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A RARE CASE OF MASSIVE RECTUS SHEATH HEMATOMA FOLLOWING CESAREAN DELIVERY IN A RURAL TERTIARY CARE HOSPITAL OF HIMACHAL PRADESH

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ABSTRACT Rectus sheath hematoma is an accumulation of blood between the rectus sheath and the rectus abdominis muscle. It can develop due to shearing of epigastric vessels or their branches or a tear in the rectus abdominis muscle.

Twenty-nine years old G_2P_{1001} at a period of gestation 38 weeks with previous LSCS with twin pregnancy with gestational hypertension had elective LSCS with bilateral tubectomy at a district hospital. She was referred on the first post-operative day with tachycardia (pulse rate of 155 bpm) and oliguria. On arrival at our institute, the patient had severe pain abdomen. On examination, pallor was present, and there was abdominal distension & tenderness. The patient's uterus was well retracted, and bleeding per vaginum was within the normal limit. Her Hb was 5 g, platelets 211,000, and the prothrombin time was 14.9 seconds. There were heterogeneously hyperechoic contents of size 8x14x7.7 cm present outside the uterus on abdominal ultrasonography. Gross free fluid was seen in the hepatorenal and splenorenal pouch. The patient was shifted for exploratory laparotomy. On opening the rectus sheath, about 1000 cc of blood clots were present over the rectus muscle. The peritoneal cavity was filled with about 1.5 liters of clots and altered blood. The stitch line on the uterus was normal. The tubectomy site was normal and not bleeding. The liver, spleen, intestines, and peritoneal edges had no bleeders. Peritoneal washing was done. The period following re-exploration was uneventful. Our patient was discharged on the 7th post-operative day.

Diagnosis of Rectus sheath hematoma should be kept in mind if patient after cesarean delivery presents with acute pain abdomen, fall in hematocrit, and free fluid in the abdomen.

KEYWORDS : Rectus sheath hematoma, LSCS

INTRODUCTION

Rectus sheath hematoma is an accumulation of blood between the rectus sheath and the rectus abdominis muscle. It can develop due to shearing of epigastric vessels or its branches or a tear in the rectus abdominis muscle. It may extend potentially towards preperitoneal space or into free peritoneum. Below the arcuate line, hematomas bleed more and may dissect extensively because no posterior sheath wall or tendinous inscriptions are present to tamponade the bleeding.[1]

Causes of rectus sheath hematoma include abdominal surgery, blunt trauma, subcutaneous drug injection, coughing, trocar site injury after the laparoscopic procedure, physical exercise, pregnancy, hematological diseases, and spontaneously in a patient undergoing anticoagulation treatment.

Case presentation

Twenty-nine years old G_2P_{1001} at a period of gestation 38 weeks with previous LSCS with twin pregnancy with gestational hypertension had elective LSCS with bilateral tubectomy at a district hospital. She was referred on the first post-operative day with tachycardia (pulse rate of 155 bpm) and oliguria. On arrival at our institute, the patient had severe pain abdomen. She was afebrile, with a pulse rate of 170 bpm, blood pressure 150/90 mm of Hg, and respiratory rate of 22 breaths per minute. On examination, pallor was present, and there was abdominal distension and tenderness, more on the right side than left. The dressing was not soaked, the uterus was well retracted, 22 weeks size, and bleeding per vaginum was within normal limit. The patient's Hb was 5 g, platelets 211,000; prothrombin time was 14.9 sec, bleeding time was 4 minutes, clotting time was 12 minutes, blood urea nitrogen 26 mg, and serum creatinine 0.34 mg. Her pre-operative hemoglobin was 11 g. On abdominal ultrasonography, there were heterogeneously hyperechoic contents of size 8x14x10 cm present outside the uterus. Gross free fluid was seen in the hepatorenal and splenorenal pouch.

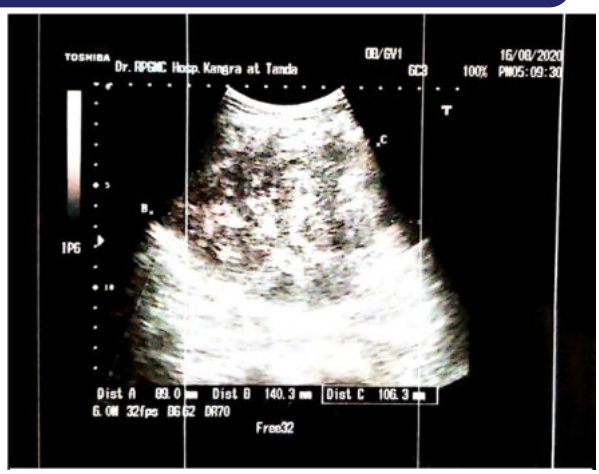

Figure 1: Abdominal ultrasound showing heterogeneously hyperechoic contents of size 8.9x14x10.6 cm outside the uterus

Three units of blood and two units of fresh frozen plasma were transfused, and the patient was shifted for exploratory laparotomy. Under general anesthesia, on opening the rectus sheath, about 1000 cc of blood clots were present over the rectus muscle. A bleeder was seen in the transverse abdominis muscle, on the right side, nearly 3 cm lateral to the margin of rectus abdominis. It was tied, and complete hemostasis was obtained. The peritoneal cavity was filled with about 1.5 liters of clots and altered blood. The stitch line on the uterus was normal. The tubectomy site was normal and not bleeding. Peritoneal washing was done. The liver, spleen, intestines, and peritoneal edges had no bleeders. During exploration, the patient had an atonic postpartum hemorrhage for which uterotonics were given. However, the uterine tone was not regained, and bilateral uterine artery ligation had to be done to control hemorrhage.

Postoperatively patient remained stable and was given two units of blood transfusion, intravenous antibiotics, and analgesia. The period following re-exploration was uneventful. The patient was discharged on the 7th post-operative day.

DISCUSSION

Rectus sheath hematoma is a rare and often misdiagnosed condition.[2] It has also been termed as rupture of the inferior epigastric artery or inferior epigastric syndrome or abdominal wall hematoma.[3] Hippocrates, Galen, and Leonardo da Vinci described rectus abdominis muscle hematoma a long time ago, but Richardson in 1857 in the United States reported the first case.[4]

The rectus sheath is composed of two vertically aligned parallel muscles, a posterior blood supply originating from the internal thoracic and external iliac arteries, and an enveloping fascial sheath. Above the arcuate line, the rectus muscles are divided in the midline by the linea alba and are enveloped by fascia from the aponeurosis of the external oblique, internal oblique, and transverse muscles. Below the arcuate line, there is only an anterior rectus sheath. The rectus muscle is attached to the enveloping fascia above the arcuate line by three to four tendinous insertions. These intersections contain multiple perforators from the epigastric vessels, which supply the overlying fascia and soft tissues. The perforators are most dense in the periumbilical region.[5]

Rectus sheath hematoma can develop due to rupture of epigastric vessels or one of its branches or rectus abdominis muscle. It may extend potentially towards preperitoneal space or into free peritoneum. The predisposing factors for its development include pregnancy, hypertension, bleeding disorders, patients on anticoagulants, previous abdominal surgery, diseases of muscles, trauma to vessels during surgery, paracentesis, amniocentesis, laparoscopy and following subcutaneous injection of insulin and goserelin. Similarly, important factors for hematoma at abdominal surgery include inadequate hemostasis, vigorous retraction, slipped ligatures, needle laceration, impaired mobility of muscles, sawing effect of abdominal wall sutures, excessive separation, and undermining of muscle.[3]

The most frequent symptoms are ecchymosis and mass on the abdominal wall, lower abdominal pain, fever, and vomiting. Patients usually complain of sudden severe unilateral abdominal pain that increases with movements. Our patient also presented with severe pain abdomen. The physical signs of rectus sheath hematoma include Cullen's sign, Grey-Turner's sign, Fothergill's sign, and Carnet's sign.[6] Fothergill's sign and Carnet's sign help to differentiate this condition from other intra-abdominal pathologies.[7] Also, rectus sheath hematoma can be associated with anemia and elevated clotting times; thus, a complete blood count should be obtained, and coagulation studies should be performed for an individual suspected of having an RSH. In our patient, there was a sharp fall in hemoglobin from the pre-operative level, which could not be explained by the normal amount of intraoperative blood loss during cesarean section. Her platelet count and coagulation profile were normal.

RSH can be difficult to diagnose due to its presentation as an acute abdomen or a space-occupying lesion. Differential diagnoses include acute appendicitis, perforated ulcer, ovarian cyst torsion, intestinal obstruction, tumor, and pregnancy-related disorders (degenerating leiomyoma, abruption placenta, and rupture uterus). When history and physical evaluation are suggestive of RSH, ultrasonography and CT scanning can aid in the diagnosis of the hematoma. It also gives information about the rectus abdominis muscle and the perimuscular tissue. Three types of RSH can be distinguished on the basis of the severity of hemorrhage as delineated on CT scan:-[8]

- **Type I:** small and confined within the rectus muscle; does not cross the midline or dissect fascial planes.
- **Type II:** also confined within the rectus muscle but can dissect along the transversalis fascial plane or cross the midline.
- **Type III:** large, usually below the arcuate line, and often presents with evidence of hemoperitoneum and/or blood within the prevesical space of Retzius (retropubic space).

MRI is also useful in differentiating chronic RSH from other anterior abdominal wall masses when CT findings are inconclusive.

Depending upon the hemodynamic stability of the patient, treatment may be either conservative or invasive. Conservative treatment is sufficient for patients who are hemodynamically stable, have small non-expanding hematomas, type 1 rectus sheath hematoma, mild symptoms, and the diagnosis is certain. It includes rest, analgesics, hematoma compression, ice packs, treatment of predisposing conditions, and, if necessary, more aggressive therapies of intravenous and blood transfusion. A decision for exploratory laparotomy has to be taken in case of complications such as rupture into the free peritoneum, hemodynamic instability, or infection. Our patient was also taken for exploratory laparotomy because of hemodynamic instability. Surgery involves making an incision on the mass, evacuation of the hematoma, repair of the rectus sheath, drainage when indicated, thorough exploration of the abdomen, and closure of the abdominal wall. The timely surgical intervention proved to be life-saving in our case.

CONCLUSION

Diagnosis of rectus sheath hematoma should be kept in mind if patient after cesarean delivery presents with acute pain abdomen, fall in hematocrit, and free fluid in the abdomen when other traditional causes have been excluded by standard investigations. A high degree of clinical suspicion and timely diagnosis is essential for its management and may at times prove life-saving.

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