Post-caesarean Rectus Sheath Haematoma

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Rectus sheath haematoma of the abdomen is the accumulation of blood in the sheath of the rectus abdominis muscle as a result of disruption of the epigastric vessels or from a direct tear of the muscle itself. The aberrant course of vessels or injudicious dissection may contribute to this catastrophe. It encompasses a wide spectrum of severity - some self-limiting and others fatal depending on its size, etiology and the development of complications. Its common features include acute abdominal pain, fever, nausea and vomiting. The non-specific nature of these symptoms combined with the low incidence of the disorder lead to difficulty in diagnosis. Local trauma, coagulopathies, coughing, hypertension, and peripheral vascular disease could cause them. The haematoma usually occurs in the lower quadrants of the abdominal wall, is difficult to diagnose clinically and often radiologic imaging is required for its definitive pre-operative diagnosis. Our patients presented with rectus sheath haematoma, following caesarean section. Clinical suspicion and ultrasonography were used to confirm the diagnosis and patients were managed with exploration and haematoma drainage.

Keywords: haematoma; post-caesarean; rectus sheath haematoma.

INTRODUCTION

Rectus sheath haematoma (RSH) is the most common primary non-neoplastic condition of rectus muscle and sheath.[1] It is the accumulation of blood in the sheath of the rectus abdominis muscle as a result of disruption of the epigastric vessels or from a direct tear of the muscle. Causes of RSH includes abdominal surgery, blunt trauma, subcutaneous drug injection, coughing, trocar site injury after laparoscopic procedure, physical exercise, pregnancy, hematological diseases and spontaneously in patient undergoing anticoagulation treatment.[2] They are usually located infraumbilically and almost never crosses the midline and often misdiagnosed as acute abdomen, inflammatory disease or tumor of abdomen. Haematoma below the lineasemicircularis causes an indirect irritation on the peritoneum due to weak posterior rectus sheath in this region leading to misdiagnosis as acute abdomen.[3] In developing countries, where simple diagnostic facilities are not available all times, diagnosis of RSH remains elusive and has to rely on clinical judgment to diagnose this uncommon condition.[4]

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CASE

Case 1

A 20 years female, post-caesarean section day nine presented with lower abdominal pain and bloody discharge from abdominal wound, which for two days. She received four units of whole blood during post-operative period and discharged on the fifth post-operative day without removing suture. She did not give the history of abdominal trauma and/ or chronic cough.

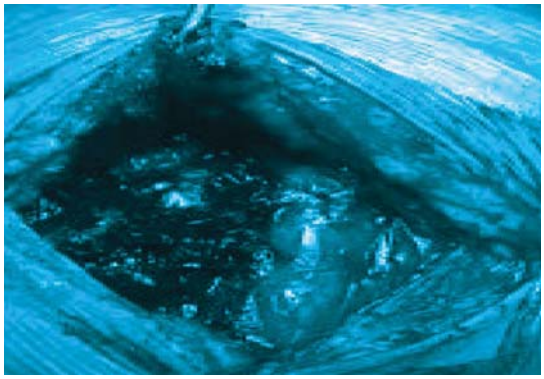

Figure. 1 Showing rectus sheath haematoma.

On physical examination, she was pale with pulse rate 106/min, other vitals were stable. Per abdomen examination revealed a low transverse oedematous wound with intact sutures and blood trickling from the edge of the wound. There was a tender palpable mass of size 15cm x 10 cm with ill-defined margin occupying hypogastrium and right iliac region with some muscular rigidity. Her haemogram, coagulation

profile, liver function test and renal function tests were normal. Under general anesthesia, abdominal wound exploration was done and haematoma located between rectus sheath and rectus muscle amounting to 300 ml was evacuated. Intravenous antibiotics and analgesics were given and post-operative recovery was uneventful.

Case 2

A 23 yeras female presented with pain in lower abdomen and increasing pallor and fever on the fourth post--caesarean section day. On examination, she was pale and her haemoglobin level was 4.3 gm% and total leucocyte count 10,200/cumm with neutrophilia. Per abdomen examination revealed swelling in the left side of incision site with tenderness and minimal soakage. Exploration and drainage of hematoma was done and abdominal drain kept. Intra-operative finding was swelling at incision site with clots below rectus sheath amounting about 600 ml. She was transfused with two units of whole blood and was given combination intra-venous antibiotic therapy. Her postoperative period was uneventful.

Case 3

A 28 years patient post-caesarean section day nine presented with lower abdominal pain and bloody discharge from abdominal wound. On physical examination, patient was pale. Per abdomen examination revealed palpable mass at right lower quadrant of the abdomen with mild tenderness and mild ecchymosis infraumbilically and positive Carnett‘s sign.

Under general anesthesia, abdominal wound was explored. Haematoma located above rectus muscle amounting to 300 ml of blood clot was evacuated. Intravenous antibiotics and analgesics were given and post-operative recovery was uneventful.

Case 4

A 32years patient presented with acute painful lower abdominal mass three days post-caesarean section. She developed an upper respiratory tract infection with cough which became more severe in her immediate post-operative period and she noticed that it was associated with relatively severe lower abdominal pain. Physical examination revealed fever, mild tachycardia, pale conjunctivae, mild abdominal distention and a tender palpable mass at the left lower quadrant of the abdomen with some muscular rigidity and rebound tenderness. Ultrasound examination of the abdomen confirmed a non-mobile heterogeneous mass of the lower abdomen. Further imaging study by computerized tomography (CT) revealed a haematoma on the abdominal wall. Below the arcuate line behind the rectus muscle and the transversalis fascia with the parietal peritoneum, there was a haematoma amounting to 750 ml. This was evacuated, several bleeding points related to the inferior epigastric vessels were ligated and the abdominal wound irrigated, closed in layers and haemovac drains were kept. She was transfused with two units of blood and given combination intra-venous antibiotic therapy. Her cough was controlled with suppressants. She had uneventful postoperative period.

COMMENT

Rectus sheath haematoma (RSH) is an uncommon and often misdiagnosed condition. It has been variously termed as rupture of the inferior epigastric artery or inferior epigastric syndrome or abdominal wall haematoma.[1] Hippocrates, Galen and Leonardo da Vinci described rectus abdominis muscle haematoma a long time ago, but Richardson in 1857 in the United States reported the first case.[5]

Rectus sheath consists 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 lineaalba and are enveloped by fascia from the aponeurosis of the external oblique, internal oblique and transverses muscles. Below the arcuate line, there is only an anterior rectus sheath. Three to four tendinous insertions attach the rectus muscles to the enveloping fascia above the arcuate line. These intersections contain multiple perforators from the epigastric vessels supplying the overlying fascia and soft tissues. The perforators are most dense in periumbilical region.[6, 7]

Haematoma can develop due to rupture of epigastric vessels or one of its branches or rectus abdominis muscle, extending potentially towards preperitoneal space or into free peritoneum. Its most common localization is infraumbilical. There are many predisposing factors such as bout of coughing, sneezing, direct trauma, physical exertion,

pregnancy, hypertension, bleeding disorders, patients on anticoagulants, previous abdominal surgery, increasing age, inflammatory and degenerative diseases of muscles, trauma to vessels during surgery, paracentesis, amniocentesis, laparoscopy and following subcutaneous injection of insulin and goserelin. Similarly, important factors for haematoma at abdominal surgery includes vigorous retraction, inadequate haemostasis, needle laceration, slipped ligatures, impaired mobility of muscles, sawing effect of abdominal wall sutures, excessive separation and undermining of muscle.[1]

RSH accounts up to two percent of the cases of unexplained abdominal pain and female to male ratio of 2-3:1 with highest incidence in the fifth decade.[8] Most frequent symptoms are ecchymosis and mass on abdominal wall, with acute onset of constitutional symptoms such as lower abdominal pain, fever, nausea and vomiting. Patients usually complain of sudden severe unilateral abdominal pain that increased with movements.

We should also look for physical sign of RSH including Cullen's sign, Grey-Turner's sign, Fothergill's sign and Carnet sign.[9] Fothergill's sign and Carnet's sign help to differentiate this condition from other intra-abdominal pathologies.[10] Also, RSH 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. RSH can present diagnostic dilemmas due to its presentation as an acute abdomen or a space-occupying lesion. Acute abdominal inflammatory conditions include acute appendicitis, perforated ulcer, ovarian cyst torsion, intestinal obstruction, tumor and pregnancy related disorders (degenerating leiomyoma, abruption placenta, and rupture uterus). Abdominal wall tumors described are lipoma, haemangiomas, neurofibroma, desmoids tumor, soft tissue sarcoma, lymphoma and metastatic lesions.[1]

When the history and physical examination findings raise suspicion for RSH, ultrasonography and CT scanning are commonly used to help confirm the diagnosis. Ultrasonography can be used as a first-line diagnostic test for RSH, or it can be used to monitor the evolution of a known haematoma. CT scan may be used as a first-line diagnostic procedure in the evaluation for RSH, or it may follow non-diagnostic ultrasonographic findings. CT permits a precise determination of the location, size and the extension of the haematoma. Information is also obtained about the rectus abdominis muscle and the perimuscular tissue. Three types of RSH can be distinguished on the basis of the severity of haemorrhage as delineated on CT scan (table 2).

MRI is also useful in differentiating chronic RSH from other anterior abdominal wall masses when CT findings are not specific.[5]

Treatment may be either conservative or invasive depending upon haemodynamic stability of the patient. Conservative treatment is appropriate for patients who are haemodynamically stable and have small non-expanding haematomas in which symptoms are mild and the diagnosis is certain. It includes rest, analgesics, haematoma compression, ice packs, treatment of predisposing conditions and if necessary, more aggressive therapies of intravenous fluid resuscitation, reversal of anticoagulation, and blood transfusion.[5] Decision for exploratory laparotomy has to be taken in case of complications such as rupture into the free peritoneum, infection or haemodynamic instability. Surgery consists of making an incision on the mass, evacuation of the haematoma, local saline wash and identification and ligation of any bleeding vessel if identified, repair of the rectus sheath, drainage when indicated, and closure of the abdominal wall.[1] Recurrences following surgical therapy have not been reported. Treatment by micro coil and gel foam embolisation has been reported by Lefere et al[11] for expanding haematoma of the lateral abdominal wall after blunt abdominal trauma.

CONCLUSIONS

Clinicians should think of the rare possibility of acute post-operative pain abdomen with fall in haematocrit and free fluid in abdomen as a result of haematoma of rectus sheath when other traditional causes have been excluded by standard investigations. High degree of clinical suspicion and timely diagnosis are essential prerequisites in its management.

DISCLOSURE

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