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# Delayed Presentation of Non-traumatic Bilateral Leg Pseudoaneurysms Mimicking Soft-Tissue Sarcoma – A Case Report

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**Learning Point of the Article:**

On presentation of a patient with a thigh mass, medical practitioners must consider the possibility of a pseudoaneurysm with subsequent referral to the regional vascular surgical center.


## Abstract

**Introduction:** Non-traumatic pseudoaneurysms are very rare but should be considered as a differential diagnosis on patients presenting with a thigh mass.

**Case Report:** We present an extremely unusual case of a 70-year-old patient who presented with clinical features of a soft-tissue sarcoma of the thigh that instead was proven to be a non-traumatic pseudoaneurysm. There was also incidental finding of bilateral leg non-traumatic pseudoaneurysms.

**Conclusion:** Medical practitioners must consider the possibility of non-traumatic pseudoaneurysm in patients that present with a thigh mass.


**Keywords:** Pseudoaneurysm, non-traumatic, thigh, sarcoma.

## Introduction

Pseudoaneurysms are damaged blood vessels which lead to the collection of blood between the tunica media and tunica adventitia of the artery with a direct communication into the lumen [1]. It is commonly caused iatrogenically – for example, after cardiac catheterization or by traumatic injuries to the femoral artery by intravenous drug users. However, further causes such as neoplastic, infective, inflammatory, or rare connective tissue disorders such as Behcet's disease [2] are also possible. The most common location for pseudoaneurysms is in the femoral arteries, but they are also frequently found in the carotid and radial arteries.

The management of pseudoaneurysms can vary depending on size, site, and if there are clinical features of rupture. Small pseudoaneurysms are treated conservatively or with thrombin injection, but larger pseudoaneurysms are at risk of rupture and are usually managed surgically with stents or surgical repair/ligation.

Non-traumatic pseudoaneurysms are exceptionally rare and this is the first case of concurrent non-traumatic bilateral leg pseudoaneurysms.

## Case Presentation

A 70-year-old man initially presented to the emergency department with a 10-month history of a large left thigh lesion. Due to the COVID-19 pandemic, this patient did not seek advice from his personal general practitioner. This lesion had started to rapidly increase in size and become painful in the past month with no previous history of trauma, fever, and weight loss. There was nothing to note in his medical history and his social history

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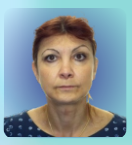
*Author's Photo Gallery*


Dr. Ibrahim Inzarul Haq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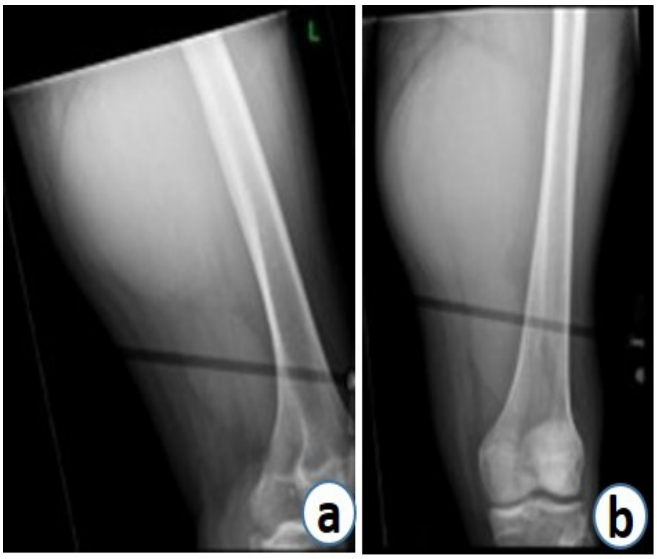


**Figure 1:** A plain radiograph of the left thigh on initial presentation, (a) lateral view and (b) AP view.

**Figure 2:** A photograph of the left thigh on second presentation to the emergency department.

included chronic smoking only. The patient was referred to the orthopedic on-call team for review. He had a diffuse swelling measuring 40 × 40 cm over the medial aspect of the left thigh. The skin over the swelling was stretched and not discolored, there was no erythema, the swelling was tender, warm with ill-defined margins, not fluctuant, not pulsatile, and immobile. There was no palpable thrill and no bruit. There was no distal neurological deficit in his left leg. The dorsalis pedis and posterior tibial pulsations were palpable, and the left foot was well perfused and warm. An infective process such as an abscess was ruled out and a clinical diagnosis of a soft-tissue sarcoma was strongly considered as the underlying pathology. A plain radiograph showed a soft-tissue shadow in the medial aspect of the left thigh with no erosion or scalloping of the femur but some calcifications in the margins of the swelling (Fig. 1a and b). Then, an urgent magnetic resonance imaging (MRI) scan booked as an outpatient.

While waiting for the MRI scan, he represented to the emergency department 2 weeks later with increased swelling size, bruising in the medial aspect of his left thigh, and overlying necrotic skin (Fig. 2). The dorsalis pedis and posterior tibial pulsations were now not palpable, but the left foot was well perfused and warm. His blood tests showed a red blood count of 106 g/L. His urea and electrolytes showed a mild acute kidney injury that was treated with intravenous fluids. He, then, had an urgent same-day MRI scan (Fig. 3a and b) for a presumed expanding highly vascular soft-tissue sarcoma but was reported to be a pseudoaneurysm of both left superficial femoral (SFA) (size 19.6 cm × 16.1 cm) and popliteal artery (size 9.4 cm × 4.9 cm), as well as an incidental right popliteal pseudoaneurysm (size 7.4 cm × 5.3 cm). He was urgently transferred for surgery to the nearest vascular center as the left SFA artery was shown to be ruptured. This patient underwent an emergency left femoral-popliteal artery aneurysm exclusion bypass surgery, debridement, and drainage of the hematoma. He, then, had another operation for further wound debridement and a vacuum assisted dressing applied. He continues to have follow-up to monitor the vascular graft and up to his latest follow-up (15 months post-surgery); the vascular graft is patent and working well. The rehabilitation postoperatively for this patient included a multi-disciplinary team approach. Tissue viability nurses specializing in the treatment and management of wounds worked to monitor and

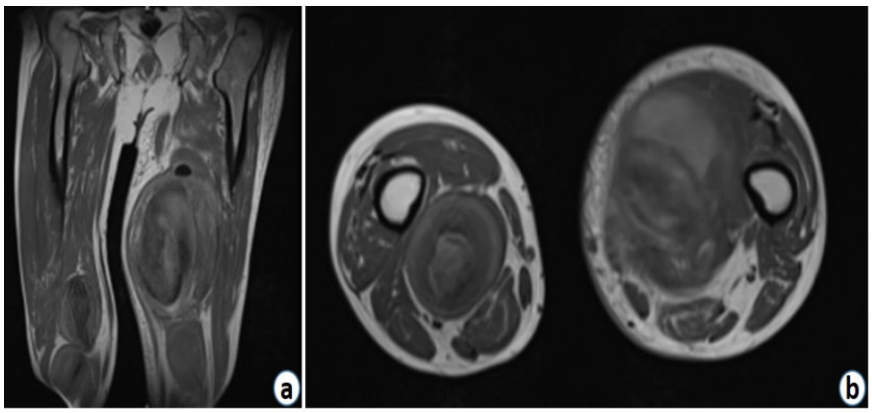


**Figure 3:** Pre-operative magnetic resonance images of pseudoaneurysm of the left superficial femoral and popliteal artery and right popliteal artery. (a) Coronal image and (b) axial image.

care for the wound preventing further deterioration and to promote adequate healing. Physiotherapists also played an important role in helping him to regain strength and mobility in the affected leg through exercises that improve range of motion, muscle strength, and cardiovascular fitness. Follow-up with the plastics and vascular surgeons was also done to monitor the graft, ensuring proper healing, and to prevent complications. This patient is well, walking independently, and the thigh wound is healed. For the right popliteal pseudoaneurysm, he is currently on the waiting list for popliteal artery aneurysm repair.

## Discussion

Pseudoaneurysms are rare and are difficult to diagnose on clinical examination. There have been some case reports regarding the clinical uncertainty or misdiagnosis of pseudoaneurysms mimicking soft-tissue sarcomas [3, 4, 5]. At the initial presentation, this patient presented with features of a soft-tissue sarcoma which included a large slowly growing mass deep to the superficial fascia. An infective process – such as abscess – was ruled out due to the chronicity of the thigh mass and the absence of local clinical features of infection (erythema) and normal body temperature. An MRI scan is a good imaging modality to differentiate between these two differentials – sarcoma and pseudoaneurysm – with a dynamic enhanced MR angiography being the most useful. However, MRI scans are expensive and can be difficult to arrange in an outpatient setting – like in this case – and another alternative can be an ultrasound Doppler that is cheaper and can be done at the bedside.

There are only a very limited number of cases published in the literature with spontaneous SFA artery pseudoaneurysms and rupture is yet more rare [6]. There are case reports though of femoral artery pseudoaneurysm – but with the exception of the limited cases mentioned above – they clearly document a traumatic blunt trauma [7, 8, 9, 10, 11, 12, 13, 14]. This case is unique not only due to the diagnostic uncertainty but also due to the concurrent bilateral non-traumatic pseudoaneurysms that have not been documented in the literature before. Bilateral pseudoaneurysms have also been documented, but in the neck and only following maxillofacial surgery [15].

## Conclusion

Non-traumatic spontaneous pseudoaneurysm is a very rare cause of a thigh mass. This should be considered as a part of a differential diagnosis as it can mimic a soft-tissue sarcoma and be investigated promptly with an MRI scan or an ultrasound Doppler. On diagnosis of a pseudoaneurysm, the medical professional should be alerted of the possibility of bilateral and other anatomical sites of pseudoaneurysms.

### Clinical Message

Patients can present to a medical practitioner with a large thigh mass having the clinical features of a soft-tissue sarcoma. We advise that medical practitioners must consider the possibility of a non-traumatic pseudoaneurysm and conduct prompt further radiological investigations with subsequent referral to the regional vascular surgical center.

**Declaration of patient consent:** The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

**Conflict of interest:** Nil **Source of support:** None

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**Consent:** The authors confirm that informed consent was obtained from the patient for publication of this case report

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