Mycotic Femoral Pseudoaneurysm after 11 Years of Catheterism

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The authors report the unusual case of a 52-year-old mountain climber that presented with pain and swelling in his right thigh which revealed to be a ruptured mycotic pseudoaneurysm with no history of recent trauma or other apparent cause. The patient reported a past history of myocardial infarction 11 years before, with the performing of two femoral catheterisms for coronary angiography. He denied any episode of fever or diagnosis of bacteraemia at that time or later, nor any other complaint during these 11 years. The rarity of the case, the appearance of this extremely late complication together with the patient's kind of sportive activity prompted us to publish the case.

Coronary angiography is an invasive complex and potentially harmful procedure that is indicated most of the times in situations like myocardial infarction. A number of complications related to this procedure can be listed – among them, for example, situations like bacteraemia, thromboembolism, arteriovenous fistulas, arterial dissections, infection and pseudoaneurysm formations.

Typically, mycotic femoral pseudoaneurysms appear at two or more months after the arterial violation, and generally in patients with a previous history of bacteraemia and/or endocarditis following catheterism[1].

Early diagnosis and treatment of infected pseudoaneurysm are essential in order to prevent rupture or distal embolization. This has prompted us to present a case of atypical and extremely late presentation of an infected pseudoaneurysm on a 52-years-old mountain climber, 11 years after the catheterization. The patient has given his consent for the publication.

Case Report

A 52-year-old white male patient, with a history of myocardial infarction eleven years previously, and arterial hypertension, taking aspirin and anti-hypertensive drugs, presented in the emergency room complaining of pain and swelling of his right thigh which had started a week before while mountaineering. The patient said to have had fever of 39ºC and chills in the first day. Physical examination revealed a healthy-looking man, without fever, his right thigh increased in diameter, warm and tender to touching. The calf was normal. Pulses were present at all levels in the right lower limb. Abdominal ecography was normal and a dupplex scan of the right femoral artery was reported as normal at that time. No abnormal data was observed in the haematological profile or biochemistry blood tests. The patient was then sent home with analgesics and anti-inflammatory drugs.

A week later, he returned to hospital complaining of severe pain and more inflammation of his right thigh, and pain irradiating from the groin to the knee along the medial side of the corresponding thigh. He now declared anorexia and having lost 12 kg in two weeks. No repeated bouts of fever or chills. On examination, the patient sowed an ill-looking, pale, and sweating appearance. No fever was recorded. The right thigh was very edematous, hard and very tender to touching. A painful pulsatile mass was palpable in the right groin, which extended to the upper third of the thigh, its upper limit not being felt as it appeared to extend upwards through the inguinal ligament. The knee was in 45º flexion and very painful to mobilization. Blood tests showed a slight anaemia, leucocytosis with high neutrophilic counting. Biochemistry didn't showed abnormalities. Coagulation profile normal. Abdominal and chest radiographs were normal. ECG showed signs of old posterior infarct. ELISA VIH was negative.

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On questioning, he had had a myocardial infarct 11 years back, with two right femoral catheterisms for diagnostic purposes. No coronary angioplasty or stent had been placed. The patient denied having had fever or diagnosis of bacteraemia or endocarditis at that time or later, presenting no symptoms of suspicion.

No abnormal heart murmurs were heard. An arterial dupplex scan at this time showed a right common femoral aneurism ruptured, as well as thrombosis of the superficial and common right femoral veins. The vascular surgeons were called in and the patient, taken to the operation room. A common femoral ruptured pseudoaneurysm was elicited and repaired with inverted saphenous vein from the contra lateral leg in an end-to-end fashion. No pus or signs of local infection were apparent. The wound was closed after irrigation with saline and povidone-iodine. A suction drain was left.

Postoperatively, the patient followed antibiotic treatment with amoxycillin/clavulanic acid. The blood clot from the aneurysm was reported as being colonized by a methicillin-sensitive *Staphylococcus aureus*. Fever and chills developed 72 hours postoperatively, with blood culture showing, in three instances, S. aureus sensitive to vancomycin. An abscess was drained form the wound with culture also showing the same agent. At this time, the antibiotic was changed to vancomycin, and maintained for two weeks. Echocardiogram did not show signs of endocarditis or vegetations. Fifteen days after the operation, fever disappeared and no chills repeated. The wound healed well at twenty five days and the patient was discharged with a doppler ankle-brachial index of 1. He was maintained with amoxycillin/clavulanic acid orally at home for one month.

Discussion

Bacteraemia following percutaneous arterial catheterism is a well known complication, S. aureus being responsible in 54-57% of cases[1, 2]. Mycotic aneurysms of the femoral artery are also frequent following percutaneous invasion and bacteraemia, due to a colonization of a damaged intimal area, particularly if repeated or if the catheter presence is constant for more than two days. Other aetiologies are very rare[3, 4]. This complication appears to be more frequent in elderly people, atherosclerotic patients or immunodeficient, appearing in a few days or months after the catheterism. Usually, they grow quite rapidly, being potentially dangerous for rupturing. Accordingly, early diagnosis and treatment is mandatory. These kind of aneurysms are usually easily diagnosed in clinical grounds. However, in rare instances, the peri-aneurysmal inflammation and local lymph nodes may disguise the pulsatile mass, which may be erroneously confounded with an abscess or venous thrombosis[5], so a high degree of suspicion (paying special attention to past history [arterial catheterisms, drug abuse, etc]) is, in order, essential.

Treatment is urgent. Aneurysm resection, with elimination of pus, debris and dead tissue, and reconstitution of blood flow with autogenous arterial or venous bypass, either in situ or in an extra-anatomic fashion, are the best options. In situ arterial repair carries, of course, the risk of graft infection even more if prosthetic material is used, and this could result in disruption of anastomosis or thrombosis[6]. In case of a common femoral or a common iliac artery aneurysms, the surgeon can choose not to reconstruction at the time of the first operation, and perform it later, if needed[7]. Antibiotics must be maintained for at least one month, this point is, however, opened to discussion.

Our case is unusual, for its very late presentation (eleven years after arterial catheterism), no past history of bacteraemia or endocarditis, and occurring in a young and, otherwise, healthy athlete (mountaineering). Another unusual aspect was the confusing early clinical signs, with no categorically detected mass which, in inexperienced hands, delayed the diagnostic.

One question to be answered is if the pseudoaneurysm started at the time of the repeated catheterism, with a possible "silent" bacteraemia, or from local contamination. The latter possibility is less probable for the number of years elapsed. Alternatively, we can consider that the arterial catheterism minimally ruptured the arterial wall, perhaps even producing an asymptomatic pseudoaneurysm, being infected later by a S. aureus bacteraemia that the patient did not notice or remember. This possibility is not infrequent as the S. aureus is quite a common companion of man. Von Eiff et al[8] showed with a 95% confidence interval that at least 50% of S. aureus bacteraemia occurred in patients colonized in the anterior nares with the same clone that was isolated from the blood. Methicillin-resistant S. aureus have also been cultured from the nose and armpits in 11% of a group of patients studied by Lecomte et al, as well as in 40% of lesions such as venous ulcers or diabetic foot[9]. Other patients at risk of nasal contamination with S. aureus are those with eczemas and psoriasis[10].

All the above shows us that the possibility of S. aureus bacteraemia in nasal carriers could happen quite easily, not only after catheterism, but also from skin lesions or lower respiratory tract[8], and this could have been our patient's case. In such case, antibiotic prophylaxis could, perhaps, be of importance in high risk patients, such as those with venous ulcers or diabetic foot lesions, to eliminate potential sources of S. aureus from the nose, apart from following the basic guidelines of prophylaxis in interventional radiology.

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