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Spontaneous Hematoma of the Left Abdominal Wall Secondary to Costal Exostosis: A Case Report

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ABSTRACT

A case of spontaneous left abdominal wall hematoma is presented in a 50-year-old male patient with a history of recently diagnosed hypertension under treatment, morbid obesity for the past 10 years without nutritional management, and occasional smoking and alcohol consumption. The patient presented with oppressive epigastric pain following food intake, accompanied by coughing and diaphoresis, with an initial intensity of 8/10 progressing to 10/10, radiating to the thoracic region. Upon admission, he exhibited a hypertensive emergency and signs of angina, requiring stabilization with nitroglycerin and management in the shock unit. During evaluation, a hematoma in the left abdominal wall was identified, along with a fracture of the left eighth costal arch and a costal exostosis on the left tenth costal arch, as well as pleural effusion and ipsilateral atelectasis, confirmed by computed tomography (CT). There was no history of trauma, transfusions, or prior surgery. The patient received conservative treatment, including triple antihypertensive therapy (calcium channel blocker, angiotensin II receptor blocker, and prazosin), anti-inflammatory agents, analgesics, and bed rest, without the need for surgical intervention. Acute-on-chronic kidney disease (KDIGO 1) was diagnosed, and the patient was evaluated by cardiothoracic surgery for follow-up.

KEYWORDS: Spontaneous abdominal hematoma, costal exostosis, morbid obesity, hypertensive emergency, rib fracture, conservative treatment.

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I. INTRODUCTION

Spontaneous abdominal wall hematoma is a rare but potentially serious clinical entity characterized by the accumulation of blood within the rectus sheath muscles without evident trauma. Its estimated incidence is 1 in 10,000 emergency cases, being more common in women and geriatric patients due to vascular fragility and associated comorbidities. Although its clinical presentation may mimic an acute abdomen, SAWH generally does not require surgical intervention, highlighting the importance of an accurate differential diagnosis to avoid unnecessary invasive treatments[1–9].

The primary pathophysiological mechanism of SAWH involves the rupture of muscular vessels, particularly the inferior epigastric arteries, exacerbated by conditions such as anticoagulation, coagulation disorders, hematologic dyscrasias, and debilitating diseases. Factors such as coughing, vomiting, sneezing, and other maneuvers that acutely increase intra-abdominal pressure may trigger the event. This condition is also associated with oral anticoagulant and antiplatelet therapies, particularly aspirin and rivaroxaban use, although cases involving low-molecular-weight heparins have also been documented[1–9].

The most common symptoms include sudden-onset abdominal pain, a palpable abdominal wall mass, and ecchymosis, particularly in the infraumbilical region due to the lack of a posterior muscle sheath in this area. Computed tomography is the diagnostic tool of choice, as it offers high sensitivity in identifying the hematoma, assessing its extent,

and ruling out complications such as active bleeding or rupture into the abdominal cavity[1–9].

The management of SAWH depends on the patient's clinical stability. In most cases, a conservative approach is preferred, including anticoagulation suspension, adequate analgesia, and serial imaging follow-up. However, in cases of hemodynamic instability or active bleeding, selective arterial embolization is performed, which has been shown to improve clinical outcomes by controlling bleeding and allowing for the early resumption of anticoagulation[1–9].

On the other hand, costal exostosis is a benign bone neoplasm, also known as osteochondroma, and is the most common benign tumor of the thorax. Although its clinical presentation is typically asymptomatic, in rare cases, it can lead to severe complications such as spontaneous hemothorax due to laceration of the pulmonary parenchyma or visceral pleura by its sharp edge. These lesions may present as solitary abnormalities or be associated with a genetic disorder known as hereditary multiple exostoses. In some cases, surgical resection via thoracoscopic techniques enables both definitive diagnosis and resolution of the condition. In this context, costal exostosis should be considered as a potential etiology in patients with non-traumatic pleuropulmonary complications[10–11].

This article presents the case of a patient with costal exostosis who developed a spontaneous hematoma of the left abdominal wall, a condition rarely reported in the literature. This case highlights the importance of a multidisciplinary approach to diagnosis and treatment, as well as the relevance of considering SAWH within the differential diagnosis of acute abdomen, particularly in patients with skeletal abnormalities such as costal exostosis.

II. CASE REPORT

A 50-year-old male patient with a stable social background presented with a sedentary lifestyle and poor adherence to regular medical check-ups, despite a history of recently diagnosed systemic arterial hypertension, treated with telmisartan 80 mg every 12 hours, and morbid obesity for over 10 years without nutritional management. He also reported occasional smoking and alcohol consumption without a chronic pattern and denied any history of ischemic heart disease, trauma, transfusions, or previous surgeries.

The symptoms began three hours before admission while the patient was eating, with the sudden onset of oppressive epigastric pain. The pain intensity rapidly progressed from 8/10 to 10/10, radiating to the thoracic region, and was associated with coughing, profuse diaphoresis, and a sensation of dyspnea. Due to the severity of his symptoms, he sought medical attention at the emergency department on his own.

On admission, he presented with a hypertensive emergency, with blood pressure of 220/141 mmHg, heart rate of 100 bpm, respiratory rate of 24 breaths per minute, oxygen saturation of 89%, and capillary glucose level of 148 mg/dL. During the initial evaluation, the patient appeared somnolent but responded appropriately to external stimuli, with isochoric, normoreactive pupils and an expression of distress.

Physical examination revealed a globular abdomen due to abundant adipose panniculus, with superficial tenderness over the transverse colon and evident ecchymosis in the left hypochondrium. Bowel sounds were diminished, and no signs of peritoneal irritation were found. Thoracic evaluation showed basal hypoventilation on the left side, with ipsilateral dullness on percussion. Heart sounds were rhythmic without murmurs, peripheral pulses were present, and capillary refill was adequate. Bilateral lower extremity edema was also noted.

Given this clinical presentation, the patient was transferred to the shock unit for intensive blood pressure control and cardiovascular monitoring.

III. METHODS

The diagnostic approach initially included an electrocardiogram (ECG), which showed sinus rhythm at 88 beats per minute, a normal electrical axis, and no signs of ischemia or necrosis. Admission laboratory tests were performed, including complete blood count, blood chemistry panel, electrolytes, liver function tests, coagulation times, and procalcitonin levels.

Additionally, a computed tomography (CT) scan of the abdomen and thorax was performed to assess the extent of the clinical presentation, rule out intraperitoneal complications, and characterize findings in the abdominal wall and left hemithorax.

The initial treatment included sublingual nitroglycerin for hypertensive emergency management, complemented by triple antihypertensive therapy (calcium channel blocker, angiotensin II receptor blocker, and prazosin). Analgesia was initiated with mild opioids in combination with acetaminophen, along with supplemental oxygen therapy via nasal cannula at 5 L/min. A general surgery consultation was requested to evaluate the abdominal wall hematoma, and a cardiothoracic surgery consultation was obtained for the follow-up of the pleural effusion.

IV. RESULTS

Initial laboratory tests revealed a hemoglobin level of 16.6 g/dL, hematocrit of 50.2%, white blood cell count of 12,210/mm³ with 64.7% neutrophils, urea of 49.2 mg/dL, creatinine of 2.0 mg/dL, sodium of 143 mEq/L, potassium of 4.3 mEq/L, and procalcitonin <0.12 ng/mL. Liver function tests, amylase, lipase, and coagulation times were within normal limits.

Computed tomography (CT) scan revealed a localized hematoma in the left abdominal wall, contained within the deep muscle layers and without intraperitoneal involvement. Additionally, a fracture of the left eighth costal arch and costal exostosis at the costochondral junction of the left tenth costal arch were identified. A left basal pleural effusion was

also noted, leading to partial atelectasis of the adjacent lung parenchyma, along with a simple cyst in the left kidney.

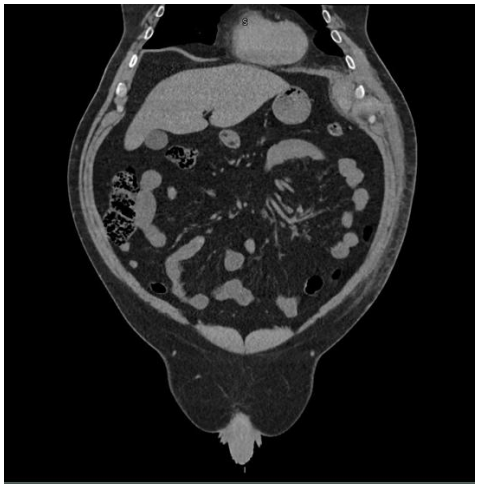

Figure 1. Coronal reconstruction of a thoracic computed tomography (CT) scan showing a lenticular hypodense image within the muscular fascia and peritoneal fat at the level of the left tenth costochondral junction. The lesion has partially defined borders and measures approximately 76 × 54 mm.

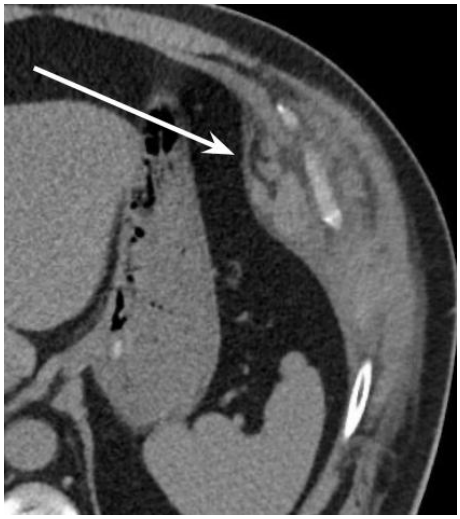

Figure 2. Axial computed tomography (CT) scan showing a hypodense collection in the left abdominal wall, consistent with a hematoma. The lesion is located within the muscle plane, with partially defined borders and areas of higher attenuation, suggesting the presence of blood content in different phases.

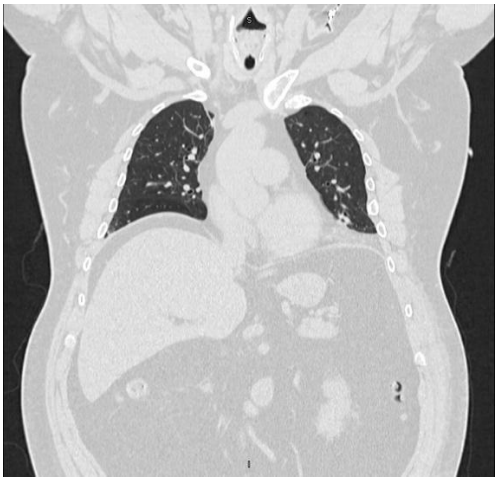

Figure 3. Coronal computed tomography (CT) scan showing a moderate left pleural effusion, with fluid separating both pleural layers, measuring approximately 200 mL, with attenuation indices ranging from -17 HU to 87 HU and an average density of 27 HU, associated with bilateral basal atelectasis.

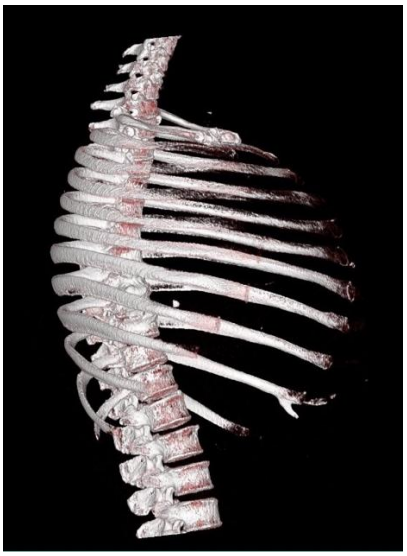

Figure 4. Three-dimensional reconstruction of thoracic bony structures demonstrating a broad-based costal exostosis at the left tenth costal arch. As an additional finding, degenerative osteoarthropathy of the spine with marginal osteophyte formation is observed.

During hospitalization, the patient experienced persistent thoracoabdominal pain, although without anginal characteristics or associated symptoms such as nausea or vomiting. The general surgery team determined that the hematoma did not require surgical intervention, opting for conservative management. Follow-up computed tomography (CT) imaging revealed stability of the abdominal wall hematoma, with no signs of expansion, and a partial reduction of the pleural effusion.

Additionally, the fracture of the left eighth costal arch and costal exostosis at the left tenth costochondral junction were confirmed, reinforcing their potential role as predisposing factors for spontaneous abdominal wall hematoma. The

patient showed a favorable clinical course with analgesia, rest, and clinical monitoring, without major complications. Antibiotic therapy was initiated due to community-acquired pneumonia, with an adequate response to treatment.

In the context of severe hypertension, the patient was diagnosed with chronic kidney disease stage 3B (eGFR 38 mL/min/1.73m², CKD-EPI), without the need for renal replacement therapy. Blood pressure control was successfully achieved after adjusting the antihypertensive regimen.

The patient was discharged with follow-up in internal medicine and general surgery, emphasizing monitoring of the hematoma and evaluation of the costal exostosis.

V. DISCUSSION

Spontaneous abdominal wall hematoma (SAWH) is a rare condition typically associated with predisposing factors such as anticoagulant therapy, coagulation disorders, maneuvers that increase intra-abdominal pressure, or vascular fragility. However, in this case, the only identified factor was the presence of a costal exostosis at the left tenth costal arch, observed through imaging studies. This osseous alteration created a chronic mechanical conflict on the abdominal muscles, making them prone to vascular injury following mechanical stimuli, such as the reported cough episodes in this case.

Although the literature commonly describes SAWH in patients with anticoagulation therapy or prior trauma, this case demonstrates that osseous abnormalities, such as costal exostosis, can be sufficient predisposing factors, even in the absence of coagulation disorders or traumatic history. The CT findings, which confirmed the presence of a left abdominal hematoma contained within muscle planes, along with fracture of the eighth costal arch, costal exostosis at the left tenth costochondral junction, and an associated pleural effusion with partial atelectasis, underscore the importance of utilizing imaging tools for early diagnosis and distinguishing this condition from other causes of acute abdomen, thus avoiding unnecessary surgical interventions.

The decision to opt for conservative management based on rest, analgesia, and clinical monitoring was consistent with literature reports, where most uncomplicated SAWH cases respond favorably to this approach. This case highlights the need to consider costal exostoses as an independent risk factor for the development of vascular-muscular complications, an aspect that still requires further research to fully understand its pathophysiological role and to establish more specific management strategies. Moreover, it emphasizes the importance of a multidisciplinary approach in patients with skeletal abnormalities to prevent delays in diagnosis and ensure optimal treatment, reinforcing the relevance of comprehensive evaluation and clinical surveillance in this population.

CONCLUSIONS

Spontaneous abdominal wall hematoma (SAWH) is a rare condition that, in this case, was uniquely associated with the presence of a costal exostosis at the left tenth costal arch, without other predisposing factors such as anticoagulant or antiplatelet therapy, or a traumatic history. Although it can mimic a surgical acute abdomen, early diagnosis through comprehensive clinical evaluation supported by imaging studies, such as computed tomography, enabled the differentiation of this condition and facilitated successful conservative management. The treatment, based on analgesia, rest, and clinical monitoring, was sufficient to resolve the issue, reserving surgical intervention for cases with severe complications. This case underscores the importance of considering costal exostoses as an independent risk factor for the development of SAWH and reinforces the need for a multidisciplinary approach in patients with skeletal abnormalities to optimize diagnosis and treatment, always evaluating the risk-benefit of interventions.

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