

## CLINICAL VIGNETTE

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# Spontaneous Rectus Sheath Hematoma: A Case of Clinically Significant Bleeding in a Young Healthy Individual without Typical Risk Factors

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### *Introduction*

Rectus sheath hematoma (RSH) is an uncommon cause of abdominal pain. The clinical diagnosis of RSH is difficult as it may mimic other more common acute intra-abdominal pathologies. Diagnosis of RSH by history and physical examination without imaging is frequently inaccurate. We report a unique case of a clinically significant spontaneous RSH that occurred after minimal activity in a healthy young woman not taking any chronic medications.

### *Case Presentation*

A 39-year-old woman without significant past medical history presents to the emergency room (ER) from urgent care for evaluation of left lower quadrant (LLQ) abdominal pain for the past day. The patient was about to be discharged from urgent care, but had an episode of near syncope that resulted in her being transferred to the ER. She reports that she was in her usual state of health until the day of the visit to urgent care. She developed intermittent sharp LLQ abdominal pain after jumping up-and-down at ground level while playing with children in her kindergarten class. During one of her jumps she felt severe sharp pain in her LLQ and since then reports feeling progressively more lightheaded when going from sitting to standing. She denies falling or other trauma. Her pain worsens with movement and bending at the abdomen. She had taken naproxen, prior to presentation, with minimal relief. The pain does not radiate and there is no associated nausea, vomiting, diarrhea, urinary symptoms, vaginal symptoms, fever, or chills. She does not take any chronic medications. She is sexually active with her spouse and has no history of sexually transmitted infections. The patient reports a history of tubal ligation in 2014. She has no sick contacts or recent travel. Her urgent care vitals were as follows: T98.5, BP 91/55, HR 97, RR 15, 100% saturation on room air. The patient was transferred to the emergency room for further workup and monitoring. Upon arrival to the ER her vitals were as follows: T98.5, BP 114/69, HR 83, RR 18, 100% saturation on room air. On exam, she was in no acute distress and alert. Her abdomen was obese but soft throughout, with tenderness to palpation in the LLQ overlying a small indurated area measuring 5cm x 4cm. There was no overlying erythema, ecchymoses, fluctuance, or warmth. The

pain in LLQ worsened when activating her abdominal wall muscles but the exam was free of peritoneal signs. Pelvic examination revealed some slight white discharge but no bleeding, cervical motion or adnexal tenderness. The remainder of the examination was unremarkable. Her laboratory studies were remarkable for WBC 11.9, Hgb 11.4, platelets 255, wet mount with a few WBCs and clue cells. Her chemistry, INR, PT/PTT, and UA were unremarkable.

### *Discussion*

RSH is typically a benign, self-limiting condition, but may be fatal in a small percentage of cases. Patients with a history of direct trauma, including blunt or penetrating trauma, asthma, chronic obstructive pulmonary disease, and those receiving anticoagulation or antiplatelet therapy have increased risk for developing RSH. This condition results from shearing of the blood supply in the injured muscles leading to buildup of blood within the rectus sheath. Women, have a higher risk during pregnancy, and are two to three times more likely than men to develop this condition.<sup>1</sup> RSH in patients without predisposing factors is termed spontaneous RSH.

Most RSHs occur in the lower abdominal quadrants.<sup>2</sup> The arcuate line, a horizontal line occurring between the umbilicus and the pubic symphysis, demarcates the lower limit of the posterior rectus sheath. The lower half of the rectus abdominis muscle does not have a supporting posterior rectus sheath and is vulnerable to changes associated with movements. RSHs below the arcuate line usually result in more significant bleeding and often extend beyond the midline.

RSHs are classified as type I, II, or III.<sup>3</sup> Type I RSH is small and confined to the rectus muscle and does not cross the midline or dissect fascial planes. Type II similar to type I in size, but it can dissect along the transversalis fascial plane or cross the midline. Type III is large and often presents with signs of hemoperitoneum with or without blood within the prevesical space of Retzius.

The classic presentation of RSH includes acute onset of abdominal pain with a palpable abdominal mass. The patient may also present with abdominal tenderness, guarding, fevers, chills, nausea, and vomiting. Patients with significant hemorrhage may present with signs of hypovolemic shock or even abdominal compartment syndrome.

RSH should be suspected in patients with acute onset of abdominal pain and a palpable abdominal mass, especially in the lower abdomen. Carnett's sign (abdominal pain unchanged or increases when tensing muscles of the abdominal wall are tensed) and Fothergill's sign (mass in the abdominal wall that does not cross midline and does not change with flexion of the rectus muscles) may support suspicion of RSH over other acute intra-abdominal pathology, but imaging studies are required to confirm the diagnosis.<sup>4</sup>

Abdominal computerized tomography (CT) scan is the best diagnostic modality to evaluate suspected RSH.<sup>5</sup> Pregnant women and children suspected of having an RSH should undergo abdominal ultrasound. Imaging studies should be performed prior to surgical exploration. Serial hemoglobin or hematocrit levels should be obtained because initial values may be within normal limits, like other cases of acute hemorrhage. After diagnosis, all patients who present with an RSH should have coagulation studies to confirm that they do not have an undiagnosed hematologic disorder and to direct resuscitation if they are on anticoagulation.<sup>6</sup>

Treatment of type I patients generally does not require hospitalization. Treatment of type II and III patients is dependent on whether the patient is hemodynamically stable or shows signs of hemodynamic compromise, with dynamic changes in hemoglobin or hematocrit.

Treatment of hemodynamically stable patients can be conservative in a hospital setting. As clinically indicated, packed red blood cells or other blood products should be transfused. Treatment of hemodynamically unstable patients, such as those in hypovolemic shock, should be resuscitated aggressively and promptly referred for either angiography with embolization or surgical ligation of the bleeding source<sup>7</sup>. The first-line intervention at facilities that have interventional radiology capabilities is frequently angiography through percutaneous access with arterial embolization. Otherwise, surgical intervention remains a practical substitute procedure.<sup>7</sup>

### Case Conclusion

As a result of significant hemodynamic instability, the patient received further imaging despite largely unremarkable initial ER workup. Her CT of the abdomen and pelvis revealed moderate enlargement of left rectus abdominis muscle with internal heterogeneity and dense fluid at the deep left hemipelvis, as well as moderate intrapelvic bleeding. Ultrasound of the abdomen and pelvis revealed moderate complex pelvic fluid suggesting hemorrhage and the rectus sheath hematoma was again noted. Ovaries and uterus were unremarkable.

The patient had one episode of hypotension while being evaluated in the ER with repeat decreasing Hgb to 10.1. Her hypotension responded to intravenous fluid resuscitation, however, given her acute anemia and transient hypotension she was admitted for observation. During her inpatient stay, she had a negative workup for any bleeding disorders. After a two-day observation period, where she remained hemodynamically stable, she was discharged.

While most patients with RSH have a benign course, some may develop hemorrhagic shock, which if left untreated may be fatal. This case highlights the importance of developing familiarity with the diagnosis of RSH when evaluating patients in urgent or acute care settings. Physicians in these settings must resist the urge to attribute vital sign abnormalities to benign causes without a clearly identifiable diagnosis. It is reasonable to prolong the observation period or expand the initial workup in patients with unexplained transient hypotension.

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