

Delayed presentation of superficial femoral artery (SFA) pseudo aneurysm three month following trauma

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Abstract

This case report describes a rare delayed presentation of posttraumatic pseudoaneurysm of superficial femoral artery (SFA). A 22-year-old man presented with a painful expanding mass over the anteromedial aspect of the distal thigh three months after a motor traffic crash. The lump was tender and pulsatile on examination. CT angiogram revealed a pseudoaneurysm of distal SFA. Open surgical repair was done and the recovery was uneventful. It is to emphasize that absence of physical signs of vascular injury on immediate assessment following trauma does not exclude vascular injury and it can manifest as pseudoaneurysms even after months.

Keywords: Delayed; Late presentation; Post traumatic; Pseudo aneurysm; Superficial femoral artery

1. Introduction

A pseudo aneurysm or a false aneurysm is a collection of blood leaking from a damaged arterial wall. It can follow trauma, iatrogenic injuries or the following infection as well. Delayed presentation of posttraumatic superficial femoral artery (SFA) pseudo aneurysm is a rare manifestation. Only a few cases have been published in the literature [1-7]. A literature search was done on Pubmed and google scholar using the search terms 'delayed presentation', 'pseudo aneurysm', 'false aneurysm', 'post trauma' and 'superficial femoral artery'. Here we report a successfully treated case of such presentation.

2. Case report

A 22-year-old young, healthy farmer sustained an open left distal femur fracture after a motor traffic crash. He was initially managed with external fixation because of the open wound and after two weeks, lax screw fixation was done. On initial presentation, he had palpable distal pulses and no history of significant bleeding from the wound site. He was discharged later and followed up as an outpatient. Three weeks later he presented to local hospital with a painful, progressively enlarging lump on the anteromedial aspect of the left thigh (Figure 1).

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Figure 1 Swelling of anteromedial aspect of the distal thigh

Upon examination, he was haemodynamically stable, distal pulses were intact and the lump was pulsatile. Ultrasound scan revealed a 3.4 X 2.8 cm size pseudo aneurysm in the distal superficial femoral artery with a narrow neck. He was transferred to a tertiary vascular centre for further management. A computed tomography angiogram was done to delineate the anatomy well and plan of intervention. It showed a pseudo aneurysm of the distal superficial artery 20 cm from its origin to a size of 4.3X3.9 cm, with an aneurysmal neck ranging 0.2 cm in size (Figure 2).

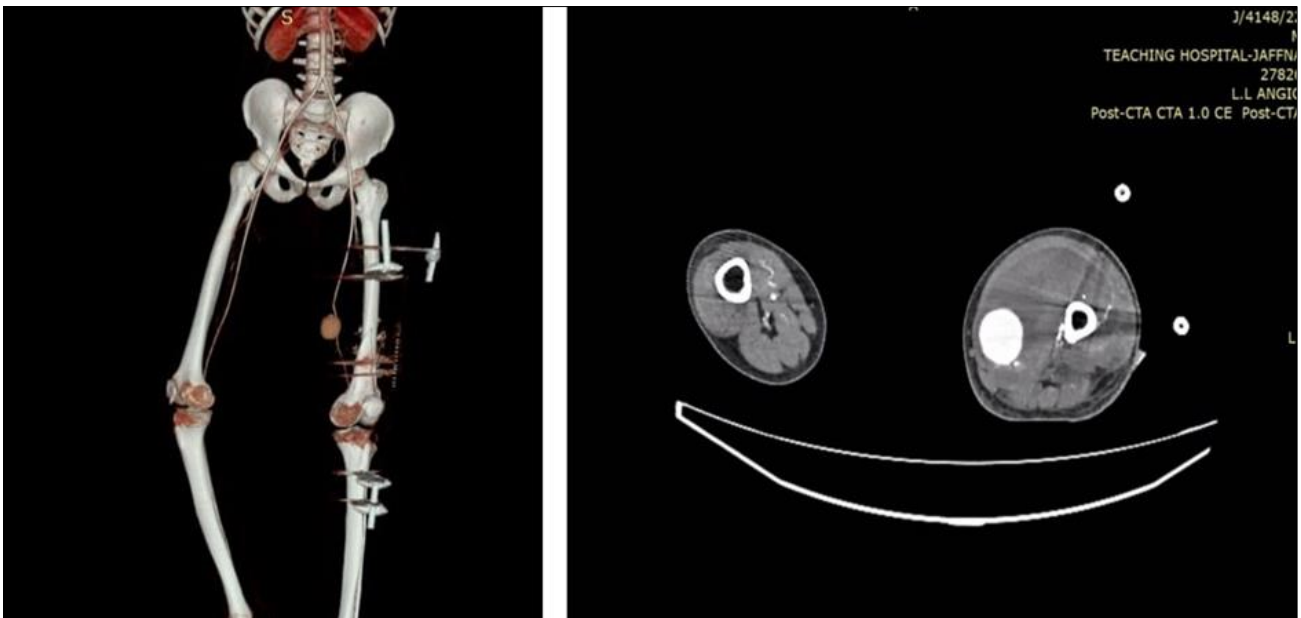


Figure 2 CT angiogram showing the pseudo aneurysm

Open surgical repair of the aneurysm was planned. Proximal and distal control of the pseudo aneurysm was achieved. The pseudoaneurysm was explored and the haematoma was evacuated. There was 2 mm defect in the medial aspect of the distal SFA found. It was fixed with a 6/0 polypropylene suture (figure 3). Postoperatively, distal pulses were present with good perfusion of the foot. He had an uneventful recovery except for a superficial wound infection which required wound wash out once.



Figure 3 Intraoperative image showing the arterial defect

3. Discussion

Delayed presentation of posttraumatic pseudo aneurysms of SFA is rare, and this case is also such an uncommon presentation. In delayed presentations of SFA pseudo aneurysms following trauma, it is difficult to explain the mechanism of injury. The cause of injury is different in each published case. The postulated mechanisms were an injury to the arterial wall by fractured edges of bone before or after fixation [4, 7], concussion due to high velocity projectile gunshot injuries or mortar fragment injuries [1,2,6], and penetrating trauma causing direct injury to the artery[3,5]. In this case, the possible mechanism of injury would be the high-velocity trauma which caused the distal femur fracture or the jagged edges before fixation. The injury is unlikely to be associated with lag screw fixation or external fixators as they were placed well laterally as the neck of the pseudoaneurysm was present anteromedially. It cannot be either due to infection also, as the patient didn't have a fever during the hospital stay, the inflammatory markers were within normal range and the culture of the haematoma couldn't isolate any bacterium.

The history of delay ranges between two weeks to 54 years in the literature. The delay in the diagnosis can be due to the absence of hard and soft signs of vascular injury during the initial presentation. Hard signs include absent distal pulses, pulsatile bleeding and the presence of bruit or thrill. Soft signs include nearby nerve injury, haematoma and an ankle-brachial pulse index of less than 0.9[8]. In all the published cases and our case, none of the signs was present in the initial presentation, which might be the strong reason for missing the injury and a delay of 3 months in this case. In cases of arterial injury by foreign bodies, the delay might be due to its slow migration towards the artery. Another reason for the delay might be the small size of the arterial defect (5 mm) and its anatomical location deep in the adductor canal.

Different surgical and non-surgical modalities were being used in the management of pseudo aneurysms. Different options may vary from conservative management, ultrasound-guided compression, percutaneous ultrasound-guided thrombin injection, endovascular coil embolization, covered stent placement and open surgical repair with or without venous patch angioplasty [9]. Selection of the management option depends on the size, site of the aneurysm, presence of signs and symptoms and the available resources. Out of the few published cases, two were treated with surgical repair and venous patch angioplasty [1,3], two with endovascular stent placement [2,4], two with aneurysmal repair and feeding vessel ligation[5,7] and one with vascular reconstruction with reversed venous graft[6]. The outcome of all the cases was reported as good. In this case, open surgical repair was chosen instead of others as the patient had significant swelling and excruciating pain, which warranted the release of compression symptoms and haematoma. Venous patch repair did not opt as the arterial defect was only 2 mm.

The indication for arteriography following trauma to diagnose any occult arterial injury is unclear and is not indicated in the absence of physical signs of vascular injury [8]. The availability of resources, and limitation of its use, further compromise the use of advanced imaging techniques in the absence of obvious physical signs. This increases the likelihood of missing the injuries and delayed presentation with complications.

This case presentation is to insist on the possibility of an arterial injury following trauma even in the absence of physical signs leading to delayed presentation with complications.

4. Conclusion

Delayed presentation of pseudo aneurysm following trauma, even though rare, is a possible complication and should be kept in mind in dealing with swellings of the traumatic site even after years. Physical signs of arterial injury should be checked in all traumas and case of suspicion, arteriography should be done to exclude arterial injury.

Compliance with ethical standards

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Disclosure of conflict of interest

There is no conflict of interest between the authors as everybody is aware of the work and participates actively and equally.

Statement of informed consent

Written informed consent was obtained from the patient to publish this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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