CASE REPORT

Pseudoaneurysm of Popliteal Artery Complicating a Total Knee Replacement: a Successful Percutaneous Endovascular Treatment

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Introduction

We reported a case of false aneurysm of the popliteal artery, complicating a total knee replacement. This was repaired using an endoluminal technique percutaneously with a stent graft.

Case Report

A 71-year-old woman underwent a total right knee replacement for a severe arthritis. Eight days after the operation, she presented an oedema of the right leg. Moreover, the foot remained well perfused with palpable pedal pulse. A colour duplex examination was performed for the suspicion of a phlebitis. There was no venous thrombosis, but the popliteal vein was collapsed by a 55 × 40 mm false aneurysm in the popliteal fossa.

The history of this patient revealed a bilateral stripping of the great saphenous vein and an angor pectoris. This false aneurysm was repaired the following day under local anaesthesia in the operating room. We used an anterograd right femoral arterial puncture. An angiography was performed via this percutaneous access to confirm the diagnosis of false aneurysm, and to locate precisely the site of the deployment of the stent (Fig. 1). The patient was heparinised intravenously (4000 UI). A standard 0.035 inch guide wire (Terumo®, U.S.A.) was pushed through the popliteal artery. A 6 mm × 4 cm stent graft (Passenger®, Medic-tech, U.S.A.) was chosen, and placed with its own 10

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French introducer sheath (Fig. 2). After the deployment, a new angiography was performed, which showed a perfect anatomic result with a total exclusion of the false aneurysm (Fig. 3). The operation time was 30 min.

The patient made an uneventful recovery: she had a 110° flexion and walked easily. Her only treatment was 150 mg acetylsalicylic acid daily.

Follow-up at 12 months, with colour duplex Doppler and C.T. scan at 1, 6 and 12 months, showed continued exclusion of the false aneurysm and patency of the stent graft (Fig. 4).

**Discussion**

False aneurysm of the popliteal artery commonly follow a penetrating injury. This observation confirms the risk of iatrogenic arterial trauma during total knee replacement, and the main place of colour duplex Doppler for diagnosis.

Classically, this false aneurysm would be surgically repaired with an autovein bypass. The endovascular technique using stent grafts has been already described for treating popliteal aneurysm with mixed outcomes, although there were two cases of iatrogenic popliteal arteriovenous fistulae treated successfully by this technique. Otherwise, a false aneurysm of a geniculate collateral artery complicating a total knee replacement has been embolised after selective canulating with good early results. A recent successful treatment of a ruptured popliteal artery was also reported.

In our case the use of a stent graft seemed appropriate in emergency, because of the lack of the great saphenous vein. This technique should also be reserved for particular circumstances, and further experience in another indication and longer follow-up
are required before it can replace open surgery. But the continued refinement of endovascular device design, and increasing experience in this location may find wider applicability for the stent-graft repair of popliteal aneurysms and false aneurysms.

References


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