JPSIM Journal of Pakistan Society of Internal Medicine

Case Report

Spontaneous Calf Hematoma

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Abstract

Spontaneous calf hematoma is one of the bizarre clinical conditions that is commonly missed in the day-to-day clinical practice and there are very few cases reported on this vital but potentially lethal disorder. It is mostly because of its similar clinical presentation to deep vein thrombosis and therefore a low index of suspicion. In this context, initiation of anticoagulants for the deep vein thrombosis leads to further blood leakage in any otherwise friable blood vessel and, if untreated, can lead to persistent bleeding and devastation. The purpose of this case report is to emphasize on taking a proper history of any trivial injury in any unilateral calf swelling followed by urgent ultrasound and Magnetic Resonance Imaging to reach the immediate diagnosis and proper management.

How to cite this:

Bhatti HA, Elhadidi NML, Raees HB, Hammad T. Spontaneous Calf Hematoma. J Pak Soc Intern Med. 2025;6(3): 287-290

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Received: 08-04-2025 **Revised:** 18-04-2025 **Accepted:** 24-07-2025

DOI: https://doi.org/10.70302/jpsim.v6i3.2554

Introduction

Spontaneous muscle hematoma (SMH) is a rare but potentially fatal condition that is defined by bleeding into the skeletal muscles with trauma or any other etiology especially in the calf.[1] Patients with different underlying etiologies and comorbidities such as coagulation problems, on anticoagulation medication, vascular fragility and old age are most likely to develop it.[2,3]

Due to this condition's rarity, vague clinical presentation and, similarity to other clinical conditions, its diagnosis is frequently baffling which can lead to its delayed management. Confirmation of diagnosis and determination of the degree of bleeding depends heavily upon a high index of suspicion, thinking outside the box and going for an urgent imaging such as ultrasound, computed tomography (CT) or magnetic resonance imaging (MRI).[1] Even though SMH is frequently treated conservatively, severe cases may need interventional radiology techniques or surgery. Reporting uncommon occurrences such as SMH which are initially misdiagnosed and mistreated with anticoagulation bears its potentially fatal nature and diagnostic challenges.[4]

A spontaneous calf hematoma can occur in a healthy adult with a history of trivial injury which is even ignored or noticed by a patient with a concomitant use of anticoagulant therapy. However, it can occur in other places as well, such as abdominal wall or gluteal regions presented in other age groups and aggravated by different etiologies. The isolated presence of calf swelling without any other visible injury should bring the diagnosis of calf muscle hematoma immediately in mind that occurs due to minor pressure on the blood vessels and leaking into the calf muscles.[5]

Case Report

A 41-year-old male presented to the emergency department on his way to his already booked appointment with the surgeon with excruciating left leg pain and swelling that started spontaneously and gradually, 7 days back. On history, he was a smoker and had history of type 2 diabetes mellitus and dyslipidemia, on regular medication. He was also known to have allergy to injectable Ceftriaxone. There was no history of unusual bleeding tendencies. On deep recall, he remembered that he had a mild clicking in his calf after a sudden jerky movement in his left leg. But it was so trivial, that he ignored it. However, there was no shortness of breath, hemoptysis or fever during the last 7 days.

He went to another facility 5 days back where he was admitted for 4 days for the management of suspected Deep Vein Thrombosis (DVT). His investigations from the other healthcare facility showed HbA1c

9.4%, Hemoglobin 12.8 g/dl, WBC 9.65 x 10/L, Creatinine 0.94 mg/dl. D Dimer was normal. Venous Doppler Study showed arterial DVT of left Popliteal Vein associated with varicose changes and clot and on CTPA there was no obvious evidence of pulmonary thromboembolism. So, he was started on symptomatic treatment along with Tab. Xeralto (Rivaroxiban) 15 mg twice daily for 3 weeks. After being discharged from there, the patient decided to consult a surgeon for a second opinion because of severe persistent leg pain along with increasing swelling to this facility.

In the Emergency Department his vitals recorded were as follows; BP 140/90 mm Hg, Pulse 120 per minute, Temperature 37.5 C, Respiratory Rate 20/m, SPO2 100 % at room air, BMI 29 and Pain Score 7/10. On examination, the patient was vitally stable, pallor was found positive, bruised and swollen left lower leg, and marked localized tenderness was present. However, Homan's sign could not be elicited because of pain. The left Dorsalis Pedis artery was palpable. Intravenous analgesia and fluids were started and the surgeon was called to the emergency department. There was a spot diagnosis of spontaneous calf muscle hematoma probably due to Soleus muscle rupture by the surgeon that was confirmed by the urgent MRI with contrast.

Immediate surgery under general anesthesia was done and a large hematoma was evacuated with a volume of about 700 to 800 ml of blood. A longitudinal incision was given on the maximum area of swelling and the organized clots were removed found under the deep fascia. However, no major bleeding blood vessel was found. The patient was discharged on the very next day and on his follow up of 10th post op day most of the swelling and skin discoloration had resolved. Later, the histopathology report confirmed the original diagnosis of left calf hematoma containing blood clot.

Figure 1: *Spontaneous calf hematoma with an incision mark at the maximum area of swelling.*

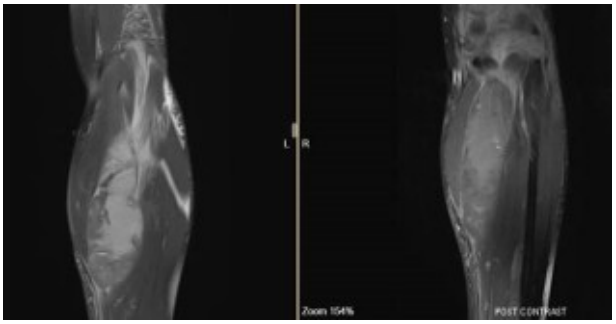

Figure 2: *Calf hematoma without and with contrast on sagittal section of MRI.*

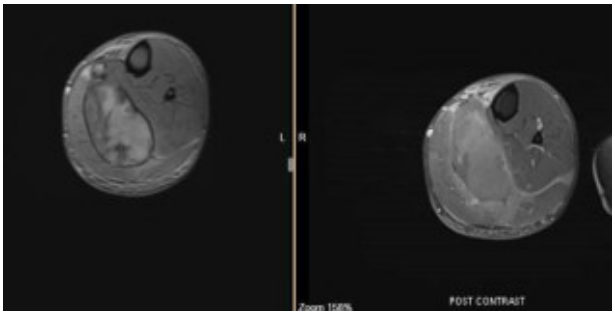

Figure 3: *Calf hematoma without and with contrast on transverse section of MRI.*

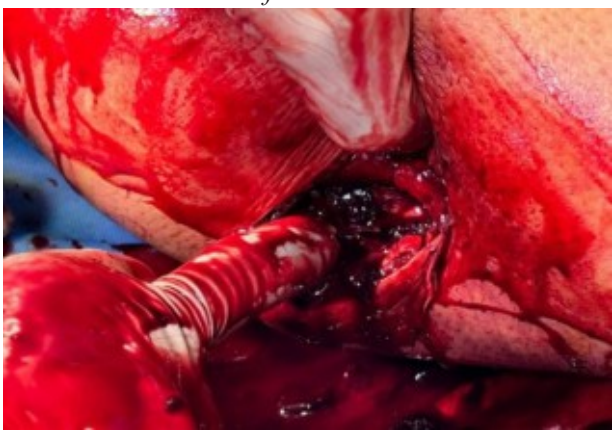

Figure 4: *Per operative evacuation of hematoma*

Figure 5: *Evacuated hematoma containing 700 to 800 ml of blood.*

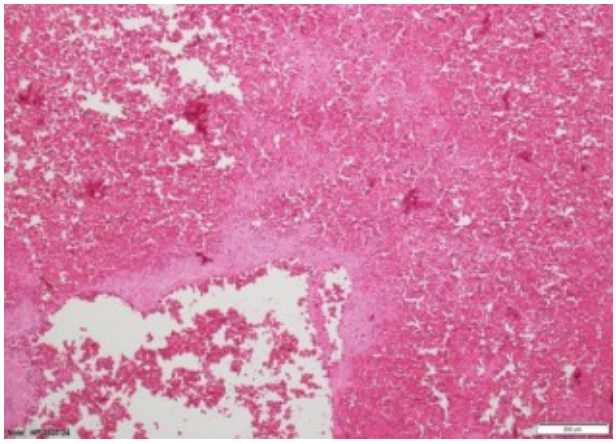

Figure 6: *Only blood clot visible on histopathology*

Figure 7: *Tenth post op day with visibly reduced swelling and skin discoloration.*

Discussion

Unilateral lower leg swelling is a very common presentation in the day-to-day clinical practice and there is a wide range of differential diagnoses such as deep vein thrombosis, ruptured popliteal cyst, cellulitis, lymphedema, osteoarthritis, insect bite and muscle hematoma. However, calf muscle hematoma presents with a diagnostic dilemma due to a low index of suspicion, often forgotten trivial injury and inadvertent use of anticoagulants that is actually started to treat the DVT such as in the above-mentioned classical case. There are very few case reports of calf muscle hematoma in the literature. Interestingly, most of them are adult males without a known leading cause.[6]

Apart from calf muscle hematoma, there are two other common sites for the rare disorder of spontaneous muscle hematoma; gastrocnemius muscle and rectus sheath. Gastrocnemius muscle rupture is usually associated with different vitamin and electrolyte deficiencies, prolonged bed ridden position and after intra-gluteal injections.[7] Similarly there are few case reports about spontaneous rectus sheath hematomas in patients who presented with acute abdominal pain. Direct abdominal trauma, post-operatively, strenuous abdominal muscle strain, pregnancy and excessive coughing superadded by the use of anticoagulants and old age are the major contributing factors for this condition.[8] Rivaroxaban is a novel oral anticoagulant therapy used to treat or prevent the deep vein thrombosis. Evidence shows that the inadvertent use of this anticoagulant can lead to leakage in an already damaged walled blood vessel prone to a minor injury. In our case it was initially thought to be DVT and treated with rivaroxaban which led to this devastating swelling and pain in the calf.[9] Therefore a proper history, clinical examination and prompt imaging techniques can help to avoid the non-indicated use of rivaroxaban.

Judicious use of imaging techniques such as ultrasound, CT scan and MRI with and without contrast help to reach the precise diagnosis on the basis of clinical suspicion in such cases. Similarly, in our case as this case was already delayed for 5 days and an ultrasound scan was already done at that time, an MRI was advised by the surgeon immediately without any delay from the emergency department. On confirmation of the diagnosis, the patient was shifted to the operation theatre and a large hematoma containing 700 to 800 ml of blood was evacuated from under the deep fascia. The wound was closed and patient was discharged on the next day. Patient was on his feet from the next day and on his follow up visit on 10th post op day, most of the swelling and skin discoloration had disappeared.

This case illustrates few important lessons to always think out of the box in case of unilateral leg swelling, get help of the proper imaging techniques preferably MRI before the start of any anticoagulants. Although many such cases can be managed conservatively, in severe cases surgical evacuation of the hematoma is the definitive treatment of choice.

Conflict of Interest: *None*

Funding Source: *None*

Authors' Contribution

HAB: Conception

NMLE, HBR: Design of the work

TH: Data acquisition, analysis, or interpretation

NMLE, HBR: Draft the work

HAB,aTH: Review critically for important intellectual content

All authors approve the version to be published

All authors agree to be accountable for all aspects of the work

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