

**TITLE: IDIOPATHIC BILATERAL POPLITEAL PSEUDOANEURYSM: A  
CASE REPORT**

**Authors:**

Emeka B Kesieme<sup>1</sup>  
Kelechi E Okonta<sup>2</sup>  
Abubakar Umar<sup>3</sup>

**Addresses**

1. Department of Surgery, Irrua Specialist Teaching Hospital, Irrua, Nigeria
2. Department of Surgery, University College Hospital, Ibadan, Nigeria
3. Department of Surgery, Usman Dan Fodio Teaching Hospital, Sokoto, Nigeria

**Corresponding author**

Mr. Emeka Kesieme MRCS  
Department of Surgery, Irrua Specialist Teaching Hospital  
PMB 8, Irrua  
Edo State, Nigeria  
Email address: ekesieme@gmail.com  
Phone number: 08080881312

**ABSTRACT**

The popliteal artery is a relatively short vascular segment affected by the various sets of pathologic conditions. Bilateral popliteal pseudoaneurysm is a very rare clinical entity and very few idiopathic or spontaneous cases have been reported in the literature. We report a 56 year old man who presented with idiopathic bilateral popliteal pseudoaneurysm complicated with bilateral neural pressure symptoms and rupture of the right popliteal pseudoaneurysm. This report highlights the importance of recognizing this pathology and the merits of appropriate intervention.

**Key Words:** pseudoaneurysm, popliteal bilateral, false aneurysm

**INTRODUCTION**

An aneurysm is defined as the dilatation of localized segment of the artery. Unlike true aneurysm that possess three layers of arterial wall, pseudoaneurysm has only a single layer of fibrous tissue with a haematoma cavity communicating with the injured artery, hence Pseudoaneurysm of the popliteal artery typically results from either blunt or penetrating trauma.

We report a case of a 56 year old man with bilateral popliteal pseudoaneurysm of idiopathic aetiology complicated with

bilateral neural pressure symptoms and rupture of the right popliteal pseudoaneurysm

Idiopathic popliteal pseudoaneurysm is very rare and to the best of our knowledge, this is the first report in an african population.

**CASE REPORT**

A 56 year old teacher who presented with a progressively increasing bilateral popliteal fossa swelling of 6 months duration which was initially painless but later became associated with dull ache.

There is associated bilateral leg swelling of 8 weeks duration and difficulty in walking. There is no previous history of trauma. Patient is not a known hypertensive or diabetic. There is no significant history of alcohol or tobacco abuse.

Examination revealed bilateral popliteal fossa swelling. The circumference of the right knee at the level of the superior border of patella was 48cm. swelling of the right popliteal fossa was warm, erythematous and slightly tender. No palpable thrill was felt. The right foot had poor capillary refill. The right dorsalis pedis and posterior tibial artery were not palpable.

The circumference of the left knee at the level of the superior border of patella was 45cm. A thrill was palpated over the mass and a bruit was heard. Capillary refill was sluggish and the left dorsalis pedis and posterior tibial artery were palpated. Power of the right ankle plantar flexors and dorsiflexors were 3, 3 respectively and the left ankle plantarflexors and dorsiflexors were 4, 4 respectively. Light touch sensation and joint position sense were intact.

Complete blood count, ESR and serology for connective tissue disease (rheumatoid factor not available) were normal. Patient was negative for hepatitis B surface antigen and HIV. CT angiography revealed bilateral popliteal pseudoaneurysm with poor distal runoffs and good collaterals. He had bilateral aneurysmectomy.

The right pseudoaneurysm was operated on 1 week before the left. Findings at surgery were a huge right false aneurysm filled with clots and debris. an extensive perivascular fibrosis of the right popliteal artery and a popliteal artery rent measuring 1.5cm with clots overlying the

rent. Clots and debris were evacuated. No revascularization was done.

Findings at exploration of the left popliteal pseudoaneurysm a week later revealed a huge false aneurysm sac filled with clot and debris with extensive perivascular fibrosis. Clot and debris were removed and thrombectomy was done.

Histology of specimen revealed thrombosed pseudoaneurysm.

Postoperatively, patient's condition was satisfactory and he was discharged to surgical outpatient and physiotherapy.

He has almost regained full powers of ankle dorsiflexors and plantar flexors bilaterally. Hand held Doppler examination revealed presence of dorsalis pedis and posterior tibial artery pulses bilaterally.

## DISCUSSION

Pseudoaneurysm of popliteal artery is rare. They typically result from trauma, penetrating trauma being more common than blunt trauma. They have been reported to result from iatrogenic causes such as aftermath of total knee arthroplasty or revision of total knee arthroplasty,<sup>1,2</sup>arthroplastic meniscectomy, acupuncture,<sup>4</sup> and trauma from tibial osteochondroma<sup>5</sup>. Pseudoaneurysm of bilateral popliteal artery has been shown to be a rare complication of infective endocarditis,<sup>6</sup> the latter may be due to a vasoocclusive septic embolus with secondary arteritis and vessel wall destruction or from bacteremic seeding of the vessel wall through the vasa vasorum. This reported case had no previous history of trauma to the popliteal area and no skeletal changes on the radiograph. The first and only reported case of idiopathic popliteal pseudoaneurysm was by Miyamoto et al.<sup>7</sup>

They may either be asymptomatic or may present with complications of pressure symptoms, rupture and distal ischemia as in the index patient. Common peroneal nerve palsy has been noted as a complication of pseudoaneurysm of popliteal artery in the popliteal fossa.<sup>8</sup> Rupture of aneurysm is a rare complication. Aneurysmal rupture is associated with a higher risk of ischemia neuropathy and limb loss.<sup>9</sup> Rupture is commoner in infected than noninfected cases. Infected aneurysm is more likely to expand faster and give rise to complications such as rupture or distal embolic events.

The first line of investigating popliteal artery pseudoaneurysm is the duplex ultrasound. Grey scale B ultrasound scan has been shown to very accurate in identifying and assessing morphologic features of popliteal artery aneurysm.<sup>10</sup> Angiography is invasive but can be used. Though there is a role for less invasive methods as the use of covered stent<sup>11</sup> and ultrasound guided thrombin injection<sup>12</sup>, rapidly expanding pseudoaneurysm, infected pseudoaneurysm and pseudoaneurysm complicated by distal ischemia and neuropathy are recognized indications for surgical interventions as in the index patient. The surgical technique involves making an incision underlying the popliteal vessels and expose by blunt dissection. The vessels are controlled proximally and distally. The pseudoaneurysm is opened and haematoma evacuated. Puncture site is identified and repaired. Vein interposition graft can also be used if the segment of the disrupted artery cannot be primarily repaired.

## CONCLUSION

Idiopathic pseudoaneurysm is a rare but a potentially treatable condition. Good

results should be anticipated following appropriate investigation and intervention.

## REFERENCES

1. Plagniol P, Diard N, Bruncteau P, Roncheau V. Case report: pseudoaneurysm complicating a total knee replacement: a successful percutaneous endovascular treatment. *Eur J Vasc Endovasc Surg.* 2001; 21:81-83.
2. D'Angelo F, Carrafiello GP, Lagana D, Reggiori A, Giorgianni A, Zatti G, Fugazzola C. popliteal artery pseudoaneurysm after a revision of total knee arthroplasty: endovascular treatment with stent graft. *Emerg Radiol* 2002;13: 323-7.
3. Hussein MK, Lakkis SA. Pseudoaneurysm of the popliteal artery following arthroplastic menisectomy. *Bull Hosp Jt Dis* 1998;57:162-4
4. Kao C, Chang G: pseudoaneurysm of the popliteal artery following acupuncture: a rare sequelae of acupuncture. *Texas Heart Inst. J* 2002; 29: 126-129.
5. Manghat NE, Alao D, Edwards AJ, Ashley S, Roobottom CA: Popliteal pseudoaneurysm secondary to a tibial osteochondroma: diagnosis with multi detector row computed tomographic angiography. *Emerg Radiol* 2005; 11: 132-135
6. Ozerkan F, Ceyhan C, Erturk H et al: Pseudoaneurysm of bilateral popliteal arteries following infective endocarditis. *Asian Cardiovasc Thorac Ann* 1998; 6: 318-319.

7. Ersozlu S, Ozulku M, Yildirim E. et al. Common Peroneal Nerve Palsy from an untreated popliteal pseudoaneurysm after penetrating injury J. Vasc Surg 2007; 45: 408-10.
8. Miyamoto M. et al: Idiopathic pseudoaneurysm of the popliteal artery. J Vasc Br 2004;3:169-72
9. Illig KA, Eagleton MJ, Shortell CK, Ouriel K, Dewese JA, Green RM. Rupture popliteal artery aneurysm J. Vasc Surg 1998; 27: 783-787
10. Silver TM, Washburn RL, Stanley JC, Gross WS: Gray scale ultrasound evaluation of popliteal artery aneurysm. AJR Am J. Roentgenol 1977;129: 1003-1006.
11. Vaidhyanath R, Blanshard KS: insertion of a covered stent for treatment of a popliteal artery aneurysm following knee athroplasty: British Journal of Radiology. 2003; 76: 145-198.
12. Mansour MA, Gorsuch GM: Diagnosis and Management of of Pseudoaneurysm: Perspect Vasc Surg Endovasc Ther 2007; 19:58-64.