International Surgery Journal
Ivanovna SH et al. Int Surg J. 2025 Apr;12(4):593-596
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20250820

Case Report

Rectus sheath hematoma established as a sarcoma: a case study

Skers H. Ivanovna, Khadheeja H. Shareef*, Iba Shareef

Department of Oncology, Grodno Sate Medical University, Grodno city, Grodno region, Belarus

Received: 31 December 2024
Revised: 05 February 2025
Accepted: 20 February 2025

***Correspondence:**
Dr. Khadheeja Haisha Shareef,
E-mail: 2711haishashary@gmail.com

ABSTRACT

Abdominal wall hematoma is due to bleeding into the muscle layers of the abdominal wall, the most common among the abdominal hematomas are rectus sheath hematomas. Rectus sheath hematoma is a rare pathology that occurs due to damage to either the superior or inferior epigastric vessels or damage to small vessels due to the disruption of the rectus muscle itself. Patients with rectus sheath hematoma typically present with nonspecific symptoms, such as abdominal pain, making it challenging to diagnose solely based on clinical presentation. Imaging technology such as USG and CT are required for further confirmation. However, for chronic cases of rectus sheath hematoma, USG and CT can be inconclusive and further diagnostics with MRI or diagnostic laparoscopy is required. We described a case of a 42-years-old female, who came to the oncological surgical department of Grodno University Clinic with complaints of abdominal pain for 1 month. The USG and CT showed signs of malignancy, a suspicious formation arising from the muscles and recommendations of further testing for visceral organ involvement since USG suggested intestinal involvement and CT could not rule out growth into the peritoneum. Endoscopically biopsy and cytological examination was done to confirm presence of malignancy and came out negative. Diagnostic laparoscopy was then performed to determine visceral organ involvement and establish a diagnosis along with pathomorphological verification. After that evacuation, sanation and drainage of the hematoma was done.

Keywords: COVID-19, Case study, Diagnostic and treatment tactic, Rectus sheath hematoma, Sarcoma

INTRODUCTION

Rectus sheath hematoma is a commonly misdiagnosed pathology which is characterized by collection of blood in the sheath of rectus abdominis muscle. This can be due to a rupture in the superior or inferior epigastric vessels or due to disruption of the rectus muscle itself, which can lead to damage to small vessels. This rupture could be caused by trauma to the abdomen, surgical interventions and strenuous exercises which can cause strong contractions of the rectus muscle. There are many other predisposing factors including coughing, sneezing, vomiting, straining of stool, pregnancy, coagulopathies and the use of anti-coagulation therapy. Recent studies have shown that those contracted with COVID-19 have risk of spontaneous hematomas. There are multiple theories proposed regarding this. One theory mentions that the increased incidence of rectus sheath hematoma in COVID-19 patients may be due to the increase in use of anticoagulants in treatment of COVID-19. Another theory proposes that patients with COVID-19 have a risk of developing coagulopathy putting patients at risk of venous thromboembolism or excessive bleeding.[1,2]

Typically, patients with rectus sheath hematoma present with general symptom such as abdominal pain and therefore is difficult to diagnose based on symptoms.[3] Onset of acute abdominal pain, sometimes accompanied by feeling of heaviness and palpable mass in the location of the hematoma, as well as abdominal wall ecchymosis. The pain is usually sharp, severe, constant and localized to one area. It may be exacerbated by increased movement of the rectus muscle. The hematoma could also cause peritoneal irritation and in this case will be

accompanied by gastrointestinal symptoms such as tenderness of the abdomen, anorexia, nausea, vomiting or diarrhea. Patients may also exhibit general symptoms such as fever, malaise and confusion. These symptoms are not specific and therefore can easily be misdiagnosed with other conditions such as intra-abdominal and abdominal wall neoplasms.[4]

CASE REPORT

On the 25th of July 2023, a 42-years-old female patient was presented to the surgical department after the pain in the left iliac region she noticed a month ago, sharply intensified. Patient presented with general weakness, nervousness, no fever. She had no other complaints apart from severe pain. She has a past medical history of autoimmune thyroiditis, COVID-19 infection two years ago and had an infection that is suspected to have been another COVID-19 infection two to three weeks prior to this presentation. One week prior to admission she was actively involved in outdoor activities such as running and jumping but did not experience any trauma.

Pre-admission examination included palpation of the mammary glands with no detection of pathology. St/loc; on physical examination painful mass with irregular borders in the hypogastrium in the region of the rectus abdominis muscle was observed. Ultrasound scan revealed a conglomerate of intestinal loops in the left iliac region with suspect of intussusception. Pelvic ultrasound was concluded with no pathology. Abdominal and pelvic CT scan was then done and it revealed a solid formation of 64×77×171 in the region of the rectus abdominis muscle below the navel and no perforation of a hollow organ or intestinal obstruction was visualized. It was suggested that the CT picture may correspond to the desmoid formation or soft tissue sarcoma of the rectus abdominis muscle on the left and the growth into the peritoneum at the level of the iliac wing cannot be ruled out.

On 26th of July 2023, patient was received by the oncology department with suspicions of sarcoma of abdominal wall. At the time of general examination, pathologies of cardiovascular system were not detected. Instrumental investigations were then again performed. Ultrasound of soft tissues of the abdominal cavity revealed an elongated, heterogenous formation of approximately 90×36 mm in structure with small cystic inclusions, located in the abdominal cavity at a depth of 50mm from the surface of the skin, below the navel and slightly to the right of the midline. Both upper and lower endoscopies were performed to rule out malignancy with biopsy. Esophagogastroduodenoscopy presented only reflux gastritis. Rectosigmocolonoscopy results were normal with no oncological pathologies. On doing cytological examination, no atypical cells were found. ECG done in the ward was concluded with normal sinus rhythm and violation of repolarization process of the left ventricle.

Laboratory results

Rhesus group blood testing revealed blood type0 (I), Rh factor Positive, with no Anti-erythrocyte antibodies detected. In August of 2023 general urine analysis using the laura apparatus revealed leukocytes 25 leuk/µl (0-10) leuk/µl, Ketones 5 mmol/l (0-0.19) mmol/l, Bilirubin 17 µmol/l (0-3.4) µmol/l; Color dark yellow, Epithelial cells 15 number/hpf (<3) number/hpf; Flat epithelium 15 number/hpf (<9) number/hpf; Crystal 17 number/hpf (<=0) number/hpf; Calcium oxalates 16 no./hpf (<9) no./hpf. Hemostasiogram revealed APTT 35.6 sec (20.9-30.3) sec, Fibrinogen 5.59 g/l (1.7-4.2) g/l; (03/08/2023).

Biochemical blood test revealed C-reactive protein 62 mg/l (0-6) mg/l. General blood analysis revealed Red blood cells 3.02 x10*12/l (3.7-4.9)x10*12/l; Hemoglobin 98 g/l (120-160) g/l; ESR 58 mm/hour (2-15)mm/hour; Hematocrit 29.2% (32-47)%; MCV (Mean erythrocyte volume) 96.7 Fl (82-92) Fl; MCH (hemoglobin content in erythrocytes) 32.5 pg (28-32) pg; MCHC (erythrocyte hemoglobin concentration) 336 g/dl (32.3-36.5) g/dl; Lymphocytes 17% (18-40)%. Other biochemical and general blood test results were normal.

Both biochemical blood test and general blood test were repeated the next day and presented similar results except MCH and lymphocytes were now within the normal range and with an increase in monocytes. Biochemical blood test revealed C-reactive protein 62 mg/l (0-6) mg/l. General analysis blood revealed red blood cells 3.07×10×12/l (3.7-4.9) ×10×12/l. Hemoglobin 97 g/l (120-160) g/l; ESR 50 mm/hour (2-15) mm/hour, hematocrit 29.8% (32-47) %; MCV (Mean erythrocyte volume) 97.1 Fl (82-92) Fl, MCHC (erythrocyte hemoglobin concentration) 326 g/dl (32.3-36.5) g/dl, monocytes 11% (3-8) %.

On the 1st of August 2023, diagnostic laparoscopy was performed. Opening via pararectal extraperitoneal access of the anterior abdominal wall. On examination, the peritoneum is smooth and shiny in all parts. In meso-hypogastria on the left, there is prolapse of the peritoneum, due to compression from the outside. The peritoneum is dark brown with a diameter of 12×6×4.5 cm. The anterior abdominal wall was concealed by pararectal extraperitoneal access. When the muscles were separated, lysed blood clots were visualized. Evacuation of a subaponeurotic hematoma on the left was performed, with up to 315 ml of blood clots being evacuated. Sanitation was done with H_2O_2 solutions of 3% and drainage of the cavity of the rectus sheath hematoma.

Treatment performed included infusion of saline solution, glucose, Ringer's solution, amikacin, metronidazole, analgesics, dexamethasone, omeprazole, a set of rehabilitation measures, dressings with an antiseptic, etc. Antibiotic prophylaxis: cefazolin, metronidazole.

Patient was discharged on 7th August 2023 under the supervision of a district specialist, therapist. With the advice of limiting physical activity, dressings with antiseptic, removal of sutures after 12-14 days, dieting. No prescriptions were issued.

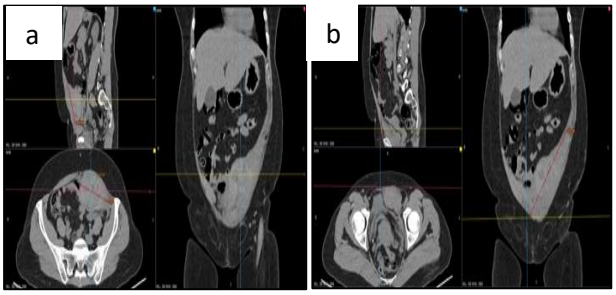

Figure 1: Abdominal and pelvic CT. In the area of the rectus muscle of the lower umbilicus reveal a solid formation with unclear borders limited to the muscle sheath. On the left, at the level of the iliac wing, heaviness is determined, passing onto the intra-abdominal tissue, measuring 33×42 cm.

DISCUSSION

Rectus sheath hematoma is a pathology that is uncommon but should be considered in case of patients presenting with abdominal pain.[4] Many studies have also shown that spontaneous hematomas have become more common, particularly after COVID-19 infection.[5] Female gender, history of blunt trauma of abdomen and history of COVID-19 infection can all predispose to abdominal wall hematomas. In our case, the patient was presented with all three of the above-mentioned factors. The clinical symptoms can vary from only abdominal pain to feeling of heaviness in area of the hematoma and palpable mass of the abdominal wall.[6,7] During investigations, common blood counts can reveal signs of blood loss such as decreased RBC, Hb and HCt% with increased coagulation factors and increased APTT in the coagulogram.[8,9]

Ultrasonography and CT scanning are considered first line in diagnosis of rectus sheath hematoma. Ultrasonography can be used to check information about the size, location and physical characteristics of the mass. It is often used as it is highly sensitive, fast and cost effective. However, at times the ultrasonography findings can be misleading. This was the case in our patient. The ultrasonography findings revealed connections between the mass and the intestine, which lead to the suspicion of malignancy. It is also difficult to differentiate intra and extra peritoneal lesions using ultrasonography and therefore can lead to further possibility of misdiagnosis.[10,11] CT scanning can be more sensitive and specific. Rectal sheath hematomas usually appear as a hyperdense mass, present ipsilaterally posterior to the rectus abdominis muscle, but in case of chronic hematoma, the CT findings may appear isodense or hypodense when compared to surrounding muscle tissue. The hematoma can be considered chronic if present for longer than 5 days and can be an indication for use of other diagnostic methods such as MRI to differentiate from the abdominal wall tumors as CTs can be inconclusive.[6,10,11] Our patient is suspected of having chronic hematoma, as the patient complaint of abdominal pain for 1 month, so CT only confirmed the presence of a formation in the left side of the rectus muscle and suspected growth into the peritoneum with connections to the intestine.

Therefore, a Rectosigmocolonoscopy was performed with biopsy to rule out malignancy. As the biopsy showed no atypical cells, diagnostic laparoscopy was then performed, via pararectal extraperitoneal access of the anterior abdominal wall. During separation of muscles, the appearance of lysed blood clots was noted and evacuation of the sub aponeurotic hematoma of the left was performed with 315 ml of blood clots evacuated. Sanitation with H202 solutions of 3% and drainage of the hematoma cavity was performed.

It is essential to take biopsy of any suspicious formations, especially in young patients. When considering a soft tissue mass, sarcoma should be a primary concern. Sarcoma requires a multidisciplinary approach to assess the feasibility of surgical resection, as surgery is the main treatment method per national guidelines. Thus, multiple investigations were conducted, including colonoscopy, laparoscopy, CT analysis and others, to inform our decision.

The purpose of the surgery in this case was both therapeutic and diagnostic, as non-invasive methods, like fine needle aspiration, were insufficient to provide material from which a definitive diagnosis could be made. Since the tumor was located in the abdominal wall muscles, tissue samples were needed for accurate verification, which could only be obtained through invasive diagnostic methods, like laparoscopy or laparotomy. Fine needle aspiration was not performed as there was possibility to contaminate surrounding tissues in case of malignancy of the tumor. It is to be noted that the tissue sample was crucial to determine the nature of this formation and evaluate its relation to surrounding organs.

During laparoscopy, it was confirmed that the formation was confined to the abdominal wall muscles, with no involvement of the intestine, stomach or other visceral organs. Consequently, the surgical removal of the mass was performed and all pathological masses were taken for pathomorphological examination. Investigations done prior to laparoscopy suggested sarcoma, however due to this manipulation it was confirmed to be hematoma.

CONCLUSION

Rectus sheath hematoma is an uncommon pathology that could be easily misdiagnosed. A 42-years-old female

presented to Grodno University Clinic with abdominal pain for 1 month. USG and CT showed the lesion had adhesions to intestine that could be a sign of malignancy, biopsy of colon was negative for atypical cells. During diagnostic laparoscopy, it was confirmed that the suspicious mass was a hematoma and thus was evacuated. Therefore, it can be seen that USG and CT can be inconclusive for chronic hematomas and for any suspected hematomas with symptoms lasting longer than 5 days, it is best do further diagnostics either by MRI or diagnostic laparoscopy to rule out hematomas.

These further diagnostics can help for proper diagnosis and patient can receive the correct treatment promptly. In conclusion, a comprehensive diagnostic and treatment plan is essential when dealing with suspicious formations. Each diagnostic step should be carefully considered and exclude potential visceral organ involvement and select the appropriate verification method, such as pathomorphological verification as mentioned above. As we've observed, particularly after COVID-19 infection, spontaneous hematomas have become more common.

This case report highlights the need to consider hematoma as a differential diagnosis when evaluating suspicious masses, as it can closely mimic malignancies such as sarcoma. Analyzing risk factors, including recent COVID-19 infection along with good program of diagnostics and verification method, is crucial for accurate diagnosis and treatment planning.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Baş S, Bektaş M. Spontaneous rectus sheath hematoma in three patients with COVID-19: Computed tomography findings. Ulus Travma Acil Cerrahi Derg. 2022;28(11):1655-8.
2. Sposato B, Croci L, Di Tomassi M, Puttini C, Olivieri C, Alessandri M, et al. Spontaneous abdominal bleeding associated with SARS-CoV-2 infection: causality or coincidence. Acta Biomed. 2021;92(2):2021199.
3. Shikhman A, Tuma F. Abdominal Hematoma. 2024.
4. Das S, Prakash S, Singh S, Shaikh O, Balasubramanian G. Spontaneous Rectus Sheath Hematoma. Cureus. 2023;15(8):44138.
5. Doğan S, Sözen S, Hakan Kanat B, Söğütlü G, Gençtürk M, Erdem H. Rectus Sheath Hematoma. In: Trauma and Emergency Surgery. IntechOpen; 2022.
6. Emekli E, Yıldırım M, Türkkanı MH, Ödemiş Başpınar E. Rectus Sheath Hematoma as a Complication in Patients With COVID-19: Clinical and Imaging Findings. Cureus. 2023;15(5):38943.
7. Drinnon K, Simpson SS, Puckett Y, Ronaghan CA, Richmond RE. Rectus Sheath Hematoma: A Rare Surgical Emergency. Cureus. 2020;12(12):e12156.
8. Cherry WB, Mueller PS. Rectus Sheath Hematoma. Med. 2006;85(2):105-10.
9. Hatjipetrou A, Anyfantakis D, Kastanakis M. Rectus sheath hematoma: A review of the literature. International J Surg. 2015;13:267-71.
10. Cocco G, Ricci V, Boccatonda A, Stellin L, De Filippis G, Soresi M, et al. Sonographic demonstration of a spontaneous rectus sheath hematoma following a sneeze: a case report and review of the literature. J Ultrasound. 2021;24(2):125-30.
11. Tyagunov AE, Polyaev AY, Stradymov EA, Nechay TV, Trudkov DY, Mosin SV, et al. Computed tomography and endovascular occlusion in diagnosis and treatment of spontaneous bleeding into soft tissues of abdominal, chest wall and retroperitoneal space in patients with COVID-19. Khirurgiia (Sofiia). 2022;12:11-9.

Cite this article as: Ivanovna SH, Shareef KH, Shareef I. Rectus sheath hematoma established as a sarcoma: a case study. Int Surg J 2025;12:593-6.