Three-Year Delayed Presentation of Femoral Pseudoaneurysm after Penetrating Limb Trauma

James William Butterworth,[1] William A. Butterworth,[2] and Roxanne Wu,[1] Cairns, Australia; Shrewsbury, United Kingdom

Background: Delayed presentations of lower limb pseudoaneurysms secondary to penetrating trauma are particularly rare.
Methods: After presentation of this rare case report, we review relevant published literature.
Results: We report a rare case of a 55-year-old man with a progressively enlarging mass measuring 15 cm by 15 cm on his right anteromedial thigh 3 years after penetrating trauma. Computer tomography angiogram revealed this to be a large pseudoaneurysm supplied by a side branch artery from the right superficial femoral artery. Using an open approach, the pseudoanerysm was successfully repaired with the side branch oversewn, and the patient made a good recovery being discharged from hospital 4 days later.
Conclusions: Surgeons must retain pseudoaneurysm as a prominent differential for a patient presenting with a progressively enlarging, expansile mass of an extremity after penetrating trauma to ensure urgent investigation and prompt vascular intervention. Both open surgical ablation and endovascular embolization of pseudoaneurysms of the extremities are effective techniques with low rates of complications and morbidity reported in published literature.

Pseudoaneurysms arise from a disruption in the arterial wall and blood dissecting into the tissues around the damaged artery creating a perfused sac that communicates with the arterial lumen. Trauma to the wall of the artery may lead to the development of a pseudoaneurysm.[1] Delayed presentation of lower limb pseudoaneurysms secondary to penetrating trauma are particularly rare with only 8 cases reported in the literature.[2–5]

After presentation of this rare case report we review relevant published literature.

CASE REPORT

We report the case of a 55-year-old man with a 3-year history of a progressively enlarging mass over his right anteromedial thigh after a stab wound 3 years previously for which he had been unable to seek surgical attention. The background and details of this traumatic injury to his leg appear unclear from the history. Over the preceding 2 weeks this man had noticed an increased rate of the swelling and worsening pain with associated difficulty in walking. He had not experienced fevers or systemic symptoms of anemia. He had no previous medical conditions or surgical operations and had no regular medications. He is a nonsmoker and denies alcohol use. On examination, he was apyrexial and hemodynamically stable with a large, 15 cm by 15 cm, tense and pulsatile mass over his anteromedial thigh (Fig. 1). Skin overlying the mass was intact, and femoral, popliteal, dorsalis pedis, and posterior tibial pulses were palpable bilaterally. Blood test revealed his hemoglobin was 84 g/dL, reduced from 108 g/dL 1 week previously. Inflammatory markers, coagulation profile, and urea and electrolytes were within normal range. Computer tomography angiogram (Fig. 2) revealed a large round collection in the anterior compartment of the thigh measuring

[1]*Department of Surgery, Cairns Base Hospital, Cairns, Queensland, Australia.*

[2]*Department of Anaesthetics, Royal Shrewsbury Hospital, Shrewsbury, UK.*

Correspondence to: James William Butterworth, MBBS, BMedSci, MSc (Hons), DIC, MRCS (Ed), University Hospital Lewisham, High Street, Lewisham, London, SE13 6LH, UK; E-mail: jamesfomsf@googlemail.com

Ann Vasc Surg 2015; 29: 362.e11–362.e15
http://dx.doi.org/10.1016/j.avsg.2014.09.019

Manuscript received: October 31, 2013; manuscript accepted: September 25, 2014; published online: November 13, 2014.

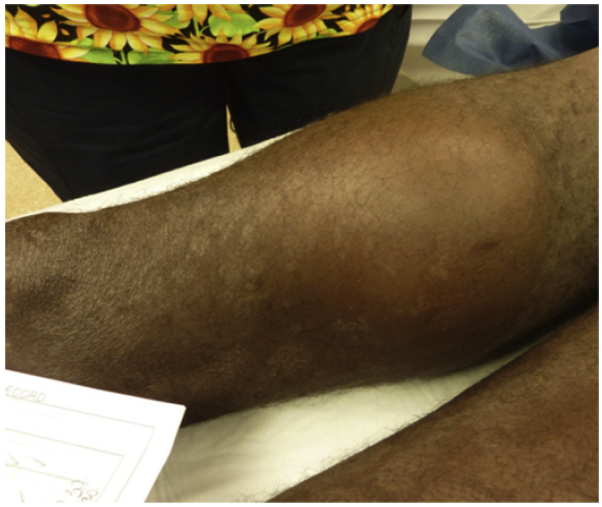

Fig. 1. Right leg pseudoaneurysm preoper-atively.

10 cm in both planes, the content being predominantly heterogenous consistent with a hematoma with a soft clot. It was noted that there was a false aneurysm measuring just more than 3 cm in both the directions at the deep aspect in close proximity to the right superficial femoral artery (SFA) in the mid thigh. The neck feeding the aneurysm appeared to be thin and short, approximately 5−7 mm in length. The underlying caliber of the SFA was unaffected.

He was then admitted and fasted overnight in preparation for his right femoral pseudoaneurysm repair the following morning. Intraoperatively, proximal and distal control was established after exposure of the right SFA in the proximal thigh and right suprageniculate artery in the medial thigh. The pseudoaneurysm was opened and a large amount of fresh clot evacuated. The SFA was exposed in the area of fresh bleeding and after finding the bleeding to originate from a large side branch it was then oversewn. A drain was inserted and the wound closed. The patient made a good recovery, began mobilizing on day 1 after operation and was discharged from hospital 4 days later.

DISCUSSION

Of the 8 delayed presentations of lower limb pseudoaneurysms after penetrating injury in published literature,[2−5] interesting examples include a 28-year-old man presenting 3 months after a penetrating injury to the buttock with an inferior gluteal artery pseudoaneurysm, successfully treated with an open surgical approach after a failed endovascular embolization attempt.[4] Anatomically similar to our case, a patient presented 14 days after penetrating limb injury with a pseudoaneurysm of his left SFA in association with arteriovenous fistula of

Fig. 2. Computer tomography 3-dimensional maximum intensity projection of right femoral artery demonstrating pseudoaneurysm.

his left thigh.[3] One retrospective review cites 5 cases of chronic pseudoaneurysm of the gluteal and pudendal vessels secondary to penetrating trauma and warns of the risk of late diagnosis of pseudoaneurysms given 87.5% of the vascular lesions reviewed in this study received inappropriate initial management.[5]

Iatrogenic lower limb cases include profunda femoris pseudoaneurysms complicating a Birmingham hip resurfacing arthroplasty,[6] pseudoaneurysm of the peroneal artery after bone transport with Taylor Spatial Frame,[7] and pseudoaneurysm of the superficial palmar arch after endoscopic carpal tunnel release.[8] Iatrogenic upper limb pseudoaneurysms have been reported, with 1 delayed presentation after anterior shoulder dislocation successfully treated using open surgical intervention-resection-anastomosis and 1 digital artery pseudoaneurysm after trigger thumb release.[9,10] Rarely, lower limb pseudoaneurysms have also been known to develop spontaneously with 1 case involving the right anterior tibial artery and tibioperoneal trunk successfully managed conservatively.[11]

Promise has been demonstrated for endovascular management of iatrogenic pseudoaneurysms with 1