Volume 11, Issue 01, January 2025,
Publish Date: 08-01-2025
Doi https://doi.org/10.55640/ijmsdh-11-01-05

International Journal of Medical Science and Dental Health (Open Access)

POST-PARTUM HEMORRHAGE WITH MASSIVE HEMOPERITONEUM FROM INFERIOR EPIGASTRIC ARTERIES AFTER CAESAREAN SECTION- A CASE REPORT

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ABSTRACT

Post-partum hemorrhage from inferior epigastric artery after a caesarean section is a rare occurrence and as such has a high potential for both misdiagnosis and delayed diagnosis. Inferior epigastric vascular injury occurs during the dissection and separation of the anterior abdominal walls and has tendency for increased morbidity and mortality in the background of anticoagulation. A high index of suspicion is needed with hemodynamic instability post caesarean section in the absence of vaginal bleeding and surgical intervention is needed in such cases to avert dreadful outcome. Presented in this report was a 37-year-old who had elective repeat caesarean section but developed massive hemoperitoneun with severe anaemia after 48 hours. She had surgical intervention to arrest the bleeding epigastric vessels and made good recovery.

KEYWORDS: Inferior epigastric artery, post-partum hemorrhage, hemoperitoneum, rectus sheath hematoma.

INTRODUCTION

The most common causes of post-partum hemorrhage remains uterine atony followed by placental anomalies, retained products of conception, genital trauma and bleeding diathesis [1]. Bleeding from the anterior abdominal wall vessels causing hemoperitoneum and or hematoma of the rectus sheath is a rare complication of major abdominal surgeries that can potentially become life-threatening [2]. The non-specific features and rarity allow for both delayed and misdiagnosis causing acute abdomen [2]. It usually follows abdominal trauma or surgeries especially in the background of anticoagulation [3]. Lower

abdominal surgeries may put local tissue in unusual tension and consequent vascular wall stress [4]. This may lead to a traumatic or spontaneous rupture of inferior epigastric artery, more often than superior epigastric artery, or both and a direct tear of rectus muscle whose vascular supply are the epigastric vessels [2, 5].

It can often be self-limiting and may also result in hypovolemic shock by an expanding hematoma or hemoperitoneum 2. Life threatening bleeding from damaged inferior epigastric vessels during a caesarean section is an extremely rare cause of postpartum hemorrhage [6-8]. The increasing acceptability and use of anticoagulants could impact its morbidity and mortality [9]. The absence of vaginal bleeding with hemodynamic instability should raise a suspicious of internal bleeding [9]. Where an abdominal mass of sudden onset is palpable, haematoma is likely [9]. Risk factors include; lower abdominal surgeries such as a lower segment caesarean section, local blunt trauma, coagulopathies, anticoagulants administration, pregnancy, severe coughing, hypertension, and peripheral vascular disease [2,9].

Abdomino-plevic ultrasonography can be helpful especially where hemoperitoneum is present. Computed tomography (CT) scan of abdomen and pelvis is easily confirmatory as it also clearly shows presence of haematoma within the anterior abdominal wall and presence of hemoperitoneum [10].

Case

She was a 37-year-old who had an elective lower segment caesarean section at term on account of having had a previous section occasioned by slow progress of labour with fetal distress. Pre-operative packed cell volume (PCV) was 32% and blood loss at surgery was estimated to be 250mls. A Pfannenstiel incision through the prior incision site which was very low and close to the pubic symphysis was made. Upwards dissection with a combination of both sharp and blunt adhesiolysis of rectus sheath was done to avoid injury to the bladder lying behind the pubis symphyisis. The rectus muscles were manually retracted to expose the peritoneum. A lower segment caesarean section was done to deliver the neonate which weighed 3.4kg. The uterus and closed in 2 layers and all abdominal layers apposed. . Two days post-surgery she was noticed to have a uniformly distended abdomen which has started gradually without vaginal bleeding beyond a normal lochia. She was severely pale, pulse rate was 130bpm and blood pressure was 100/60mmHg. There were two large hyperaemic patches above the incision sites each lateral to the linea nigra. She also had both fluid thrill and shifting dullness without any significant undue tenderness. Post-operative PCV at 48 hours post-surgery was 16.9% with haemoglobin (Hb) of 5.5g/dl. Platelets count was 201,000/mm3. WBC was 11,000 x 103. A suspicion of intra-abdominal hemorrhage was made and urgent resuscitation with cross-matched blood transfusion was commenced. A quick bedside scan revealed significant collection of fluid in the dependent pouches. A CT scan was urgently done which showed massive fluid collection suspected to be blood in the peritoneum and pelvis. Also noted on the CT scan images were marked ‘oedematous-like’ separation within the soft tissue on the anterior abdominal wall in the pelvic region. She had an emergency exploratory laparotomy with transfusion continued intra-operatively. Abdomen was initially reopened using the existing Pfannenstiel incision and uterus and adnexa inspected after suctioning the hemoperitoneum of 700mls excluding evacuated blood clots. Uterine incision site was intact and there was no ovarian trauma or bleeding. In the absence of obvious bleeding from the vagina, the uterus and adnexa on inspection, a midline extension of incision was done and lateral separation and inspection of the peritoneal surface of the rectus sheath revealed raw torn areas on both lateral sides with blood clots and oozes of blood from epigastric vessels breached in those areas. A large collection of haematomata overlying the left rectus muscle was also noted and evacuated revealing bleeding epigastric vessels. The

bleeding vessels were transfixed and the raw peritoneal surfaces of the anterior abdominal wall were apposed occluding the vessels present with polyglactin 2 suture. Hemostasis was well secured and abdomen closed in layers. She had a total of 5 units of blood transfused before, during and post operatively. PCV after 24 hours of exploratory laparotomy was 30% and she was discharged 3 days after the last surgery.

Image (i) Image (ii) image (iii)

Images of; (i) abdomino-pelvic CT scan showing massive hemoperitoneum and collection within the anterior abdominal wall and muscle layers , (ii) suctioned hemoperitoneum and (iii) exploratory laparotomy showing rectus muscle with overlying hematoma and raw bleeding areas of peritoneal surface of rectus sheath.

DISCUSSION

Postpartum hemorrhage is mostly caused by uterine atony with other common causes being retained placental tissue, genital tract trauma, coagulation disorders and placental invasion abnormalities [1].

Anterior abdominal wall bleeding and or hematoma from the epigastric artery is a rather uncommon and often misdiagnosed cause of post-partum hemorrhage following caesarean section especially in the background of anticoagulation 3. It usually results from a traumatic or spontaneous rupture of the epigastric arteries especially the inferior epigastric artery and or muscle tear [5].

Settings for epigastric vascular injury occurs where there is lower abdominal surgery or its complications, physical abdominal trauma, blood dyscrasias, severe straining exercises, anticoagulation therapy, typhoid fever and spontaneous hematoma occurrence [2].

The mechanism of injury after caesarean section with a pfannenstiel incision is the shearing force to the inferior epigastria vessels during the blunt widening to both sides of the incision which severs the inferior epigastria vessels resulting in hematoma formation or hemoperitoneum or both [11,12]. The scissors dissection alongside Kocher forceps used in grasping the under-surface of the rectus sheath for stabilization could explain the tear in the rectus sheath remote from the incision region and eventual expansion with tension in the case reported.

Diagnosis can be difficult and delayed as postpartum hemorrhage resulting from inferior epigastric vascular damage is extremely rare [11]. Although there is usually no specific clinical pattern of presentation, in massive hemorrhage which is even rarer, however, there may be a palpable abdominal mass over the hematoma which may be tender, firm, and warm to touch or change in colour over the area of hematoma [2, 6]. A high index of suspicion is essential in a patient with postpartum hemorrhage especially if there is no vaginal bleeding and exclusion of genital tract trauma [7].

There is usually a history of recent lower abdominal surgery with or without anticoagulation administration [9]. The case presented was diagnosed on the 2nd day after a lower segment caesarean section and she had no anticoagulant administered.

Patient may present with sudden onset abdominal pain and swelling especially where haematoma is palpable or abdominal distension where it is more of hemoperitoneun or even shock more so in inferior epigastric artery bleed due to lack of a posterior rectus sheath and the tamponade effect [2.6.7, 13].

Abdomino-pelvic sonography may be helpful with establishing hemoepritoneun where massive bleeding has occurred and less specific with hematoma. A CT scan and MRI gives better impression of hematoma and can help exclude parietal hernias and other masses from hematoma [2]. Patient's coagulation profile can exclude coagulopathy and coagulation assay is important before surgery for safety concern especially where anticoagulant had been administered [2].

Conservative management with antibiotics and analgesics is possible for small spontaneous hematomas and insignificant hemoperitoneum in a hemodynamically stable patient with close monitoring [14].

Where active bleeding is suspected, surgical intervention is instituted. Angiographic embolization of the inferior epigastric artery or exploratory laparotomy and hematoma drainage with trans-fixation of any bleeding vessels are both efficient surgical options[2, 8]. Bleeding tend to be massive where such vascular injury is arterial 6, 7. The overall mortality is increased in the background of anticoagulation [2, 9].

Selective angiography can serve both a diagnostic and therapeutic purpose in cases of doubt of source of bleeding [6, 7].

CONCLUSION

Postpartum hemorrhage from sources outside of the reproductive organs are rare and could also cause hemodynamic instability or shock and worse still is the high potential for misdiagnosis . Avoiding vigorous blunt manipulations when widening the Pfannenstiel incision during caesarean sections should be the employed to limit injury to the epigastric vessels. A high index of suspicion of anterior abdominal wall bleeding is essential when such hemodynamic instability occurs following a caesarean section in the absence of vaginal bleeding. Appropriate radiographic evaluation, prompt diagnosis and a critical decision of conservative versus aggressive management may help to prevent dreadful outcomes.

Disclaimer (Artificial Intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models

(ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

Consent

A written informed consent was obtained from the patient for publication of this case report.

Conflicts of Interest

No conflict of interest declared.

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