

Popliteal artery pseudoaneurysm successfully treated with amplatzer vascular plug

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ABSTRACT

Popliteal artery pseudoaneurysm is uncommon. They usually result from penetrating or blunt trauma, arterial reconstructive surgery, invasive diagnostic or surgical orthopedic procedures. They can cause arterial thrombosis and limb ischaemia. We report a 53 year old Chinese gentleman with popliteal artery pseudoaneurysm who presented with right lower limb numbness and paralysis in toes extension. He gave a history of acupuncture treatment around the popliteal fossa of the affected limb. Clinical examination revealed a pulsatile mass in the popliteal fossa. Computed tomography angiography showed a large, 5 cm, pseudoaneurysm arising from the popliteal artery. A diagnostic angiogram was performed and revealed that there is no run off from the popliteal artery and the tibial vessels were reconstructed from collaterals. Endovascular intervention was carried out with an Amplatzer Vascular Plug to embolise the pseudoaneurysm. The pseudoaneurysm was successfully excluded and post-op follow up revealed no more pulsatile mass and improving lower limb function. To the best of our knowledge this is first reported case of pseudoaneurysm of the popliteal artery secondary to acupuncture in Malaysia.

KEY WORDS:

Pseudoaneurysm, popliteal artery, acupuncture, endovascular intervention, Amplatzer

INTRODUCTION

Vascular complications after acupuncture are extremely rare events.¹ Acupuncture is an ancient Chinese procedure in which needles are placed at particular points on the body for specific therapeutic effects. Although its role in medicine is still debatable, acupuncture is still in popular demand until today.¹ Some documented adverse effects of acupuncture include pneumothorax, wound infection, septicemia, spinal lesion, retroperitoneal hematoma, and pseudoaneurysm.² Traumatic pseudoaneurysms of the popliteal artery are uncommon in vascular surgical practices. Herein, we present a case report of a pseudoaneurysm of the popliteal artery as a result of acupuncture, and we discuss how it was successfully treated using endovascular intervention.

CASE REPORT

In January 2015, a 53-year-old Chinese gentleman presented with pain, numbness and discoloration of the right foot that has been there for the past 12 months. About a year ago he

had undergone one session of acupuncture treatment for muscle pain at the legs. He complained of claudication pain after walking 100 meters. On physical examination, the right lower limb was dusky and cold, capillary refill time was about 2 seconds and sensation was reduced at the plantar area. The patient was unable to plantar flex his feet. A pulsatile mass can be felt at the calf area and the posterior tibia pulse and dorsalis pedis pulse were not palpable. Biphasic signal was picked up with hand-held Doppler at the dorsalis pedis and Ankle-brachial systolic index was 0.6. Computed tomography angiography showed a large 5 cm, pseudoaneurysm arising from the popliteal artery.

A diagnostic angiogram confirmed the presence of the pseudoaneurysm and revealed that there is no run off from pseudoaneurysm and the tibial vessels were reconstructed from collaterals. We decided to treat this patient via endovascular approach. Subsequently a right lower limb angiogram and embolisation was performed. A downhill puncture was done under ultrasound guidance via the right femoral artery and a 5F sheath was inserted. After confirming we have adequate collaterals and distal runoff, we deployed an Amplatzer Vascular Plug II size 12 mm through a 6F Fortress sheath and successfully occluded the pseudoaneurysm. The access site hemostasis was obtained with Perclose Proglide.

Immediate intra-operatively, the palpable pulsatile mass was no more clinically evident. Patient was discharged home on post-operative day 1. Pseudoaneurysm remained excluded at latest review after 6 months and there was no worsening ischemic symptoms noted and limb function improved. On follow up, at post op 10 months patient had an improved ABSI of 1.11 and palpable dorsalis pedis.

DISCUSSION

¹ Acupuncture has been proven to effectively treat postoperative pain, pain from dental procedures, nausea and vomiting post- chemotherapy and pregnancy. It is also known to be useful in treating musculoskeletal pain especially sports injuries.³ Acupuncture has become more and more popular among both medical and homeopathic therapist. However, adverse effects related to acupuncture therapy have also been recounted and brought to light by some clinicians. We have to be aware of all these adverse effects and repercussion as they may be detrimental to our patients.

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Fig. 1: Angiography showing popliteal artery pseudoaneurysm and reconstituted distal runoff.



Fig. 2: Post embolisation angiography.

¹ Pseudoaneurysm resulting from acupuncture is an extremely rare event.¹ According to the world medical literature, only a handful of patients have been treated surgically for this condition. Most of the treatments reported are via an open approach. To the best of our knowledge this is the first reported case of pseudoaneurysm of the popliteal artery secondary to acupuncture in Malaysia which was successfully treated via the endovascular route.

Clinically at presentation, a large and superficially located popliteal artery pseudoaneurysm could be palpated as a pulsatile mass.¹ As a preliminary investigation, non-invasive diagnostic tools such as duplex ultrasonography can be used to confirm the diagnosis. CT Lower Limb Angiography can be carried out to accurately confirm the diagnosis and provide information for preoperative planning. From the CT angiography we can find out the status of the runoff vessels and collaterals.

There are a few accepted methods of management for popliteal pseudoaneurysm. We can approach the problem via open surgical repair or endovascular therapy.¹ Open method involves resection with interposition grafting or ligation accompanied by arterial bypass which may bring about significant morbidity and mortality. Depending on the morphology of the pseudoaneurysm and clinical status of the affected lower limb, endovascular intervention involves either popliteal artery stenting or embolization, as in this present report.

This technique offers numerous benefits:

- 1) The procedure can be done under local anesthesia
- 2) Patient has a single puncture wound at the groin
- 3) The status of distal runoffs and collaterals can be assessed accurately through angiography.
- 4) Adherent structures and vessels are left intact

Endovascular treatment of popliteal artery pseudoaneurysm is a safe treatment modality and can be performed with an acceptable morbidity rate.

CONCLUSION

In conclusion, acupuncture is considered safe and is recognized as a treatment modality for pain. However, we need to be aware of its adverse effects, as serious and life-threatening incidents have occurred. Endovascular intervention is safe and effective option for the management of popliteal artery pseudoaneurysm.

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