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A rare cause of acute abdomen – Spontaneous rectus sheath hematoma

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ABSTRACT

Spontaneous rectus sheath hematoma (SRSH) is a rare entity that mimics acute abdomen. Rectus sheath hematoma is the accumulation of blood in rectus sheath due to muscle or epigastric vessel injury. However, SRSH without a trauma or anticoagulation is rare. It frequently mimics acute abdomen and it may lead to misdiagnosis and unnecessary laparotomy. In this article, we described two cases of SRSH with their diagnostic and therapeutic strategy. Both of our patients in report were neither consumed antiplatelet nor coagulopathy. They both had abdominal muscle straining before their symptoms presentation. We hypothesized that the SRSH may be induced by rectus muscle injury secondary to inappropriate straining or posture. To diagnose SRSH, clinical findings are important but radiologic imaging such as computed tomography, can be diagnostic. In expanding SRSH, percutaneous arterial embolization of epigastric artery is useful to secure the bleeding. If embolization is not feasible, surgical exploration hemostasis is curative. In non-expanding SRSH, it can be managed nonoperatively. SRSH is an important initial differential for acute abdomen. Radiologic imaging helps in diagnosis. Stable SRSH can be managed conservatively with good outcome.

1. Introduction

Rectus sheath hematoma (RSH) is the collection of blood in rectus sheath due to disruption of the rectus muscle or epigastric vessel [1,2]. RSH causes consisted of iatrogenic surgical procedure, anticoagulant therapy, external trauma to the abdominal wall and blood dyscrasia [2]. Other associated risk factors are hypertension, pregnancy, chronic cough, liver cirrhosis and atherosclerosis [2,3]. However, spontaneous rectus sheath hematoma (SRSH) is rare [1,4]. SRSH can present like an acute abdomen and misdiagnosis may result in unnecessary laparotomy [2,3]. Therefore, SRSH is an important differential diagnosis for acute abdomen [1]. SRSH is usually self-limiting and can be managed nonoperatively [1,5]. Radiological or surgical intervention might be useful in hemodynamically unstable and expanding hematoma cases [5,6]. In this article, we described two cases of SRSH with their diagnostic and therapeutic strategy.

2. Case report

2.1. Case A

An 84 years old woman with hypertension presented with acute painful right lumbar mass associated with nausea and low-grade fever. She had history of physical strain while hoeing the soil just prior to the symptoms. At presentation, her blood pressure was 140/83 mmHg, pulse rate was 89 beats/min and body temperature was 37.4 °C. Clinically, she was pink and physical examination revealed a tender right lumbar mass measuring 25 cm × 20 cm. It was firm but there was no sign of peritonism. Her bowel sound was normal on auscultation. Her initial hemoglobin level was 12 g/dL, hematocrit was 41.5%, total white blood cells count was 13.7 × 10^9/L, platelet was 187 × 10^9/L, activated partial thromboplastin time was 23.7 s, prothrombin time was 17.9 s and international normalized ratio was 1.2. Other blood investigation tests were normal. Ultrasound examination reported as intramuscular abscess at right lumbar region. Further imaging contrast-enhanced computed tomography (CECT) in Figure 1 revealed an intramuscular (within

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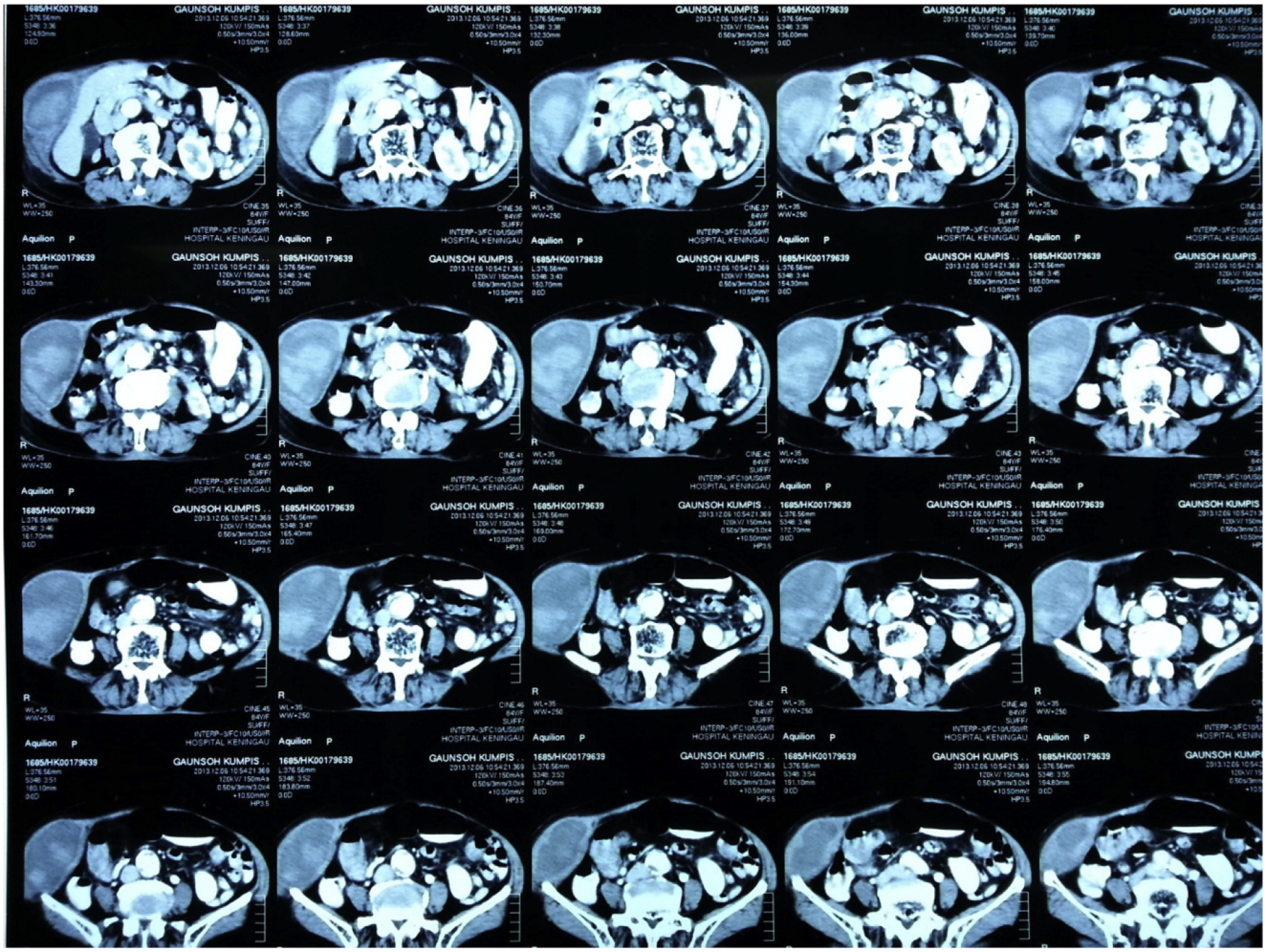

Figure 1. CECT abdomen imaging case A.

abdominal wall) abscess at right lumbar region with significant subcutaneous edema. The next day hemoglobin and hematocrit markedly decreased (8.7 g/dL and 29.5%, respectively) and total white blood cells count was 11.9×10^9/L, no fever noted. After 2 sessions of radiology conferences, her ultrasound and CECT findings were concluded as right lumbar SRSH. Patient was managed nonoperatively with intravenous fluid replacement, adequate analgesia and bed rest. On Day 11, ecchymosis appeared on the abdominal wall as shown in Figures 2–5. Subsequently, right lumbar hematoma was resolved uneventfully after 7 months' outpatient clinic follow-up.

2.2. Case B

A 46 years old obese woman with hypertension presented with acute painful right lower abdominal mass. She had history of physical straining while lifting up a heavy bag just before the symptoms. At presentation, her blood pressure was 126/67 mmHg and pulse rate was 81 beats/min. On physical

Figure 2. Back view in left lateral position case A.

Figure 3. Lateral view in left lateral position case A.

Figure 4. Front view in supine position case A.

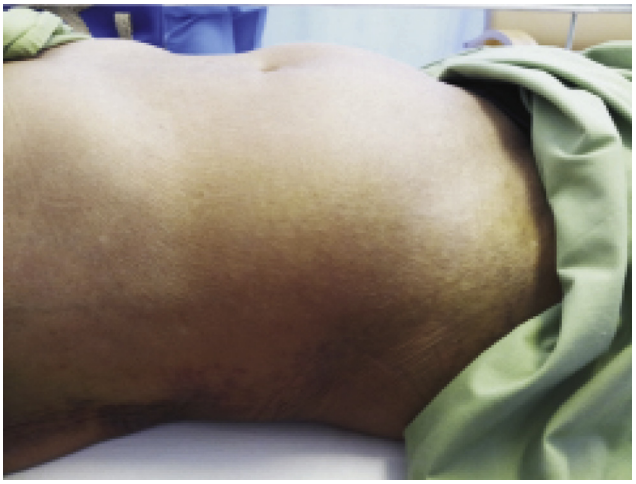

Figure 5. Lateral view in supine position case A.

examination, she was pink and abdominal examination revealed a tender right lower abdominal mass measuring 15 cm × 15 cm. It was firm and there was no sign of peritonism. Her bowel sound was normal on auscultation. Her initial hemoglobin level was 11.9 g/dL, hematocrit was 38.8%, platelet was 262×10^9/L, activated partial thromboplastin time was 36.4 s, prothrombin time was 14.4 s and international normalized ratio was 1.01. Other blood investigation tests were normal. Her abdominal CECT in Figures 6 and 7 reported as right rectus abdominis

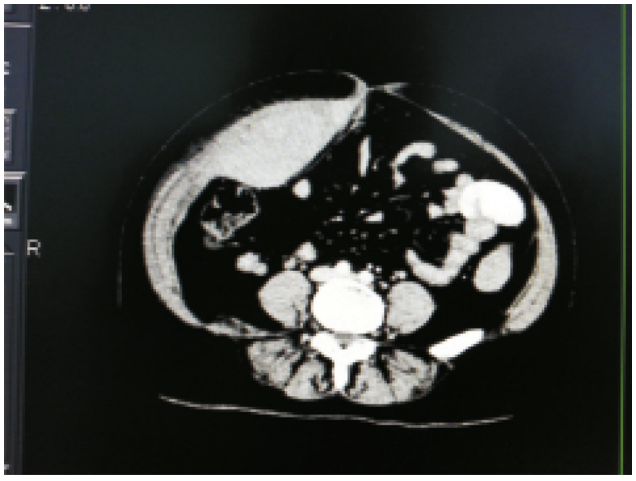

Figure 6. Umbilical level of CECT abdomen imaging case B.

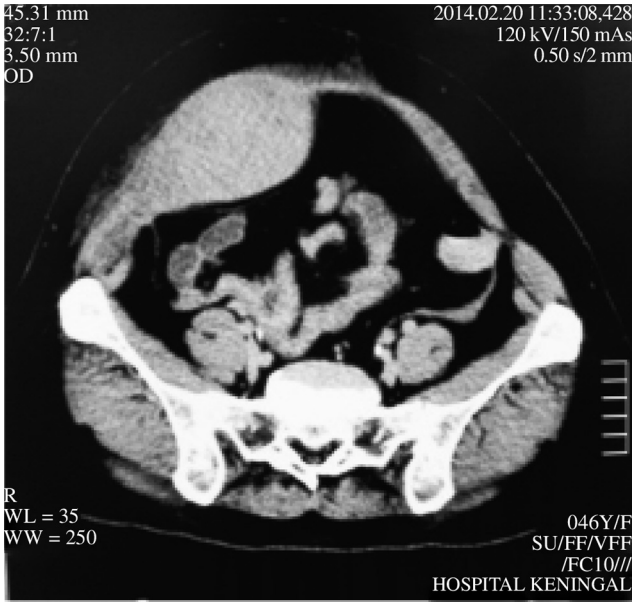

Figure 7. Pelvic level of CECT abdomen imaging case B.

intramuscular lesion, could represent inflammation (non-liquefied) or hematoma. The next day repeated investigations showed hemoglobin level was 9.8 g/dL and hematocrit was 29.3%, no fever noted. Ecchymosis emerged on the abdominal wall on Day 3 as shown in Figures 8 and 9. We managed her nonoperatively

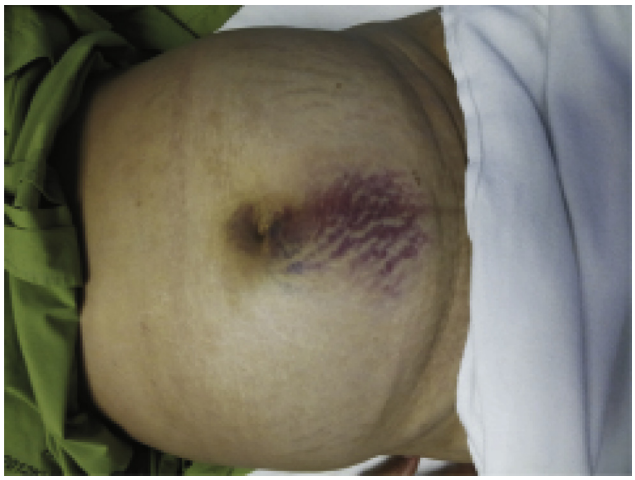

Figure 8. Front view in supine position case B.

Figure 9. Lateral view in supine position case B.

by adequate analgesia, bed rest and intravenous fluid replacement. Patient was discharged on the 4th day of hospital admission and followed up as outpatient. She recovered uneventfully after 6 months of follow-up.

3. Discussion

RSH rarely happens spontaneously without external trauma or coagulopathy [1,4]. Female is prone to have SRSH which may be explained by more muscle mass in man [2,7]. Both of our patients are female as well. Due to its mimicry to acute abdomen, it may lead to misdiagnosis and unnecessary laparotomy. Both of our patients were neither consumed antiplatelet nor coagulopathy. They both had history of abdominal muscle straining before their presentation. We hypothesized that the SRSH may be induced by rectus muscle injury secondary to inappropriate straining or posture.

Based on our both cases, history of muscle straining followed by abdominal pain with sudden onset of palpable abdominal mass is suggestive of SRSH. Drop of repeated hemoglobin is another clue for it. Ecchymosis (Cullen's or Turner's sign) will only appear for few days after initial presentation which cannot help much in the early diagnosis of SRSH. However, presence of ecchymosis did give a strong support towards SRSH.

To diagnose SRSH, clinical findings were important but radiologic imaging, *i.e.* CECT, can be diagnostic. Although ultrasound imaging seems to be the procedure choice in view of low cost, availability, low radiation and high sensitivity, it is operator dependent and difficult to differentiate whether the mass originates from intraperitoneum or extraperitoneum [3]. If CECT is available, it is a better choice to evaluate the size, localization, extension and classification of the hematoma. RSH can be categorized into 3 types based on CECT findings [7,8]. Type 1 or mild RSH is confined within unilateral intramuscular layer which does not dissect along the fascia adjacent to the rectus muscle. Mild RSH does not require hospitalization and usually recover within a month. Next type 2 or moderate RSH may involve bilateral rectus abdominis muscles and dissect along the adjacent fascia, however, it does not extend into prevesical space. Moderate RSH will require hospitalization for 24–48 h observation but mostly does not require blood transfusion. Its recovery might take about 2–4 months. Lastly type 3 or severe RSH can dissect along the fascia and extend into peritoneum and prevesical space which requires hospitalization for close monitoring, hemodynamic stabilization and blood transfusion. The recovery will take more than 3 months and might need further investigation and intervention.

In expanding SRSH, percutaneous arterial embolization of epigastric artery is useful to secure the bleeding [6]. If embolization is not feasible, surgical exploration hemostasis is curative [5]. In non-expanding SRSH, it can be managed non-operatively with good outcome [1,2].

SRSH is an important initial differential for acute abdomen. Radiologic imaging can be diagnostic. Stable SRSH can be managed nonoperatively with good outcome.

Conflict of interest statement

We declare that we have no conflict of interest.

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