



Kasuistika | Case report

Infective endocarditis and incidental popliteal artery mycotic aneurysm

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SOUHRN

S mykotickým aneurysmatem (MA) se lze setkat vzácně; je definováno jako pseudoaneurysma cévní stěny v důsledku infekční endokarditidy (IE). Arteriální komplikace se často projevují formou akutní ischemie končetin (20–30 %) a obvykle postihují spíše dolní než horní končetiny. Většina MA se vyskytuje na brachiálních, femorálních nebo popliteálních tepnách a jejich větvích; v ojedinělých případech se tvoří na distální straně popliteální tepny. Mykotické pseudoaneurysma na popliteální tepně se vyskytuje vzácně a vzhledem může připomínat trombózu lýtkové žíly. Popisujeme vzácný případ chirurgického řešení MA popliteální tepny a náhrady aortální chlopně (aortic valve replacement, AVR) pro IE.

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ABSTRACT

A mycotic aneurysm (MA) is rarely seen and defined as a pseudoaneurysm of the vessel wall due to infective endocarditis (IE). Arterial complications are often seen as an acute ischemia in the limbs (20–30%) and usually involve the lower limbs rather than upper limbs. Majority of MA involve brachial, femoral or popliteal arteries with their branches however, MA is rarely seen on the distal part of the popliteal artery. Popliteal artery mycotic pseudoaneurysm is rare and may imitate calf vein thrombosis. We report surgical management of a rare case of MA involving the popliteal artery and aortic valve replacement (AVR) due to IE.

Introduction

Despite improvement in treatment of infective endocarditis (IE), the complications are frequently seen [1]. The complications of IE consist of neurological vascular complications (45.5%) and peripheral vascular complications (myocardial infarction, pulmonary embolism, splenic infarction, acute limb ischemia, gangrene) that are mainly the consequence of emboli from valve vegetations which are life threatening and debilitating. However, 20% of embolisms are asymptomatic. Mycotic aneurysm (MA) is rarely seen and defined as pseudoaneurysm of the vessel wall due to IE. Despite Sir William Osler first described the MA of the aorta in a patient who was diagnosed with bacterial endocarditis in 1885, the first case of MA involving the tibioperoneal trunk was reported in 1992 [2]. Despite the advances in the antimicrobial therapies, MA is commonly seen in patients who were administered intravenous drugs. Majority of MA involve brachial, femoral or popliteal arteries with their branches however, MA is rarely seen on the distal part of the popliteal artery. The mortality of IE rate ranges from 16% to 37% per year. Echocardiography is essential for the diagnosing. We report surgical management of a rare case of MA involving the popliteal artery with aortic valve replacement (AVR) due to IE.

Case report

A 46-year-old male suffering from undetermined fever for two days was admitted. *Streptococcus viridans* was cultured on blood samples, subsequently an acute ischemia on his right lower limb and transient ischemic attack (TIA) occurred. Due to suspicion of IE, transthoracic echocardiography was performed and revealed a huge, highly mobile vegetation on the aortic valve. The patient was diagnosed with IE and appropriate antibiotic therapy was initiated. Subsequently Doppler ultrasound (US) showed emboli in the right popliteal artery. We decided to perform single stage emergency surgery. Routine prepa-

ration for surgery was made and informed consent was taken. Aortic valve was replaced with 21 no mechanical valve (St Jude, Mechanical, Minn. USA) on cardiopulmonary bypass and right popliteal artery embolectomy was performed with groin incision with 5F Fogarty balloon catheter. The patient was discharged with an uneventful recovery. However, 4 months after the surgery, a pulsatile swelling in the right popliteal fossa was developed. Deep vein thrombosis was suspected because of the patient had signs of compartmental compression (likely calf haematoma). However, a Doppler US revealed an isolated 5 cm × 6 cm right popliteal artery saccular pseudoaneurysm. MA of the popliteal artery was confirmed with computed tomography angiography (CTA) (Fig. 1). Under general anaesthesia, the haematoma was evacuated and the defect on the popliteal artery was repaired with 6-0 prolene suture via the posterior approach. Postoperatively, distal pulses were palpable. The excised pseudoaneurysm tissue was sent for culture but no organisms were reproduced. The patient was discharged on postoperative day 2 with an uneventful recovery. Physical examination, transthoracic echocardiography and Doppler US was normal 1 year after the surgery.

Discussion

The most IE involved bacteria are *Staphylococcus*, *Streptococcus*, *Pneumococcus* and *Pseudomonas aeruginosa*. Transthoracic and transesophageal echocardiography are used for the prediction of embolisms. The size and mobility of vegetations are the most predictive factors of embolism. MAs are most frequently seen in cerebral arteries rather than the limb arteries. Arterial complications are often seen as acute ischemia of the limbs (20–30%) and usually involve the lower limbs rather than the upper limbs [3]. Coronary artery complications such as acute myocardial infarction are rarely seen; however, some postmortem studies showed that coronary microembolism accompanied 60% of patients who were diagnosed with IE. Trill, bruit, painful pulsatile mass and fever are the most clinical

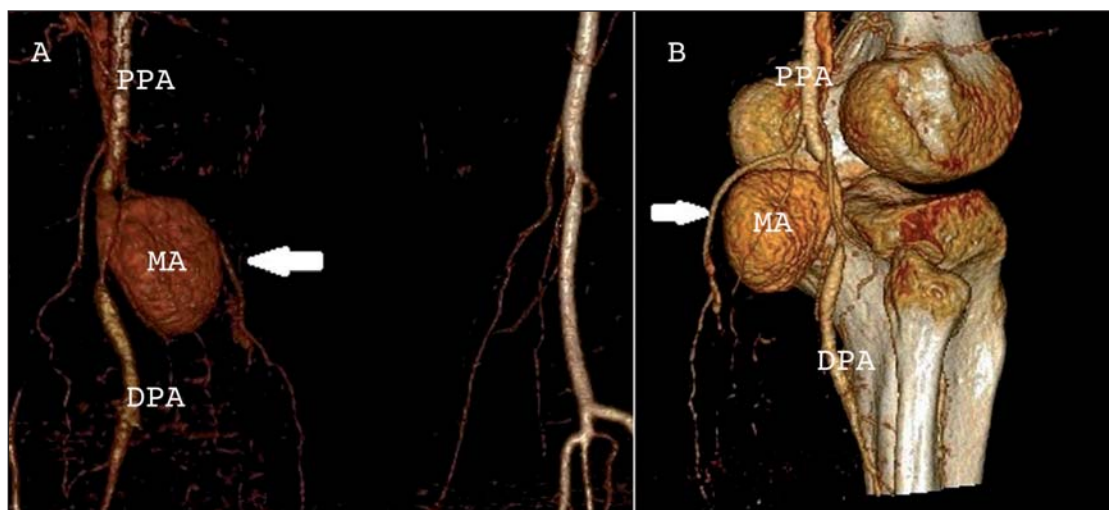


Fig. 1 – Three dimensional computed tomography angiography (CTA) image of popliteal artery pseudoaneurysm. DPA – distal popliteal artery; MA – mycotic aneurysm; PPA – proximal popliteal artery.

findings of physical examination. Morbidity and mortality has reduced with the advances in the antibiotic therapies. Doppler US, CTA, magnetic resonance angiography (MRA) and digital subtraction angiography (DSA) are used for diagnosing. Negative hemocultures are seen relatively high (25%). The treatment should consist of administration of intravenous antibiotics and valve replacement surgery. Surgical treatment modalities of pseudoaneurysms include excision, ligation (in the presence of adequate collaterals), bypass (autogenous veins should be used to reduce the risk of infectious) and primary repair [4]. MA of popliteal artery has been described only in few case reports. Peripheral arterial post-traumatic MA (80%) is seen more often than spontaneous MA. Early diagnosis and appropriate antibiotic therapy are crucial for the successful management of surgery. Surgical treatment should include controlling of haemorrhage, complete excision of infective haematomas/tissues and restoration of recirculation. As an alternative therapy to surgery, endovascular interventions such as stenting, coil embolisation, thrombin injection can be used; however, follow up studies are limited and results are poor. Due to the patent arterial wall, we preferred primary repair. In conclusion, suspect of MA is essential in patients who has been diagnosed with IE and suffered from pain, pulselessness, paleness or palsy [5]. Popliteal artery mycotic pseudoaneurysm is rare and may imitate calf vein thrombosis. We believe that the surgery should be the treatment of choice and has promising results.

Conflicts of interest

None.

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Informed consent

I declare, on behalf of all authors, that informed consent was obtained from the patient participating in this study.

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