International Surgery Journal
*Nabi N et al. Int Surg J. 2019 Jun;6(6):2207-2209*
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20192395

**Case Report**

# Brachial artery pseudo-aneurysm in intravenous drug abuser: a rare case report

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**Received:** 09 April 2019
**Accepted:** 14 May 2019

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## ABSTRACT

Brachial artery pseudo-aneurysm (BAP) is a rare entity because pseudo-aneurysms are common in lower limbs.[1] Usual causes of BAP are humeral fractures, iatrogenic causes (repeated punctures for sample collection, following construction of Brachio-cephalic fistula) or some genetic causes like Ehler Danlos syndrome (EDS). This case has been reported to highlight the importance of considering all the differential diagnosis while evaluation of an upper limb swelling especially in the cubital fossa and due consideration of history of any IV drug abuse.

**Keywords:** Brachial artery pseudo-aneurysms, IV drug abuser, False aneurysm

## INTRODUCTION

Pseudo-aneurysm (false aneurysm) is a pulsatile haematoma that may be formed by haemorrhage in soft tissues, surrounded by fibrous encapsulation and is characterised by a communication between the ruptured vessel and the fluid space.[1,2] It can form due to various etiologies like connective tissue disorders (EDS), mycotic aneurysms, Kawasaki disease, osteochondromas, traumatic fractures, subluxations and iatrogenic events like repeated arterial punctures for sampling and after A-V fistula formation.[1,3]

Pseudo-aneurysms present with local swelling, pain, compression neuropathy and may get complicated due to rupture resulting in bleeding. It may also get secondarily infected and result in local sepsis which may decrease the threshold for rupture and bleeding.[3]

We present a case report of BAP in an IV drug abuser with unusual etiology to emphasize upon eliciting the drug history which some patients may conceal.

## CASE REPORT

A 48 year old male presented to our Surgical Emergency Reception with increasing swelling in left cubital fossa from last 4 days associated with mild to moderate pain (Figure 1). There was history of one episode of bleeding from the swelling that was controlled by application of suture in some nearby local hospital. On examination, the swelling was fluctuant and pulsatile. While re-eliciting the history from the patient he revealed that he is an intra-venous drug abuser. Correlating with local examination findings, a provisional diagnosis of pseudo-aneurysm was made. The diagnosis was confirmed on Doppler sonography and CT angiography (Figure 2).

The patient was operated upon the next day after rupture of pseudo-aneurysm. Resection of pseudo-aneurysm with end-end anastamosis was done. Patient was discharged in good health on 5th post-operative day.

## DISCUSSION

Pseudoaneurysms are formed when an arterial puncture site fails seal which allows blood at arterial pressure to

flow into the perivascular tissues, thus forming a pulsatile hematoma which lack a fibrous wall and become surrounded by the soft tissues.[3] BAP is a rare condition which occurs in less than 0.04% of cases.[4]

**Figure 1: Left cubital fossa swelling diagnosed as brachial artery pseudo-aneurysm.**

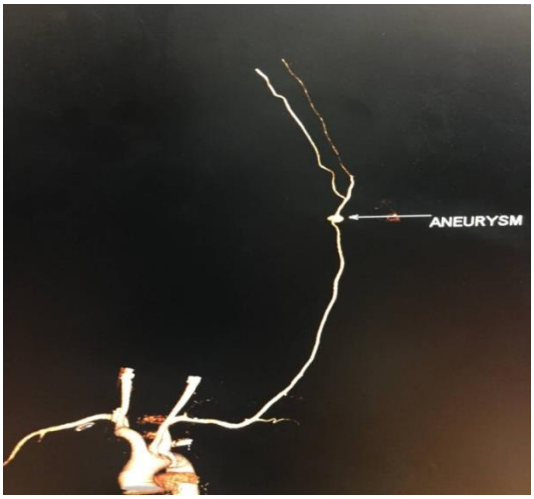


**Figure 2: CT Angiographic reconstruction showing BAP in this patient.**

The etiology of pseudoaneurysms can be classified into two types: (a) due to trauma/iatrogenic causes (such as humeral and supra-condylar fractures, angiography, artery puncture, endovascular surgeries, drug abuse); (b) associated with other diseases (such as Ehlers-Danlos syndrome, mycotic aneurysms, Kawasaki's disease, osteochondromas, polyarteritis nodosa, Behcet disease and others). Risk factors for pseudoaneurysms, in general, include anticoagulation, obesity, diabetes mellitus, large sheath size (during vascular interventions), faulty puncture technique, brief manual compression, arterial hypertension, and difficulty to compress puncture sites, heavily calcified arteries and haemodialysis.[5,6]

Patients with pseudo-aneurysm present to medical facility only when complications occur like rupture, bleeding, pain, compressive neuropathy or venous edema of the affected limb. History taking is crucial to clinch the diagnosis. Doppler ultrasonography and Contrast-enhanced Computed Tomography Angiography are indispensable to confirm the diagnosis and for planning of treatment. Spectral waveforms and color-doppler imaging usually shows a characteristic "to-and-fro" and "ying-yang" flow patterns in the neck of the pseudo-aneurysm.[7]

The treatment of any pseudo-aneurysm is depends on its size, location and pathogenesis. Resection, ligation, re-anastamosis or vein graft interpositioning can be used as surgical measures. Although endovascular stent-graft implants, embolization of sac, embolization of distal and proximal arterial segments and thrombin injections can be performed as well.[8]

In our case we opted for open surgery in view of rupture of BAP and end to end anastamosis was possible as there was no significant loss of length of the artery after resecting the pseudo-aneurysm.

## CONCLUSION

Brachial artery pseudo-aneurysms being rare, may be missed during routine evaluation of visible swellings. Hence, careful history taking and vigilant examination are essential to prevent delay in diagnosis and hence the complications related with these rare conditions.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: Not required*

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**Cite this article as:** Nabi N, Beigh F, Mir S. Brachial artery pseudo-aneurysm in intravenous drug abuser: a rare case report. Int Surg J 2019;6:2207-9.