SHORT REPORT

Femoral Pseudoaneurysm in Drug Addicts—Excision without Revascularization is a Viable Option

S.A. Naqi, H.M. Khan, S. Akhtar and T.A. Shah

Department of Surgery, Mayo Hospital, Lahore, Pakistan

Purpose. To present a series of patients presenting with femoral pseudoaneurysm.

Results. Seventeen patients who presented with a femoral pseudoaneurysm during a 1 year period were included in this study. Parenteral drug abuse was the most common aetiological factor. The femoral artery was most commonly involved at its bifurcation. Sixteen patients (94%) had excision of the pseudoaneurysm with ligation of vessel and debridement without any revascularization and one patient (6%) had reverse saphenous grafting after excision and ligation of vessels. Four amputations (23%) were performed. Three (17%) were major limb amputations, which included one above knee and two below knee amputations. Four patients (23%) developed intermittent claudication.

Conclusion. Excision of the pseudoaneurysm with ligation of vessels and wide debridement without immediate revascularization in infected pseudoaneurysms is a safe and effective treatment.

Keywords: Pseudoaneurysm; Drug addiction; Amputation.

Introduction

Pseudoaneurysm of the femoral artery is a known complication of arterial puncture and its incidence is on the rise in Pakistan due to increase in parenteral drug abuse, vascular trauma and frequent interventional vascular procedures. Common causes of femoral artery pseudoaneurysm are drug abuse, trauma and iatrogenic femoral artery puncture. The most common presentation is bleeding or pain in a pulsatile groin swelling. Diagnosis is usually straightforward but it can be mistaken as an abscess, which can lead to massive bleeding upon draining. Colour flow Doppler examination is the investigation of choice.

An important factor in the management of pseudoaneurysm is the presence of infection. Pseudoaneurysm in drug addicts is always infected. There are various treatment options available for pseudoaneurysm. Proximal and distal ligation of affected vessel and complete excision of the aneurysm is the most frequently offered treatment with good results. Other options may be immediate revascularization after excision of aneurysm using either autogenous venous graft or synthetic material. Endoluminal stent grafting or extraanatomical grafting may also be used. Percutaneous thrombin injection or coil embolization and ultrasound guided compression therapy are also being employed for small non-infected pseudoaneurysms.

Material and Methods

This study was carried out at West Surgical Unit, Mayo Hospital Lahore, Pakistan. The duration of the study was 1 year from May 2004 to April 2005. It was a prospective study. All adult patients who presented with femoral pseudoaneurysm to our unit were included in study unless they had a gangrenous limb.

The diagnosis of femoral pseudoaneurysm was made on clinical evaluation, which included detail history and examination. All patients had routine base line investigations and Doppler flow studies of the distal vessels. One patient who was admitted via clinic
had a duplex study as well. Treatment was by excision of the pseudoaneurysm, ligation of vessel and debridement only or reverse saphenous grafting after excision. The wound was left open for healing by secondary intention and antibiotics against Gram-positive and Gram-negative microorganisms given. Patients were observed for early detection of complications like haemorrhage, thrombosis, ischaemia and infection. Complications were accordingly managed and patients were followed up to 3 months.

**Results**

Seventeen patients presented with femoral pseudoaneurysm. The age of the patients ranged from 18 to 55 years with a mean of 34 years. All patients were male and 15 belonged to a low socio-economic group. Parenteral drug abuse was the most common aetiological factor, i.e. 16 out of 17 patients. One patient had pseudoaneurysm secondary to a stab injury. Nine patients (52%) presented with external bleeding and eight (48%) with a pulsatile swelling. Three patients (17%) also had sinuses discharging dirty fluid. All drug addicts presented as an emergency and the other patient presented to the out patient clinic (Table 1).

All patients were diagnosed clinically and also had Doppler flow studies of the distal limb vessels. One patient also had a duplex scan. In nine patients (52%) there was a good signal in the distal vessels comparable to the contralateral limb. Four patients (24%) had low signals and four (24%) had no flow detected on flow meter. Three patients (17%) had superficial and two (11%) had common femoral artery pseudoaneurysm while 12 (71%) had involvement of the femoral bifurcation.

Sixteen patients (94%) had excision of the pseudoaneurysm with ligation of vessels and debridement without any revascularization and one patient (6%) had reverse saphenous grafting after excision and ligation of vessels (Table 2).

Four amputations (23%) were performed. Three (17%) were major limb amputations, which included one above knee and two below knee amputations. One patient had a single toe amputation. Four patients (23%) developed intermittent claudication (Table 3).

**Discussion**

A pseudoaneurysm is a pulsatile haematoma communicating with an artery through a disruption in the arterial wall. It is a well known complication of invasive vascular procedures and vascular trauma. It is quite common among parenteral drug abusers. If left untreated, pseudoaneurysms progress rapidly and can rupture. Management of these patients is challenging as they have poor general health and nutritional status coupled with the fact that most of them continue addiction despite drug rehabilitation. Vascular grafts become infected as they start injecting in grafts.

In our study, 17 patients were included. All were male with a mean age of about 34 years. The most common aetiological factor in our study is parenteral drug abuse (96%), followed only by trauma (4%). This pattern is also evident in all other studies carried out in developing countries, while in developed countries one of the main causes now is interventional cardiovascular procedures.

Parenteral drug abuse results in many complications, including local sepsis, infective endocarditis, chronic venous obstruction and venous insufficiency and infective pseudoaneurysms. Pseudoaneurysm develops as a result of inadvertent intraarterial or periarterial injection of illicit drug. Extravasation of blood and subsequent infection of the haematoma causes vessel wall breakdown with the resultant pseudoaneurysm. Diagnosis of pseudoaneurysm is often straightforward and easily made on clinical examination.

We adopted excision of the pseudoaneurysm, ligation of vessels and wide debridement in all 16 cases of infected pseudoaneurysms. All these patients were drug addicts and had very extensive infection. No immediate revascularization was attempted in these cases. One non-infected case that was due to an old stab injury had immediate revascularization after excision of the pseudoaneurysm. This patient had no complications after the surgery. In our study, there were three (17%) major limb amputations. Four (23%)
patients developed intermittent claudication and are managed conservatively.

Revascularization following excision of infected pseudoaneurysms is controversial from the aspects of necessity, method, route and timing.16,21–23 Our results support various other studies that ligation of vessels and excision of infective pseudoaneurysm without revascularization is safe and effective.24–27

We conclude that excision of the pseudoaneurysm with ligation of vessels and wide debridement without immediate revascularization in infected pseudoaneurysms is safe and effective treatment with low rates of limb loss. However, immediate revascularization using an autologous vein graft is the preferable option in non-infective cases.

References


Accepted 10 December 2005
Available online 7 February 2006