source, diagnosis is frequently delayed until maternal haemodynamic instability or fetal compromise develops.<sup>1,6,7</sup>

We report a rare case of spontaneous severe haemoperitoneum in a primigravid woman in the third trimester due to posterior uterine serosal bleeding,

presenting with fetal distress and maternal haemodynamic compromise.

### CASE REPORT

A 23-year-old primigravid woman at 36+2 weeks' gestation presented to the obstetric emergency department with sudden-onset severe abdominal pain of two hours' duration. She had no history of trauma, previous surgery, endometriosis, or medical illness. Her antenatal course had been uneventful, with regular antenatal visits and a normal ultrasound examination at 34 weeks' gestation.

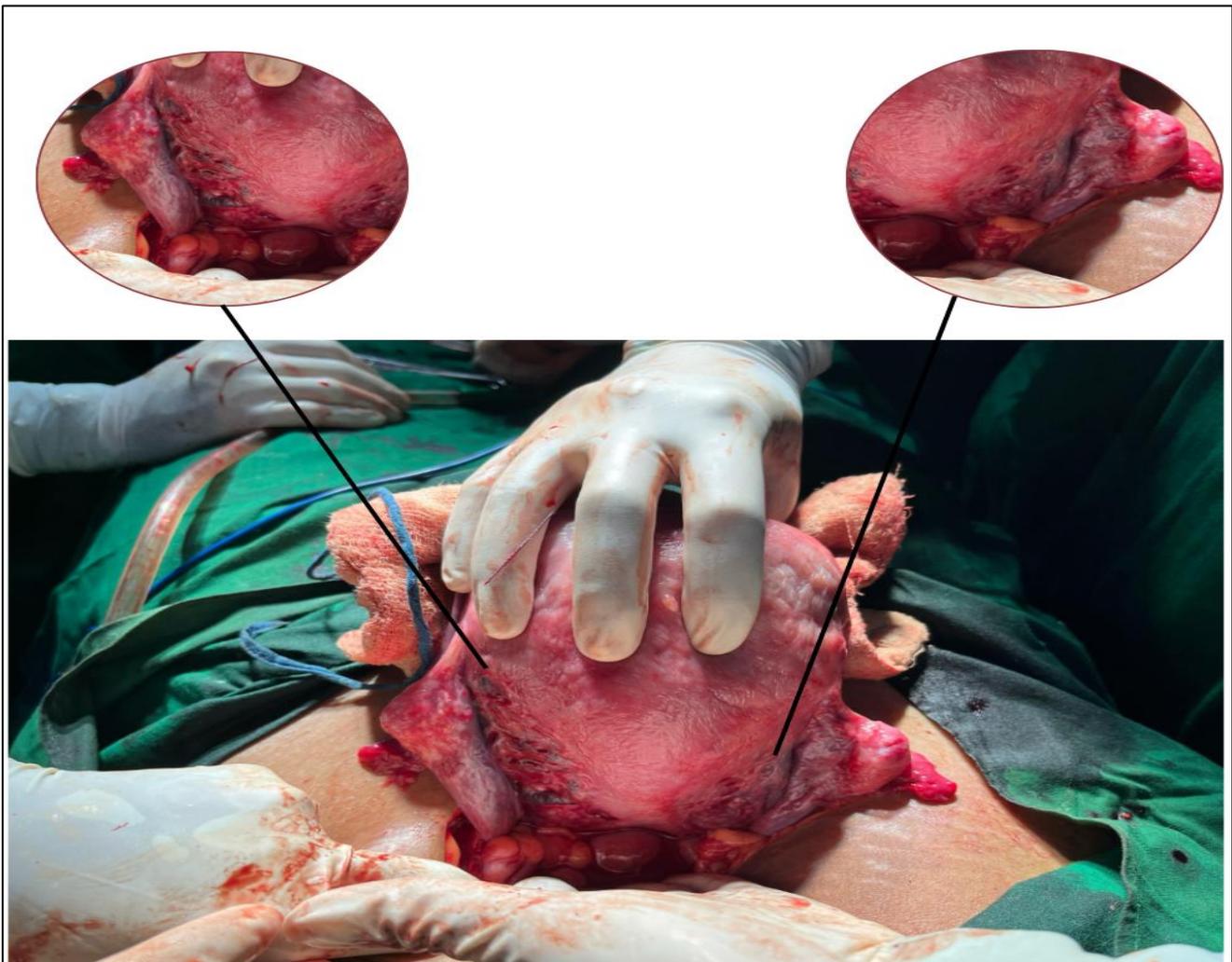
One day prior to admission, she had presented with mild lower abdominal pain that resolved spontaneously after evaluation, including a reassuring cardiotocograph.

On re-presentation, she appeared pale and distressed. Her pulse rate was 110 beats/min and blood pressure was 100/70 mmHg. The abdomen was distended and tense, without rebound tenderness. Speculum examination revealed no vaginal bleeding, and the cervix was closed on

digital examination. Cardiotocography showed prolonged fetal bradycardia at 65 beats/min. Laboratory investigations demonstrated fall in haemoglobin by 2 g/dL.

In view of fetal distress and suspected intra-abdominal haemorrhage, an emergency laparotomy was performed under spinal anaesthesia. Approximately 2 litres of blood and fresh clots were evacuated from the peritoneal cavity. The uterus was intact, with the amniotic sac undisturbed and no pelvic adhesions. As the bleeding source was not initially localised, a lower-segment caesarean section was performed, delivering a 2400 g male neonate.

Following placental delivery, diffuse oozing was noted from the posterior uterine serosal surface without evidence of a focal arterial source or uterine rupture. Haemostasis was achieved using figure-of-eight sutures over bleeding areas, localised compression sutures, topical haemostatic agents, warm packs, and bilateral uterine artery ligation. The uterus was preserved. A drain was placed, and the abdomen was closed in layers. The postoperative course was uneventful.



**Figure 1: Intraoperative findings showing multiple engorged superficial veins along the posterior serosa. The inset highlights the superficial venous branch identified as the source of hemoperitoneum.**



**Figure 2: Intra-operative photograph showing the uterine serosa.**

\*Appearing diffusely congested with bluish-purple discoloration and ecchymosis over the posterior surface, consistent with rupture of superficial uterine serosal veins. The myometrium is intact with no evidence of uterine rupture.

## DISCUSSION

SHIP remains a diagnostic challenge due to its rarity, varied aetiology, and non-specific clinical presentation. Acute abdominal pain, maternal tachycardia, hypotension, and fetal heart rate abnormalities-most commonly bradycardia-are frequently reported presenting features.<sup>1,2</sup> Ultrasonography may detect free intraperitoneal fluid but often fails to identify the exact source of bleeding, particularly in venous or serosal haemorrhage.<sup>7</sup>

Although uterine rupture and placental pathologies are more commonly considered, rupture of superficial uterine vessels has emerged as a rare but increasingly recognised cause of SHIP.<sup>2,3,6</sup> Jang and Kim reported a case of massive haemoperitoneum caused by spontaneous rupture of a superficial uterine fundal vein during preterm labour in an unscarred uterus, with sudden clinical deterioration despite initial conservative management.<sup>6</sup> Similar to our case, fetal heart rate abnormalities were the first sign of acute deterioration.

Endometriosis-associated SHIP has been reported extensively in the literature and is thought to result from decidualised endometriotic implants causing erosion of adjacent vessels.<sup>4,5,8</sup> However, the absence of endometriosis or prior uterine surgery in our patient

highlights that spontaneous uterine serosal bleeding can occur without identifiable predisposing factors, as also noted in other reports.<sup>2,3</sup>

Physiological venous engorgement of the gravid uterus, combined with increased intra-abdominal pressure and uterine activity, may contribute to rupture of fragile superficial veins.<sup>3,6</sup> Although venous bleeding is low-pressure, rapid accumulation of intraperitoneal blood can occur due to the markedly increased uterine blood flow during pregnancy, leading to maternal shock and fetal compromise.<sup>6</sup>

Prompt surgical exploration remains the cornerstone of management in patients with maternal instability or fetal distress. Conservative surgical techniques aimed at uterine preservation, including local suturing, compression sutures, topical haemostatic agents, and uterine artery ligation, may be effective and fertility-preserving when hysterectomy is not immediately required.<sup>2,6</sup>

## CONCLUSION

Spontaneous severe haemoperitoneum in the third trimester is a rare but life-threatening obstetric emergency. A high index of suspicion is essential when pregnant women present with unexplained acute abdominal pain

and fetal distress. Early diagnosis, rapid resuscitation, and timely surgical intervention are critical to optimise maternal and fetal outcomes. Superficial uterine serosal bleeding should be considered when no obvious cause of haemoperitoneum is identified intra-operatively.

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