Case Report

A case of rectus sheath hematoma in the setting of paroxysmal coughing and platelet dysfunction

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Abstract

Rectus sheath hematoma (RSH) is an uncommon cause of acute abdominal pain that may mimic other intra-abdominal pathologies. It is caused by the rupture of the superior or inferior epigastric artery or vein in the rectus abdominis muscle. Clinical features include sudden-onset abdominal pain and a palpable mass, and common risk factors include anti-coagulants, platelet dysfunction, and cough. Workup includes a physical exam, complete blood count, coagulation profile, ultrasound, and computed tomography. While most cases are treated conservatively, uncontrolled hemorrhage may be lethal and requires prompt recognition. We discuss a case of RSH which developed in the setting of paroxysmal coughing and platelet dysfunction. The purpose is to highlight the diagnosis and treatment of RSH and emphasize the importance of its inclusion in the differential for acute abdominal pain.

Keywords: Cough, platelet dysfunction, rectus sheath hematoma

Introduction

Rectus sheath hematoma (RSH) is an uncommon cause of acute abdominal pain, accounting for 1% to 2% of cases.[1] It may present similar to several other pathologies due to a wide variety of possible symptoms.[2,3]

RSH is classified into the following categories: 1) type I: unilateral and within the muscle. 2) type II: may be unilateral or bilateral. It may be within the rectus muscle or between the muscle and transversalis fascia. 3) type III: extends into the peritoneum and pre-vesical space.[4] Type I RSH in a hemodynamically stable patient may be managed with observation or outpatient follow-up, while types II and III should be hospitalized and evaluated for the need for procedural management.[5]

Etiology may be spontaneous, iatrogenic, or blunt trauma. The most common risk factors are impaired clotting, direct trauma, cough, and immunosuppression.[6] Patients usually present with sudden-onset abdominal pain, palpable abdominal wall mass, and decreased hemoglobin.[7] In severe cases, the patient may experience hemodynamic instability, urinary tract obstruction, or even death.[8-11]

Presented here is the development of an RSH in the setting of paroxysmal cough and concomitant NSAID and aspirin usage. The purpose of sharing this case is to increase awareness and recognition of the clinical appearance of rectus sheath hematomas.

Case Report

A 73-year-old male presented to the family medicine clinic for regular follow-up for the management of type II diabetes

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mellitus, coronary artery disease, and congestive heart failure. Medications included daily aspirin antiplatelet therapy. The patient complained of acute abdominal pain, a protrusion in the left upper quadrant (LUQ), and bruising around the naval, back, and genitals. He reported that symptoms began suddenly 2 weeks prior when he had a persistent cough and myalgias, for which he was taking over-the-counter pain relievers. A physical exam revealed periumbilical and left flank ecchymoses that were partially healed. The abdomen was distended and tender to palpation, with a firm area in the LUQ. The patient was directed to the emergency department, where computed tomography (CT) imaging revealed a hematoma within the left rectus abdominis muscle measuring 27 cm in the craniocaudal dimension and 5–7 cm in the anterior-posterior dimension, with the inferior part mildly depressing the bladder [Figure 1]. There was no evidence of arterial extravasation.

Labs revealed normocytic anemia with a hemoglobin (Hgb) of 12.0 g/dL, down from a previous baseline of 13.6 g/dL. Coagulation labs showed an abnormal platelet function assay (PFA) with a collagen/ADP of >300 seconds (normal = 70–118 seconds). The remainder of the coagulation profile was normal, with a PT of 11.1 seconds, a PTT of 24.9 seconds, and an INR of 1.02. Von Willebrand factor assay was normal with a ristocetin cofactor of >150.5%. It was determined that surgery was not required, and the patient was admitted to family practice hospital service for observation. A hematology consultation confirmed that platelet dysfunction was likely secondary to aspirin use, and the medication was held until discharge. Once determined to be hemodynamically stable with no further decrease in Hgb, the patient was discharged with follow-up appointments with hematology and family medicine. Out-patient labs 8 weeks later revealed normalization of Hgb, and the patient reported resolution of pain.

Discussion

The pathophysiology of RSH involves a disruption of the superior or inferior epigastric arteries or veins within the rectus muscle.[12] The inferior epigastric artery (IEA) is often involved because its branches are fixed at the point it pierces the muscle, leaving the artery particularly susceptible to shearing forces during strong contractions.[13] Additionally, the IEA descends below the arcuate line, where it lacks the tamponade effect from the loose connective tissue of the posterior rectus sheath.[13]

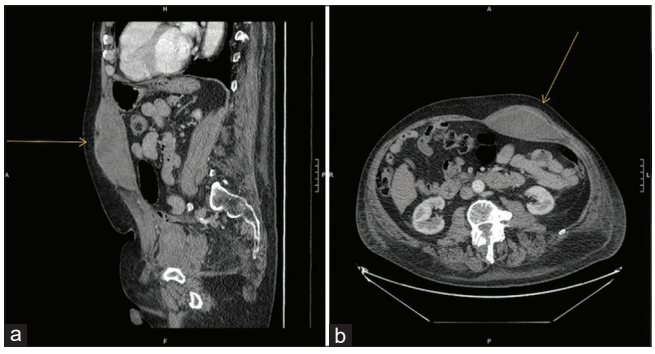

Figure 1: Sagittal (a) and transverse (b) views of a hematoma within the left rectus abdominis muscle on presentation to ED

Workup for RSH includes a physical exam, CBC, coagulation profile, and imaging [Figure 2]. Physical exam techniques for differentiating RSH from an intra-abdominal pathology include Fothergill's sign, which is positive if the mass does not cross midline or change with flexion, and Carnett's sign, which is positive if the pain is exacerbated with flexion.[14] The first step in the workup for RSH is basic blood work and a coagulation profile, after which imaging may confirm the diagnosis.[12] Ultrasonography has been shown to be 80% sensitive and 80% specific for RSH, while CT is nearly 100% sensitive and specific.[4] In a study of 126 patients with RSH, a diagnosis was made with abdominal CT in 76% of patients, while only 7.1% were diagnosed with ultrasonography.[7] Point of care ultrasonography (POCUS) has proven to be valuable when forming a differential diagnosis, particularly when physical exam findings may be obscured by abdominal distension.[9,15]

Most cases of RSH are treated conservatively with blood transfusions and fluid resuscitation, but those that fail conservative management or involve urinary obstruction require arterial embolization or surgery.[5,16] Failure of conservative management may be predicted by active contrast extravasation on CT angiography, a larger hematoma volume, packed RBC transfusion ≥ 4 U, and a higher rate of hemoglobin decrease.[17] Once bleeding is controlled, a type I RSH typically resorbs within 30 days, while a type II or III RSH may take closer to 90 days.[5] A lack of active arterial extravasation on CT suggests this patient had a type I RSH.[18]

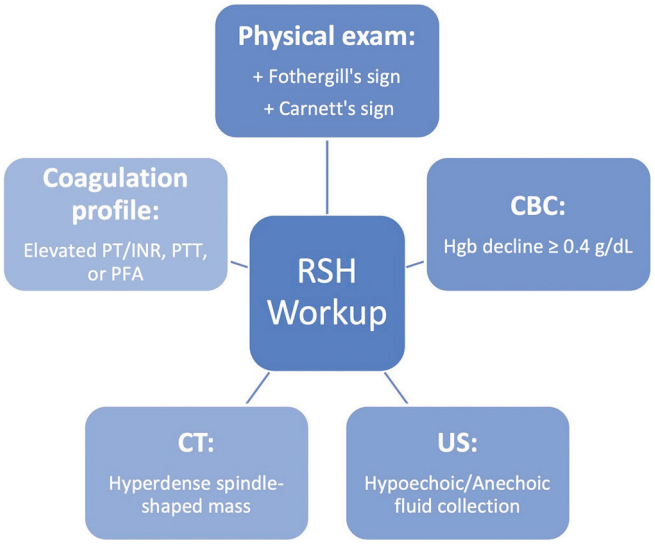

Figure 2: The following factors may be seen on RSH workup: positive Fothergill's and Carnett's signs on physical exam, elevated PT/INR, PTT, or PFA, Hgb decline of 0.4 g/dL or more, a hyperdense spindle-shaped mass on CT, and a hypoechoic or anechoic fluid collection on ultrasound.[4,7,12,14,15]

Although RSH is uncommon, it is important that it remains in the differential diagnosis for acute abdominal pain. A high index of suspicion is required, particularly for those with significant risk factors. The patient was not on anticoagulation therapy, but he was taking concomitant NSAIDs and aspirin, which increases bleeding risk due to platelet dysfunction.[19] The patient also had a persistent cough which would expose the inferior epigastric artery to excessive shearing forces.[13] Failure to make a correct diagnosis of RSH can lead to increased morbidity and mortality via unnecessary surgical intervention or delayed control of hemorrhage.[8,11,13]

Conclusion

Rectus sheath hematoma is an uncommon cause of acute abdominal pain that may mimic other intra-abdominal pathologies. Treatment is often conservative, and early recognition is necessary to prevent increased morbidity and mortality.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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