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SHORT REPORT

False Aneurysm of the Posterior Tibial Artery after Femoral Embolectomy

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Introduction

We present the case of a posterior tibial false aneurysm that became symptomatic one week after femoral embolectomy.

Case

A 78-year-old lady was admitted with acute ischaemia of her right leg. Her past medical history included atrial fibrillation, multiple admissions for congestive cardiac failure, an exercise tolerance of less than 50 metres and a previous aortic valve replacement (xenograft); she was not on warfarin.

Examination revealed a critically ischaemic leg with sensory and motor deficit. No pulse was palpable below the femoral, whilst the contralateral leg pulses were normal. Atrial fibrillation was confirmed on electrocardiogram.

After informed consent a femoral embolectomy was performed under local anaesthetic, five hours after the onset of her symptoms. Clot was retrieved from the superficial femoral and profunda arteries with a size four Fogarty embolectomy catheter that passed easily down the superficial femoral to the crural vessels. After the procedure the patient's leg was warm and well perfused with palpable dorsalis pedis and posterior tibial pulses. Anticoagulation was continued with heparin and then warfarin.

Seven days postoperatively, when fully warfarinised, the patient complained of increasingly severe pain in her right calf with reduced dorsiflexion. She was unable to walk due to the pain. On examination she had a swollen right calf with a very tender lower gastrocnaemius muscle and positive Homan's test. Compartment pressures were raised at 30 mmHg in the posterior superficial and 45 mmHg in the posterior deep compartments, whilst her mean arterial pressure was 85 mmHg. Reperfusion injury due to compartment syndrome was excluded as creatinine kinase levels were normal. Duplex ultrasonography showed a normal venous system with no deep vein thrombus. An abnormal, high flow jet was noted from the distal posterior tibial artery causing a false aneurysm. The anterior tibial and peroneal arteries were normal. This situation was confirmed at angiography (Figure 1). As the anterior tibial and peroneal arteries were patent distal to the ankle joint it was felt that injection of thrombin into the false aneurysm was the safest method of treatment. Five hundred international units of thrombin (Baxter healthcare Ltd. Caxton Way, Thetford, Norfolk, U.K.), reconstituted in 1 ml of calcium chloride solution were injected into the false aneurysm which thrombosed. The posterior tibial artery occluded at the site of the aneurysm, however, the distal posterior tibial artery remained patent with retrograde flow. The patient made an otherwise uneventful recovery and was maintained on full anticoagulation.

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Fig. 1. Digital subtraction angiogram showing false aneurysm of the posterior tibial artery, seven days after embolectomy.

Discussion

Embolectomy is well established for acute ischaemia.[1] The procedure has well-recognised complications and iatrogenic false aneurysm due to intimal damage from the embolectomy balloon has been described in the posterior tibial artery[2,3] and the popliteal artery.[4] The usual management is further surgery. The therapeutic use of thrombin injection for iatrogenic aneurysms is now a well-established technique with few complications.[5] Although coil embolisation remains an alternative, thrombin injection is much easier, and recent encouraging reports suggest it is safe and effective.

A gentle technique is necessary to avoid intimal damage during embolectomy. Some authors suggest filling the embolectomy catheter balloon with air rather than a liquid. The surgeon who withdraws the catheter should have control of balloon inflation so as to vary balloon distension by the feel of friction against the arterial wall during withdrawal. Another potential hazard is to make the embolectomy catheter stiffer by leaving the obturator inside it; the authors always withdraw the obturator before use to minimise the risk of catheter damage. During the present operation, no unusual features were encountered and embolectomy was smooth and straightforward. Perhaps a smaller catheter should have been used for the tibial embolectomy.

Although elevated compartment pressures were found in this case suggesting possible compartment syndrome, this diagnosis is rare one week after surgery and raised the possibility of an alternative complication. Duplex imaging to excluded deep vein thrombosis made the correct diagnosis of pseudoaneurysm.

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