

# Pseudo-Aneurysm of Anterior Tibia Artery Simulating a Soft Tissue Sarcoma: A Case Report

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**Abstract-** A pseudo aneurysm results from leakage of blood from an artery after trauma or dehiscence or separation of a surgical anastomosis. The reported rate of pseudo aneurysm in access sites range from 0.88% to 8%. It has some cause like penetrating trauma, blunt trauma and endovascular procedure. The differential diagnoses of this lesion are hematoma, AV fistula, lymphadenopathy, lymphocele, DVT, compartment syndrome, soft tissue tumor. A 16 years old male was referred to our clinic with progressive swelling in his right leg for the past three month. In primary survey (MRI, CT, Bone Scan) patient was diagnosed with soft tissue tumor, but after biopsy and angiography he was diagnosed with pseudo aneurysm of anterior tibialis artery. Despite easy diagnosis of p aneurysm in most cases, the signs and symptoms are more likely to soft tissue mass in rare cases. So pseudo aneurysm should always be considered as one differential diagnosis for soft tissue tumors.

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**Keywords:** Anterior tibialis artery; Pseudo-aneurysm; Soft tissue tumor; Case report

## Introduction

A pseudo aneurysm results from leakage of blood from an artery after trauma or dehiscence or separation of a surgical anastomosis. The reported rate of pseudo aneurysm in access sites range from 0.88% to 8% (1). It has some cause like penetrating trauma, blunt trauma and endovascular procedure. The differential diagnoses of this lesion are hematoma, AV fistula, lymphadenopathy, lymphocele, DVT, compartment syndrome, soft tissue tumor (2).

In this article, we report the pseudo-aneurysm due to penetrating trauma.

Pseudo aneurysm can occur in different arteries of the body. Pseudo aneurysms have been reported in anterior tibialis artery resulting from trauma, fracture, ankle sprains, and arthroscopy of the ankle and Ilizarov external fixator. Cut clear rarely leads to Pseudo aneurysm unlike penetrating trauma, which more likely disposes artery to Pseudo aneurysm. We are reporting a patient with Pseudo aneurysm resulting from penetrating trauma to one leg, which was very much like a soft tissue tumor.

## Case Report

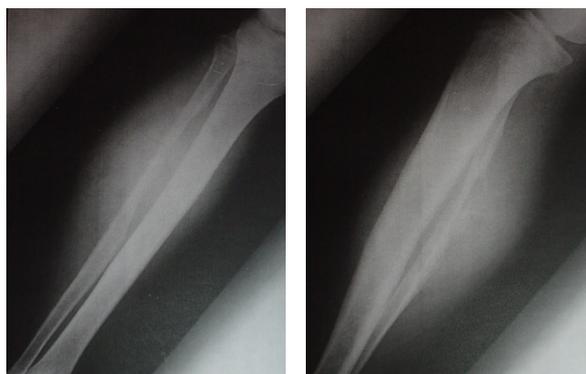
A 16 years old male was referred to our clinic with progressive swelling in his right leg for the past three month. His past medical history was unremarkable for any major illness or any febrile episode except a history of cut injury on the same leg a month before the swelling started that was treated by suturing. Patient did not have any pain on admission nor experienced any febrile episode because of his leg problem. On physical examination; the right lower leg was massively swollen from toes to knee level. There was no erythema or color changes on the leg. The peripheral pulses on foot were not detectable because of massive swelling but capillary filling considered to be normal or slightly sluggish. Patient was not able to extend his toes, and there was obvious hypoesthesia on the dorsum of his right foot comparing o the other side. The intracompartmental pressure measured to be above the normal. He was otherwise normal clinically. All vital signs were measured in normal range; there was no fever detected. All laboratory data were within normal limit although

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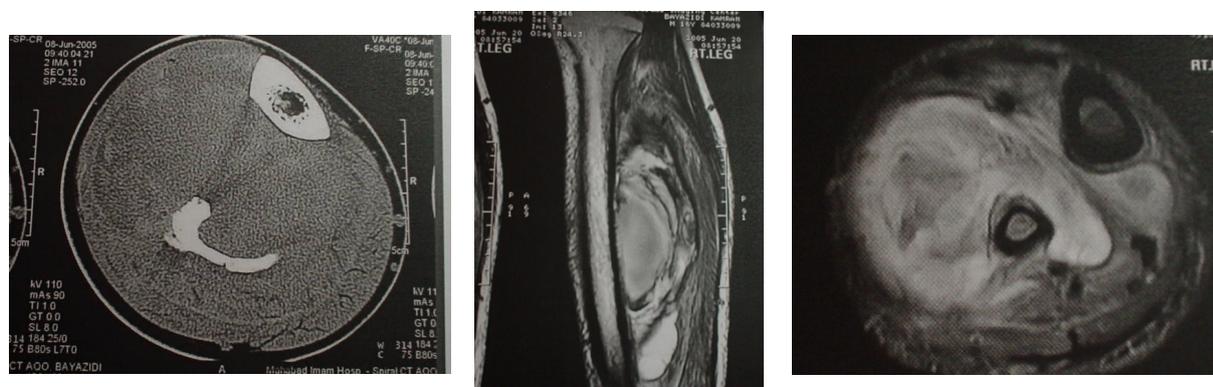
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the sedimentation rate was highly elevated (110mm/hr). Plain X-RAY ray showed a huge soft tissue shadow in

the leg and a destructive process and periosteal elevation all over the right Fibula (Figures 1-3).



**Figure 1.** The MRI without contrast demonstrated the extent of the mass lesion and normal bone marrow signal in both bones



**Figure 2.** CT scanning of the leg also showed surface changes in the fibula and destructive bone lesion in that area



**Figure 3.** Whole body bone scanning with the 99m was performed to complete the staging study that showed no other area of skeletal involvement besides the right fibula bone

Because of massive swelling and the signs and symptoms of acute compartmental syndrome, we decided for a decompression surgery both to reduce the pressure and to get a tissue sample for diagnosis. By a lateral incision the compartment opened, some necrotic tissue was encountered, so irrigation, debridement and biopsy of tissue was done, and wound culture was sent.

After tourniquet release, there was a massive active bleeding all over the wound that could just be controlled by packing and wound closure over drain. Post operatively he did well for a while, but swelling did return in few days. The pathological examination showed massive necrosis without any neoplastic process in the field. After ruling out the malignancy, we re-

examined patient and with careful questioning, we found out that the cut injury was actually a stab wound injury rather than a clear cut. With the probability of a pseudo-aneurysm of anterior tibial artery, the patient was referred to a vascular surgeon colleague and with further evaluation and selective angiography the vascular malformation was documented. Patient underwent surgical repair of the pseudo-aneurysm and recovered fully from the disease. In his last follow up the swelling in the leg was highly recovered and he was very satisfied from the end result and walked with minimal limp, without any support.

## **Discussion**

Traumatic disruption of the lateral vascular wall can cause false aneurysm also called pseudo aneurysm. The time from the initial injury to detection of the pseudo aneurysm has been reported from hours to years, depending on the site of the formation and clinical symptom, of latter including pain, swelling, a pulsatile mass, an audible bruit, distal emboli, blood oozing from the operative site and neurologic deficit (3,5-7). Most aneurysm is asymptomatic, or they present as a pulsatile mass on an arterial tract. If unnoticed, it may assume a huge mass in an extremity and even may cause bony destruction because of pressure effect on the adjacent bony structure. In this case, it can easily be confused with malignant bone lesion and soft tissue malignancies while the majority of patient with soft tissue sarcoma presently with a painless mass (4, 11-13). Diagnosis of the false aneurysm is with Doppler ultrasound and angiography. Unnecessary biopsy may be catastrophic for the patient and treating physician because of massive bleeding (14). Careful history taking especially with regard to any penetrating injuries to the limb can avoid that. Pseudo aneurysms, in the knee region, have been reported after arthroscopy, arthroplasty, ligament repair, synovectomy, penetrating trauma and intramedullary nailing of the tibia (4).

The treatment of pseudo aneurysm has been managed operatively (15) but these operations pose challenge because the vessel edges of the defect are often of poor quality and require trimming or resection to allow a sound anastomosis (1). A less cumbersome technique involves of direct injection of thrombin into the pseudo aneurysm (1- 3, 8- 10). Initial success rate were reported from 90% to 94 % (1). Another modality to treat pseudo the aneurysm is endovascular stent replacement at the site of injury, however, this is an invasive procedure like ultrasound guided thrombin

injection but in ultrasound technique, it does not alter the vascular anatomy.

The anticoagulant therapy during the hospital admission may have exacerbated the problem (2).

In the end, in the presence of soft tissue mass, history taking and thorough examination of the skin regarding previous penetrating trauma is of great value to the correct diagnosis. In addition, Pseudo aneurysm should always be one differential diagnosis in mind.

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