

SHORT REPORT

Endovascular Repair of a Large Deep Femoral Artery Branch Pseudoaneurysm Following a Femur Fracture: A Case Report

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This report describes the successful use of a covered stent to treat a large pseudoaneurysm of deep femoral artery branch caused by the injury of the vessel secondary to inter-trochanteric femur fracture.

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Introduction

Post-traumatic profunda femoris artery (PFA) pseudoaneurysm is rare complication and can easily be missed leading to a late presentation.

The choice of treatment depends on many factors: status of patients, site and mechanism of lesion, vessel involved and experience of the surgeon.

Duplex scan (DS) often establishes the diagnosis but arteriography gives extra information and can be used to fix the problem.

Report

A 40 year old man sustained a right inter-trochanteric femur fracture after an industrial accident. He underwent a routine Dynamic Hip screw fixation with satisfactory position.

Recovery was characterized by a right venous popliteal thrombosis, treated with warfarin.

On the 20th post operative day he developed a tense, tender swelling in his right thigh, associated with a drop hemoglobin level from 10 mg/dl to 7 mg/dl.

Despite remaining haemodynamically stable, he required a blood transfusion.

DS and Computer Tomography (CT) scanning demonstrated a 2.5 cm pseudoaneurysm, probably arising from a deep branch of the right PFA (Fig. 1).

We therefore proceeded to arteriography for a more detailed evaluation and possible endovascular treatment.

From a left groin puncture (7 Fr., Super Arrow-Flex[®] Percutaneous Sheath Introducer), the right PFA was catheterized and selective arteriography demonstrated a large feeding point to the pseudoaneurysm from a main PFA terminal branch (Fig. 2).

A covered vascular stent graft (JOSTENT – Graft-master 3 mm × 16 mm) was deployed into the feeding vessel with complete exclusion of lesion. The PFA patency and no-recurrence were confirmed at 3-month follow-up by Duplex scan.

Discussion

Pseudoaneurysm of PFA is a rare complication of hip fracture and its reparative surgery.^{1,2}

The surgical option involves a sizable incision and exposure of the artery through hematoma. It is the treatment of choice in the presence of rupture, limb ischemia, compressive neuropathy, distal embolisation, skin necrosis and infection.

A puncture, for percutaneous embolisation, of a deep-seated small pseudoaneurysm with a short large neck in a huge post-traumatic thigh hematoma is technically challenging.³

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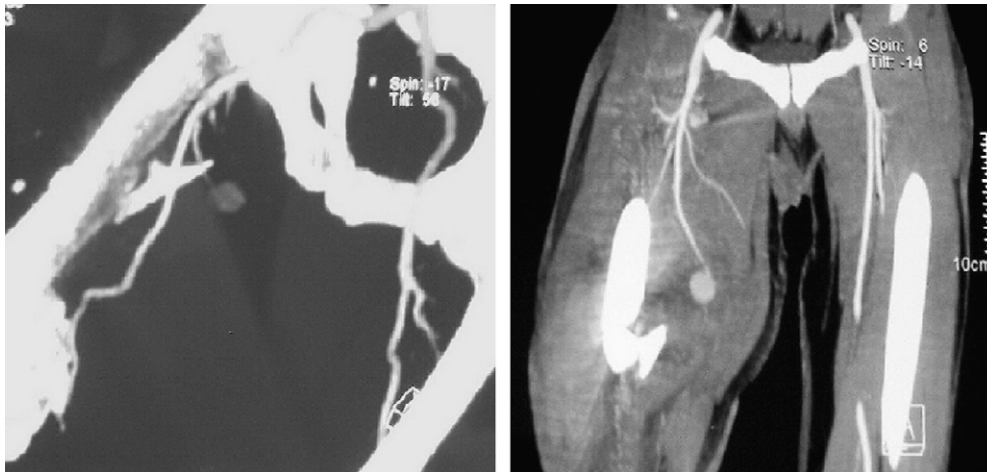


Fig. 1. Contrasted Ct-Scan with pseudoaneurysm and a bone fragment.

Percutaneous thrombin injection is a safe and effective way to manage a post arterial catheterization pseudoaneurysm where the superficial or common femoral artery are involved and the lesion-wall is caused by 4–5 French (1.5 mm) introducer, in contrast to by bone splinters or orthopedic surgical drills or screws. Furthermore such a pseudoaneurysm is usually superficial with early presentation and easy detection.

In our case we preferred endovascular approach and the patient underwent a covered-stent placement in the same session of the diagnostic angiogram.

The decision to use a covered stent was suggested by the type of lesion; a large tear in the arterial wall, and its position close to PFA main terminal branch.⁴

The intraarterial use of coils, spirals or other embolisation agents was considered unsuitable due to the distal ischemia risk.⁵

There is no accurate data regarding the natural history of a covered stents in peripheral arteries in young people. We kept our patient on clopidogrel for 3 months. Although we do not have any long-term comparative studies available at this point, an

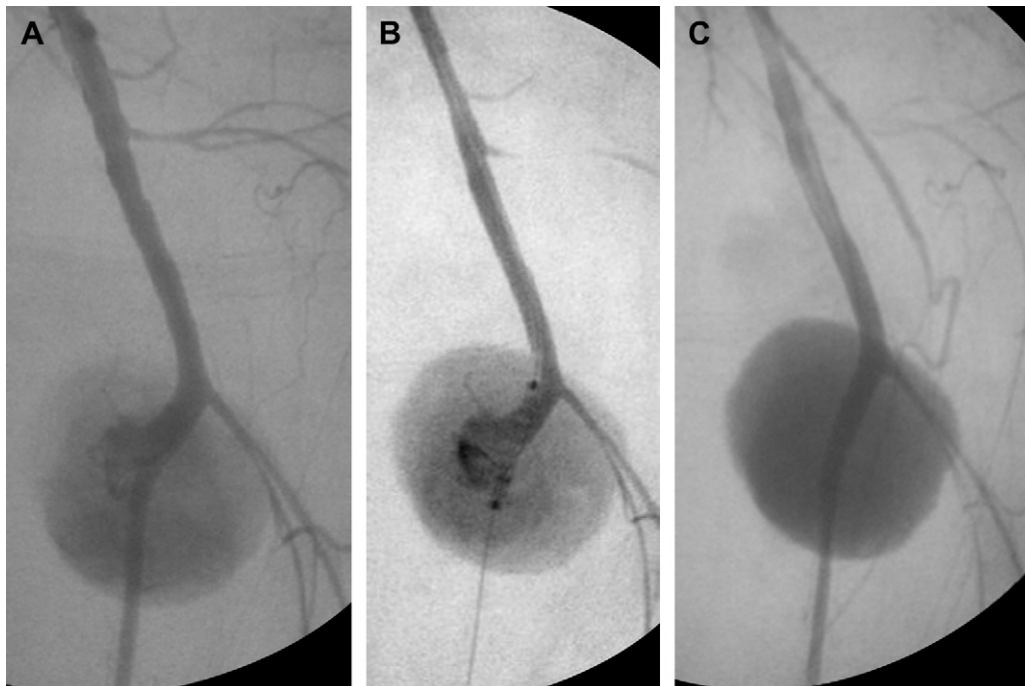


Fig. 2. Intraoperative angiography before (A) during (B) and after (C) the stenting procedure (note the contrast kept in the sac after the stent deployment).

endovascular approach, with its minimally invasive nature, and short and relatively painless recovery period, appears to be a significant and effective alternative to open-repair treatment. A surveillance program with appropriate interventions to manage a possible in-stent intimal hyperplasia may improve the long-term patency.

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