

Rupture Saccular Aneurysm of the Popliteal Artery

A Nisar, J Shabbir, M Tubassum, E Kavanagh, J Crotty, P Grace, P Burke

Citation

A Nisar, J Shabbir, M Tubassum, E Kavanagh, J Crotty, P Grace, P Burke. *Rupture Saccular Aneurysm of the Popliteal Artery*. The Internet Journal of Thoracic and Cardiovascular Surgery. 2003 Volume 6 Number 2.

Abstract

Popliteal aneurysms rarely rupture but can be associated with high limb amputation rates¹. We treated a seventy seven year old man who presented with acute pain in a previously arthritic knee. A ruptured popliteal artery aneurysm was discovered on CT scan and an emergency femoropopliteal bypass was performed.

CASE REPORT

A 77 year old male presented with a five day history of left knee pain and increasing limitation of movement. He had a background of severe bilateral knee osteoarthritis. On examination he was haemodynamically stable, and his pulse was regular. Local examination revealed a pulsatile swelling on the posteromedial aspect of the left knee, absent pedal pulses and an Ankle-Brachial Pressure Index of 0.3. A popliteal aneurysm was suspected and an urgent CT Scan was carried out which showed a ruptured popliteal artery aneurysm of 4cm size involving the proximal popliteal artery (Fig.1&2). At operation, after evacuation of haematoma a ruptured saccular aneurysm of the proximal popliteal artery was found. The aneurysm was excised and an end-to-end Heparin-bonded Dacron (polyester fiber) interposition graft was inserted as the patient did not have a suitable vein for grafting. The postoperative recovery was uneventful. After six months review duplex scanning showed a patent graft. Surveillance scans showed no associated aneurysms.

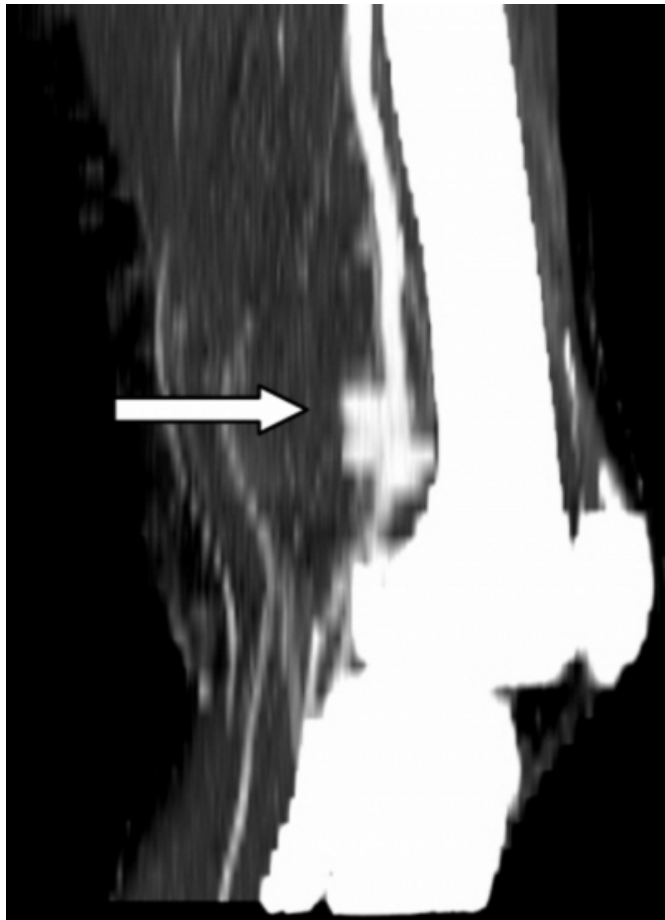
Figure 1

Figure 1: CT image through the adductor canal and proximal popliteal fossa showing active extravasation of contrast-enhanced blood with surrounding aneurysm (PA).



Figure 2

Figure 2: Lateral projection MIP image shows saccular popliteal aneurysm (arrow).



DISCUSSION

The popliteal artery accounts for more than two-thirds of all peripheral aneurysms. They are more common in men over 65 years of age, often bilateral and associated extrapopliteal aneurysms are found in 55% of cases (Abdominal Aortic 40%, Femoral 34 % and Iliac 25%)².

Popliteal artery aneurysms are asymptomatic in almost half the cases. They usually present as a result of complication, including: a) acute thrombosis; b) distal embolization; c)

local pressure effects; d) rupture.

Rupture of popliteal aneurysms is a rare presentation with a reported incidence of 2.5% in the largest reported series¹. It may present without signs of acute ischaemia in the leg and the patient does not exsanguinate due to containment of blood in the popliteal space. As most individuals affected are elderly; diagnosis may be difficult due to coexisting arthritis and requires a high index of suspicion. Downing et al showed that only 26% of symptomatic popliteal aneurysms were diagnosed by general practitioners, although 94% of these were easily palpable³. CT is a reliable tool for diagnosis of ruptured popliteal aneurysm⁴ and angiography can be time consuming, but is useful in assessing distal run off. Urgency is the key to limb salvage. In a selected series of 3046 popliteal aneurysms, a rupture rate of 2.5% and limb amputation rate of 27.5% has been reported¹. Ligation with or without excision of the aneurysm and bypass grafting has been the gold standard for the treatment of ruptured popliteal aneurysms. More recently, percutaneous endovascular treatment has added to the management of medically unfit patients⁵. A saccular aneurysm may be left in situ when it is adherent to the surrounding structures and a femoropopliteal bypass performed. Autologous saphenous vein graft is favoured in terms of patency rates and limb salvage. Synthetic grafts can be used in patients who have unsuitable veins.

References

1. Sie RB, Dawson I, van Baalen JM et al. Ruptured popliteal aneurysm. An insidious complication. *Eur J Vasc Endovasc Surg* 1997; 13(5): 432-38.
2. Vermillon BD, Dimmins SA, Pace WG, et al: A review of one-hundred forty seven popliteal aneurysms with long-term follow up. *Surgery* 1990: 1009.
3. Downing R, Grimley R et al: Problems in diagnosis of popliteal aneurysms. *J R Soc Med* 1985; 78: 440-444.
4. Rizzo RJ, Flinn WR, et al: Computer tomography for evaluation of arterial disease in popliteal fossa. *J Vas Surg* 1990; 11:112-119
5. Leo HM, Wolf D Roth et al. Successful percutaneous endovascular treatment of ruptured popliteal aneurysm. *J Vasc Surg* 2000; 31: 794-7)

Author Information

Aamer Nisar, MRCS

Department of Vascular Surgery, University of Limerick, MidWestern Regional Hospital

Jamshed Shabbir, FRCS

Department of Vascular Surgery, University of Limerick, MidWestern Regional Hospital

Muhammad A. Tubassum, FRCS

Department of Vascular Surgery, University of Limerick, MidWestern Regional Hospital

Eamon G. Kavanagh, FRCSI

Department of Vascular Surgery, University of Limerick, MidWestern Regional Hospital

Jim M. Crotty, MB, BCh, BaO.

Department of Radiology, University of Limerick, MidWestern Regional Hospital

Pierce A. Grace

Department of Vascular Surgery, University of Limerick, MidWestern Regional Hospital

Paul E. Burke, FRCS

Department of Vascular Surgery, University of Limerick, MidWestern Regional Hospital