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CASE REPORT

Delayed superficial femoral artery pseudoaneurysm following distal femoral shaft fracture: A case report
股骨幹遠端骨折併發遲發性淺股動脈假性動脈瘤

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經皮血管支架;
假性動脈瘤;
淺股動脈

Abstract A 69-year-old man presented with an expanding tissue mass over the medial aspect of his left thigh 6 weeks after a fracture of the distal femur shaft. Imaging studies confirmed a rare traumatic pseudoaneurysm of the superficial femoral artery. For the massive hematoma and persistent exsanguinating hemorrhage, staged interventions were taken. First, the pseudoaneurysm was hemodynamically isolated with an endovascular stent-graft placement. Subsequent surgical exploration and aneurysmectomy were performed later for the evacuation of the formed hematoma and the relief of the resultant compressive symptoms. Because traumatic pseudoaneurysm can have an insidious onset and delayed presentation, surgeons should consider the possible complication even after initial fracture fixation.

摘要 一位69歲男性於左股骨骨幹遠端骨折6周後，在左大腿內側面產生一漸進性腫脹。影像檢查證實此為一少見位於淺股動脈的創傷後假性動脈瘤。針對已形成的血腫與持續、擠壓式滲血，我們採取階段式的介入方式來處理。先以經皮放置血管支架成功地控制假性動脈瘤後；再對巨大血塊與壓迫症狀進行手術探查與清除。因創傷後的假性動脈瘤其初始症狀可能不明顯與常見的延遲表現，外科醫師在臨床診察或追蹤時，即使在骨折內固定手術後仍需留心此一可能的併發症。

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Introduction

A pseudoaneurysm or false aneurysm is a collection of blood leaking from a damaged arterial wall; the damage can be caused by traumatic or iatrogenic perforations or failed surgical anastomosis. Because of its common insidious onset and possible delayed presentation, surgeons should always be aware of the implicated lesion even after initial fracture fixation. We report a case of delayed superficial femoral artery (SFA) pseudoaneurysm 6 weeks after osteosynthesis of the broken distal femur and illustrate the importance of suspecting associated vascular injuries after lower extremity trauma.

Case presentation

A 69-year-old man sustained a distal femoral fracture in a traffic accident (Fig. 1); no other significant injuries were noted except the transiently weak peripheral pulses. On the same day, the fracture was operatively treated by closed reduction and stabilization with a 10 × 340-mm retrograde intramedullary nail (S2 Femur A/R Nail; Stryker Trauma, Schönkirchen, Germany). These procedures underwent with the patient supine and with the knee flexed 40° using supportive bumps under the knee. Intraoperative fluoroscopy guided proper reduction and trajectory of the guide pin. Postoperative radiographs revealed a posterior step-off between the proximal and distal fragments; however, a smooth course without functional interference was noted. The patient was discharged with partial weight-bearing ambulation. At an outpatient follow-up 3 weeks after the surgery, a tender swelling over the medial thigh was complained, and subsequent radiographs revealed an ovoid soft tissue mass behind the fracture site. A residual hematoma was impressed, and observation was recommended based on the intact distal pulsation and neuromuscular function. However, even 3 weeks later, the enlargement of the mass continued and associated compressive symptoms developed. A delayed psuedoaneurysm instead of a simple hematoma was suspected. Further investigation, including duplex ultrasound and computed tomographic angiography, confirmed the uncommon lesion originating from the SFA adjacent to the fracture site (Figs. 2 and 3).

After consulting vascular surgeons, we planned a staged treatment course consisting of initial hemodynamic stabilization by pseudoaneurysm isolation, subsequent surgical exploration, and aneurysmectomy. Pseudoaneurysm isolation was achieved by inserting an endovascular stent graft of 6 mm in diameter and 60 mm in length (Fluency; C. R. Bard, Inc., New Jersey, U.S.) at the affected site under local anesthesia (Fig. 4). During surgical exploration 2 days later, the upper fragment with a nearby sharp edge was noted, which was thought to have caused the arterial disruption leading to the hematoma. To prevent recurrence, the reduction of the step-off between fragments by readjusting the internal fixation had been tried and the sharp bony edge was smoothed (Fig. 4). After surgery, the compressive discomforts were quickly relieved, and anticoagulation therapy with Plavix® (clopidogrel bisulfate) was begun. During regular clinical follow-ups over 6 months, intact neurovascular status without recurrent painful swelling or reported complications was observed.

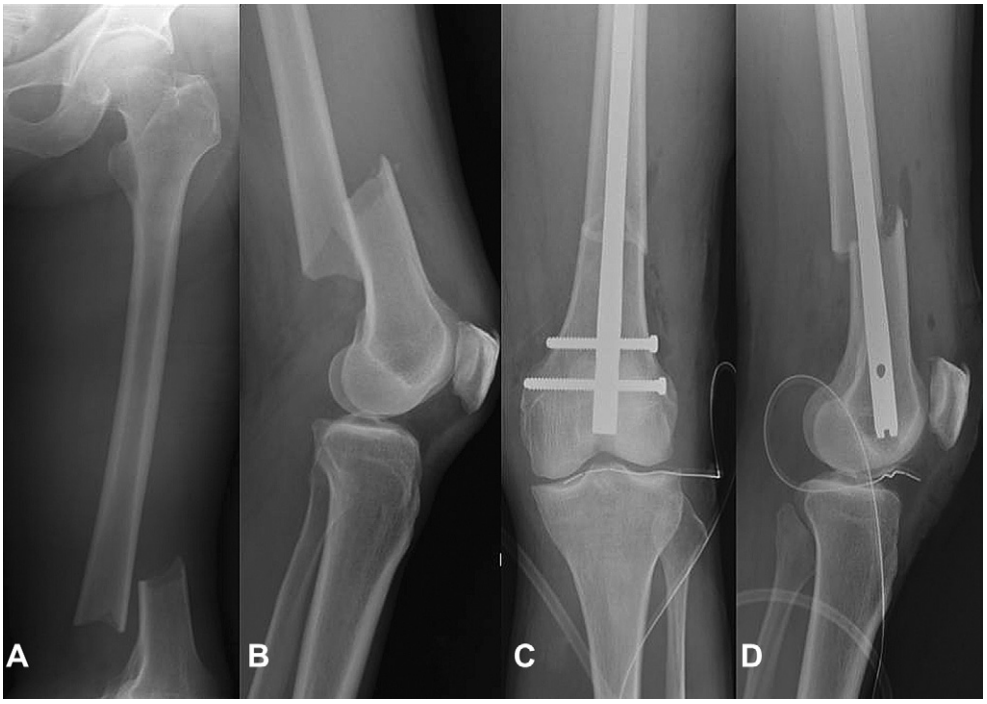

Figure 1. (A) and (B) Radiographs of the fractured distal femur showing a severely angulated and posteriorly translated transverse fracture noted before operation; (C) and (D) after closed reduction and retrograde intramedullary nail fixation, the fracture was restored with suboptimal alignment for residual translation, but no abnormal soft tissue mass was observed at this time.