

## Conservative management of hematoma of the rectus sheath, unusual cause of acute abdomen: A case report

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Conservative management of hematoma of the rectus sheath*

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### Abstract

Rectus sheath hematoma (RSH) is an accumulation of blood within the rectus sheath, secondary to rupture of the epigastric arteries. It is a rare condition, accounting for 1.6-1.8% of abdominal pain cases. It is more frequently observed in women, over the age of 50. Predisposing factors include the long-term use of anticoagulants, antiplatelets, steroids or immunosuppressants, prolonged INR, pregnancy, cardiovascular disease, hematological disease, hypertension, and diabetes. The symptoms are typically described as persistent and non-radiating acute abdominal pain that classically worsens with movements involving the abdominal wall (Carnett's sign). Cullen's signs (periumbilical ecchymosis) and Gray Turner's signs (flank ecchymosis) may also be present. In stable patients, the management is conservative

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### Introduction

Rectus sheath hematoma (RSH) is an accumulation of blood within the rectus sheath, secondary to rupture of the epigastric arteries or even the muscle itself [1]. The first case was reported in 1857 [2]. It is a relatively rare condition, accounting for between 1.6 – 1.8% of abdominal pain cases. Although it can be considered a self-limiting condition, incorrect management can lead to unnecessary exploratory laparotomies, resulting in high morbidity and mortality. The symptoms are primarily characterized by intense, persistent and non-radiating acute abdominal pain that typically worsens with movements involving the abdominal wall (Carnett's sign). For diagnosis, Computerized Axial Tomography (CT) is the gold standard imaging study.

### Clinical case

We present a case of a 71-year-old female with a history of type 2 diabetes mellitus, systemic

arterial hypertension, and multinodular goiter. Her condition began 7 days prior to admission, when she experienced sudden abdominal pain in the epigastrium and mesogastrium, accompanied by abdominal distension. Four days later, a periumbilical hematoma appeared.

After the pain did not subside, she went to the emergency room. Upon admission, she was stable, with no cardiopulmonary alterations. She had abdominal bloating due to panniculus adiposus with a periumbilical hematoma (Cullen's sign) (Fig. 1), and her abdomen was soft and painful on palpation (VAS 8/10) in the mesogastrium without peritoneal irritation, exhibiting a positive Carnett's sign. A soft, athermic, slightly mobile, and painful palpable mass was identified in the mesogastrium.

A blood test reported a hemoglobin level of 11.1 g/dL, 10.9 K/uL of White Blood Cells, and 230,000 uL of platelets. Coagulation times were within normal parameters (TP 11.4, TTP 28.1, INR 1). The abdominal CT showed an oval image in the right anterior rectus abdominis muscle, with well-

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Fig. 1. Abdominal mass

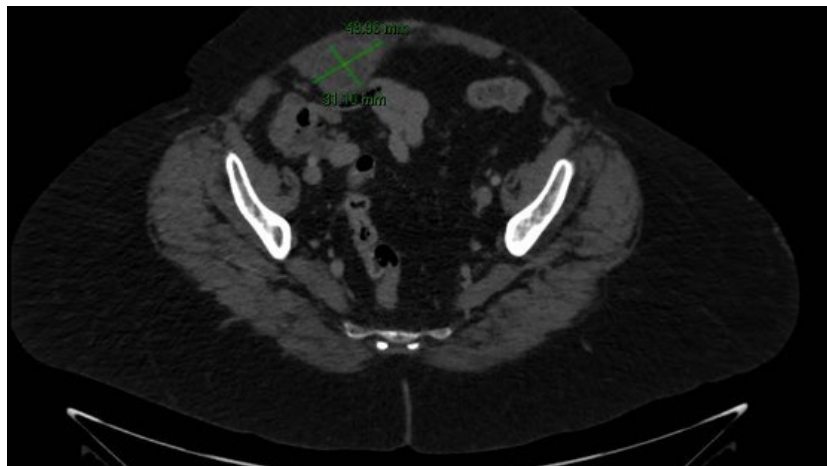


Fig. 2. Hyperdense mass, posterior to the rectus abdominal

defined edges, compatible with RSH, measuring approximately  $17 \times 5.4 \times 3$  cm with an approximate volume of 143cc, without evidence of contrast extravasation or active bleeding (Fig. 2). The patient remained under monitoring, remaining stable during her stay and with no drop in hematocrits. After 5 days of surveillance, a follow-up abdominal CT scan was performed, which showed a decrease in the hematoma, so it was decided to discharge him with alarm data and follow-up in the clinic.

### Discussion

This condition is more frequently observed in women, with a reported ratio of up to 3:1 [1,2,5]. It is especially common in the elderly, over the age of

50, which may be due to a greater weakness of the abdominal wall and less elasticity of the epigastric veins [1,2,6].

Predisposing factors that have been described in the literature include the long-term use of anticoagulants, antiplatelets, steroids, or immunosuppressants, as well as a prolonged INR, pregnancy, and comorbidities such as cardiovascular disease, hematological disease, hypertension, or diabetes. These factors, combined with a precipitating factor such as abdominal trauma, injections, or a strong secondary abdominal contraction (even due to cough), can contribute to the condition [1,2,4,7,8].

The clinical presentation may vary depending on the size and location of the hematoma. The symptoms are primarily characterized by intense,

persistent, and non-radiating acute abdominal pain that typically worsens with movements involving the abdominal wall (Carnett's sign) [2]. Cullen's signs (periumbilical ecchymosis) and Gray Turner's signs (flank ecchymosis) may also be present [9]. Additionally, a painful, non-pulsatile palpable mass may be detected in the abdominal wall, often in the right lower quadrant, along with abdominal guarding, nausea, vomiting, and even fever [2].

Some authors suggest performing serial hematocrit tests to identify volume loss [2,4]. This may be accompanied by leukocytosis. Clotting times should be requested in patients receiving anticoagulants, as they may help determine the need for reversal [2]. For diagnosis, Computerized Axial Tomography (CT) is the gold standard imaging study, with a reported sensitivity of up to 100% [2].

Berna et al., in 1996, described three categories in a tomography classification that helps to determine the severity and prognosis of RSH [10].

Our case corresponded to type I; despite its size, it was an intramuscular hematoma without active extravasation of contrast, so it was kept under close surveillance. Blood extravasation evidenced by CT, Berna III, being over 65 years old, hemodynamic instability, chronic use of steroids, a hematoma greater than 1000 cc, and transfusion of more than 4 units of blood are the most relevant variables to predict invasive treatment [7]. Other authors describe the size of the hematoma as a prognostic factor for surgical treatment, with a cut-off point of 5 cm [3].

The "Rectus Sheath Hematoma Score" has been published to determine the risk of failure in conservative treatment. This score includes clinical and radiographic parameters such as volume of hematoma, active extravasation, rate of hemoglobin drop, and units of blood transfused. A score greater than or equal to 3 indicates a high risk of failure in conservative treatment [6]. In our case, the patient had a score of 1.

The type of management primarily depends on the hemodynamic stability of the patient [11]. Indicators for urgent invasive treatment include hemodynamic instability and the need to transfuse more than 4 units of red blood cells [7]. In stable patients, conservative treatment (CT) is the most effective, with an effectiveness rate of up to 56 – 83%, due to its self-limiting nature [3]. It consists of bed rest, analgesics, intravenous hydration, local ice, management of risk factors, blood transfusion if necessary, and, above all, suspension and even reversal of anticoagulation [7].

If CT is not available, arterial embolization with

microcoils or cyanoacrylate should be considered as an alternative. If this option is not available, cannot be controlled, or the patient becomes unstable, surgical treatment should be chosen. This involves surgical evacuation of the hematoma and surgical ligation of the bleeding epigastric vessel [1,3,7].

Although it is usually a self-limiting condition, a mortality rate of 4% is generally described, which increases to 25% in those who take anticoagulants [3].

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