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Case Report

A rare life-threatening rectus sheath haematoma in post lower segment cesarean section patient: a case report

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ABSTRACT

Rectus sheath hematoma is a rare but potentially life-threatening complication following any major abdominal surgery. The nonspecific nature and lower incidence of this disorder may cause a delay in the diagnosis, and can often be misdiagnosed as a cause of acute abdomen. A rectus sheath hematoma consists of blood accumulating between the rectus abdominis muscle and the rectus sheath. It is most frequently due to a hemorrhage from the superior or inferior epigastric artery or any non-specific bleeder or a direct tear in the muscle itself. It has many specific risk factors such as local trauma, coagulopathies, anticoagulant use, severe coughing, hypertension, and peripheral vascular disease. In this case, the patient presented with rectus sheath hematoma following cesarean section on the 10th post-operative day. She presented with a history of fall followed by lower abdominal pain. Clinical suspicion and ultrasonography were used to confirm the diagnosis and the patient was managed with exploration and hematoma drainage. Its early diagnosis and management helped to prevent hazardous complications.

Keywords: Rectus sheath hematoma, Cesarean section, Trauma

INTRODUCTION

Rectus sheath hematoma consists of blood accumulating between the rectus abdominis muscle and the rectus sheath from damage to the arterial supply or a direct tear of rectus muscle.[1] It has many specific risk factors such as local trauma, coagulopathies, anticoagulant use, severe coughing, hypertension, and peripheral vascular disease.[1] Rectus sheath hematoma is an uncommon but lethal complication following any major abdominal surgery.

The arterial supply to rectus sheath is derived from superior and inferior epigastric arteries as shown in figure 1.[1] Inferior epigastric artery, which arises from external iliac artery, emerges inferiorly from beyond the inguinal ligament and enters the posterior rectus sheath. Inferior epigastric artery then ascends loosely between the rectus abdominis muscle and posterior rectus sheath. During contractions of rectus abdominis muscle, length of the muscle changes, and artery should glide with the muscle to avoid tearing. The combination of loose attachment of inferior epigastric artery with the stabilization of its perforating branches fixed to the muscle belly makes the artery prone to shearing stresses at branching sites during strong muscular contraction.[1]

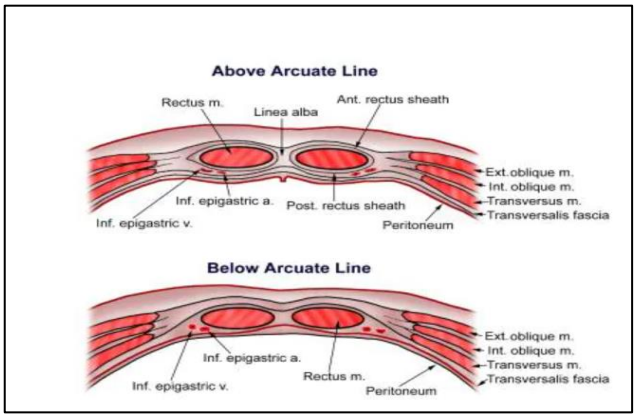

Figure 1: Rectus sheath hematoma: anatomy of rectus sheath demonstrating the site of origin of RSH.[1]

The nonspecific nature of symptoms of rectus sheath hematoma, lower incidence of disorder may cause a delay in diagnosis, often clinically misdiagnosed as acute abdomen. It might be a self-limiting entity however, rectus sheath hematoma can cause hypovolemic shock following expansion, with significant morbidity and mortality.

CASE REPORT

A 36-year-old multiparous patient with previous 2 LSCS presented to our hospital on day 10 of emergency LSCS with a history of fall and complaint of severe lower abdominal pain not relieved on analgesics and bloody discharge from incision site. Initially, the patient had gone to a private hospital with similar complaints and was admitted for further evaluation. On admission in that hospital, her Hb was 9.5 gm/dl, TLC-7500 and platelet count-1,56,000. Ultrasonography of abdomen was suggestive of a heterogeneously hypoechoic lesion with echogenic septae and few internal moving echoes between the muscular plane and the rectus sheath in hypogastric quadrant of the abdominal wall measuring approximately 17.6×4.8×8.4 cm^3. The hematoma was seen extending just anterior to the uterine wall abutting it with surrounding inflamed mesentery. A small tract of approximately 8.2 cm was seen to travel from the above-mentioned hematoma to subcutaneous plane as well. Patient was referred to our center for further management.

Patient was a known case of type 2 diabetes mellitus controlled on a diabetic diet and hypothyroidism on treatment. Patient had a history of 3 PRC transfusions i/v/o anemia with Hb of 7.2 at the time of emergency LSCS.

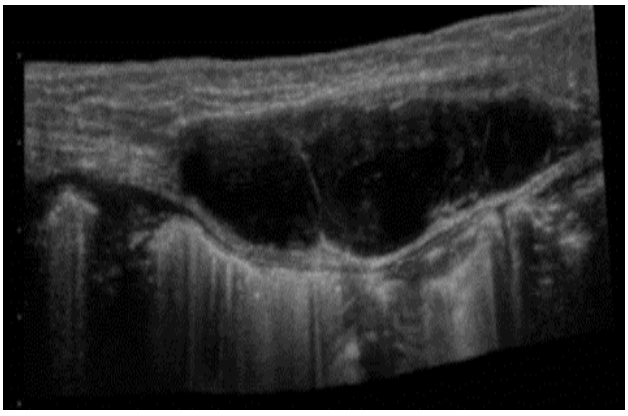

Figure 2: A USG image of the rectus sheath hematoma.

On admission, patient was vitally stable, per abdomen examination revealed a palpable mass of 20×10 cm arising from pubic symphysis, extending up to the umbilicus which was firm in consistency, tender, and warm to touch. The overlying skin appeared normal. Bloody discharge seen coming out from Pfannenstiel incision site. Repeat ultrasonography of pelvis was done suggestive of bulky uterus with a 6×2.5 cm heterogeneously hypoechoic content with no internal vascularity within the uterine cavity, another heterogeneously hypoechoic collection with fine septae and echoes within with no internal vascularity in subcutaneous plane, measuring 12.8×6×4.9 cm^3 (volume 144 cc) likely suggestive of hematoma as shown in figure 2. Investigations were as follows: CBC-9.5/7500/156000, PT/INR 14.3/1.09, D-Dimer 2.99 and liver function, renal function test and serum electrolytes were within normal limits.

Patient was immediately taken up for emergency exploratory laparotomy for rectus muscle hematoma drainage after valid, informed consent from the patient and relative. Patient was given 2 FFPs pre-operatively. Vertical mattress sutures of previous Pfannenstiel's incision were removed.

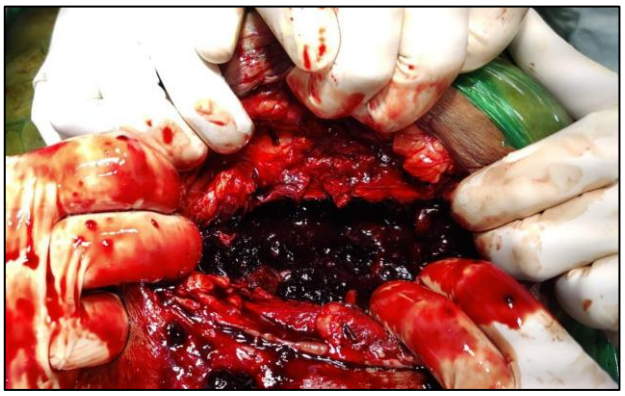

Figure 3: Rectus sheath hematoma.

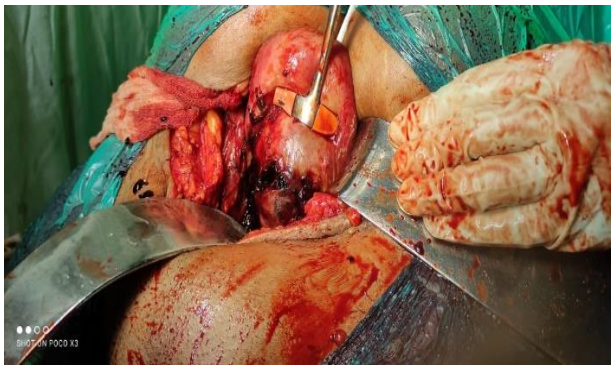

Figure 4: An intraoperative image demonstrating the site of the intra-abdominal source of bleeding.

Two hematomas measuring 5×5×5 cm in the subcutaneous layer were noted. Rectus sheath sutures were removed. A 400 grams clot was seen between the rectus sheath and rectus muscle as shown in Figure 3 and the hematoma was seen extending into the peritoneal cavity. Intraperitoneal findings as shown in Figure 4 include: hemoperitoneum of 200 ml, omentum was adherent to the anterior wall of uterus, no injury to bowel or mesentery was noted. Uterine tone was poor and urinary bladder was seen densely adherent to lower uterine segment. A 2 cm gape of the uterine incision was present and bleeding was seen coming from within. A figure of 8 suture was taken on the uterine incision at the site of bleeding and uterotonics were given

to increase the tone of uterus. Hemostasis achieved, peritoneal wash was given and an intra-abdominal drain was kept. After evacuating the rectus sheath hematoma, inferior epigastric vessel was identified in the rectus muscle and ligated with vicryl no. 1. A drain was kept between rectus muscle and sheath as well as subcutaneous drain kept in situ followed by skin closure done in a vertical mattress manner with ethilon no. 2-0. Patient was transfused with 2 PRC, 2FFP, 2 units of RDP (Random donor platelets) in the perioperative period. Postoperatively, the patient was given injection piperacillin+ tazobactam, injection metronidazole, injection gentamycin, and was monitored vigilantly. Patient tolerated the procedure well and the post-operative period was uneventful. Intra-abdominal drain was removed on day 4 after the drain output was less than 50 ml in 24 hours. Drain above the rectus muscle and the subcutaneous drain, both were removed on day 8 when the drain output in each was less than 5 ml in 24 hours. Patient recovered well and patient was discharged on day 14 postoperatively.

DISCUSSION

Rectus sheath hematoma is a serious uncommon complication of any major abdominal surgery.

Table 1: Causes of rectus sheath haematoma.[2]

S. no	Causes of rectus sheath hematoma
1	Any physical trauma to the abdomen
2	Post-surgical complication
3	Blood dyscrasias
4	Severe straining exercises
5	Spontaneous hematoma,
6	Typhoid fever
7	Patients on anticoagulation therapy

Rectus sheath hematoma is more commonly seen in females, with a ratio of 1.7:1.[3] Overall, rectus sheath hematoma accounts for only about 1% to 2% of all causes of acute abdominal pain.[3] It can present with sudden onset pain and swelling in the lower abdominal region. On examination, abdominal mass may be tender, firm, and warm to touch, usually on one side, and doesn't cross the midline. It can also present as a bluish discoloration of abdomen over the swelling. Our patient presented with pain in lower abdomen with h/o fall and discharge from incision site.

Carnett's test is performed by raising the patient's head off the bed while palpating the painful abdominal mass. Tensing up the rectus muscle protects viscera and lessens the pain from intra-abdominal origin; however, if the source is in abdominal wall, pain will remain the same or increase in severity. Our patient the pain increased on raising the head, Carnett's was positive.

A high degree of clinical suspicion, ultrasonography, and USG guided aspiration can be used to confirm the diagnosis. Imaging can provide the correct diagnosis and exclude an intra-abdominal disorder. Ultrasonography is noninvasive and can be used accurately to demonstrate a fusiform longitudinal mass confined to the abdominal wall. CT scan of abdomen+ pelvis may be required to differentiate it from parietal hernias and other masses. Patient's coagulation profile must be sent before the definitive management of the rectus sheath hematoma. Rarely, it can present with infrequent complication of abdominal compartment syndrome (ACS), which requires urgent surgical decompression of the abdomen, bladder perforation, ureteric obstruction, bladder outlet obstruction, obstructive uropathy.[4] Our patient was diagnosed with rectus sheath hematoma on the basis of USG findings and decision urgent exploration was taken.

Management of patient varies according to the cause of the rectus sheath hematoma. Spontaneous hematomas can be managed conservatively with antibiotics and analgesics.[5] For RSH patients, we can consider rectus sheath block if there is no active bleeding or hemorrhagic tendency. Severe abdominal pain can continue for several weeks, and it can greatly degrade patients' daily activities. Some postoperative rectus sheath hematoma cases may remain unrecognized or may be "hidden" in some postoperative cases.[6-8] Seldom RSH requires angiographic embolization of the inferior epigastric artery or exploratory laparotomy and hematoma drainage. Our patient was managed with exploratory laparotomy with hematoma drainage.

The overall mortality rate of RSH is around 4% and rises to 25% in anticoagulated patients due to increased hemorrhage volume.[9] Its early diagnosis and appropriate treatment may help to prevent hazardous complications.

CONCLUSION

Rectus sheath hematoma is a rare clinical entity as a post-surgical complication, often misdiagnosed. Any delay in the diagnosis and treatment can lead to dreadful complications such as abdominal compartment syndrome. A high index of suspicion, early prompt diagnosis with appropriate radiographic modalities, and a pertinent judgment of conservative or aggressive management may help to prevent untoward outcomes.

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