

# Infection of a popliteal aneurism by Methicillin-resistant *Staphylococcus aureus* four years after a femoropopliteal bypass

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## Abstract

The aim of the current study was to report the infection of a popliteal aneurism by methicillin-resistant *Staphylococcus aureus* (MRSA) four years after surgical treatment using a femoropopliteal bypass with ligation of the proximal and distal ends of the aneurism. Recanalization of the aneurism had been diagnosed six months prior to this report.

**Key words:** popliteal aneurism, femoropopliteal bypass, infection, Methicillin-resistant *Staphylococcus aureus*

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## Introduction

Popliteal artery aneurysms are not frequent but are the most common peripheral aneurysms [1]. Surgical reconstruction is recommended for all symptomatic and asymptomatic aneurysms larger than 2 cm. Patient survival rates at 5 and 10 years are 75% and 46%, respectively. Five-year graft patency rates after surgical repair range from 30% to 97%, with 5-year limb salvage ranging from 70% to 98% [2].

Mycotic aneurysms confer a high morbidity and mortality, and appropriate molecular diagnostic techniques can facilitate diagnosis and direct antimicrobial therapy; an important consideration with increasing antimicrobial resistance [3, 4]. Methicillin-resistant *Staphylococcus aureus* (MRSA) infection is a well-recognized problem, especially in vascular surgical patients with synthetic bypass grafts [5].

The aim of the current study was to report the infection of a popliteal aneurism by methicillin-resistant

*Staphylococcus aureus* (MRSA) four years after surgical treatment using a femoropopliteal bypass with ligation of the proximal and distal ends of the aneurism.

## Case report

The case of a 76-year-old hypertensive smoker, with complaints of fever, pain and phlogistic signs in the medial face of the right thigh and popliteal fossa is reported. Four years previously the patient had been submitted to a repair of a popliteal aneurism with a femoropopliteal graft (saphenous vein) and ligation of the proximal and distal ends of the aneurism. Periodic Doppler echography studies were performed at six-month intervals. In the most recent study, six months prior to this report, partial blood flow in the proximal third of the popliteal artery was detected. At admittance a complete blood test showed leukocytes at 28,000 cells/mm<sup>2</sup> and examinations showed that the graft was patent, there was deep venous thrombosis of the popliteal and gastrocnemius

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veins and a heterogenic hypoechoic oval image without obstruction of the continuation of the popliteal artery. Magnetic resonance was performed, which showed flow within the popliteal artery and accentuated oedema of the adjacent soft tissues and muscle. Exploratory surgery was performed with access via the thigh's medial face, which showed the integral venous graft and subcutaneous and muscle oedema. On dissecting the aneurism, a large amount of purulent secretion was observed, and after removal of thrombi the presence of a blood flow inside the artery was noted. A culture of the secretion identified multi-resistant *staphylococcus aureus*. The patient evolved well with prolonged antibiotic therapy using rifampicin for 4 weeks based on the results of the culture.

### Discussion

The current study reports on the case of an infection of a popliteal artery aneurism by methicillin-resistant *staphylococcus aureus* (MRSA). The aneurism had been treated four years previously by surgery with the introduction of a femoropopliteal bypass, and recanalization was observed. In the literature, no reports similar to this involving the popliteal artery were found. There is one published case that describes a pseudoaneurysm, after a bypass in the popliteal region, infected by *staphylococcus aureus* [4], but not of a true aneurysm.

The formation of a pseudoaneurysm did not occur in this patient, and during surgery the integrity of the femoropopliteal bypass, performed 4 years earlier,

was noted. The treatment performed in this procedure was only of the infected aneurism. Doppler echography demonstrated filling of the aneurism six months prior to this report, probably by small collateral vessels that had not been identified or ligated during the surgery.

Contamination by a multi-resistant agent leads to speculation about its origin; however, it is difficult to establish the time of infection. In this period the patient was not re-admitted to hospital. The evolution of the patient was good without further complications during six months of follow up.

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