True Aneurysm of Proximal Radial Artery

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Abstract

True aneurysm of upper limb arteries is a rare entity with very few reported cases. Here, we report a case of true aneurysm of proximal radial artery starting from its origin at brachial artery bifurcation. A 50-year-old female presented with a painful pulsatile mass in the left cubital fossa of 1 year duration. Duplex examination revealed partially thrombosed large aneurysm of proximal radial artery. Aneurysmal segment was resected and end of distal brachial artery anastomosed end-to-end with ulnar artery. Radial artery was reconstructed with interposition reversed saphenous vein graft from side of brachial artery to end of radial artery.

Keywords: Peripheral artery aneurysm, radial artery, true aneurysm

INTRODUCTION

Most of the aneurysms of peripheral arterial system are pseudoaneurysms due to penetrating injury, infection, or iatrogenic.[1] True aneurysm of peripheral arterial system especially of upper limb distal to axillary artery is rare.[1,2] There are risks of rupture, thrombosis, and embolism leading to limb loss. Resection of aneurysm and reconstruction of arterial system is preferred approach. Here, we present a rare case of true aneurysm of proximal radial artery beginning from its origin at brachial artery bifurcation extending till mid radial artery.

CASE REPORT

A 50-year-old female presented with progressive swelling in left cubital fossa of 1 year duration. She denied the previous history of trauma or intervention. Her family history was noncontributory. Duplex ultrasound examination revealed (6 by 4 cm size) fusiform aneurysm of proximal radial artery extending from its origin at brachial artery bifurcation with significant intraluminal thrombus. Ultrasound examination of abdomen and lower limb arteries and echocardiogram of chest was done to rule out aneurysms at other site. In view of symptomatic status and intraluminal thrombus in aneurysm, she was planned for surgical intervention. Intraoperatively, there was large fusiform aneurysmal dilatation of proximal radial artery filled with thrombus extending from brachial artery bifurcation to mid radial artery [Figure 1]. Aneurysmal segment was resected and end of distal brachial artery anastomosed to end of ulnar artery. Radial artery was reconstructed with interposition reversed saphenous vein graft from side of brachial artery to end of radial artery [Figure 2]. Postoperatively, there was good radial and ulnar pulsation with no digital ischemia or neuropathy. Cut section revealed true aneurysm with intraluminal thrombus [Figure 3], and histopathology examination confirmed true aneurysm with features of transmural chronic inflammation and organizing intraluminal thrombus [Figure 4]. After 6 months of follow-up, she is asymptomatic with good distal pulsation.

DISCUSSION

Aneurysms of upper limb arteries are mostly pseudoaneurysm due to invasive procedures, intravenous drug abuse or penetrating injury. True aneurysm of upper limb arteries especially distal to axillary artery is very rare.[2] Various causes have been postulated for true aneurysm in upper limb such as idiopathic, degenerative, repetitive trauma, congenital, and metabolic diseases.[1-3] It might be associated with diseases such as Kawasaki’s syndrome, Buerger’s disease, and cystic adventitial disease.[1] Previous case series have reported ulnar and radial artery to be most commonly

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involved artery distal to axillary artery\(^1\) and most of them are pseudoaneurysms. In a retrospective study of Kenyan population, the prevalence of radial artery aneurysms was around 2.9% of all aneurysms affecting the upper limb.\(^3\) Patients with true upper extremity arterial aneurysms generally present with pulsatile mass with or without pain or paraesthesia from local nerve compression or distal ischemia from thromboembolic events.\(^4\) Arterial aneurysm should always be included in the differential diagnosis of upper extremity embolic events.

The natural history of true aneurysm is not well defined due to its rarity however limited data suggest high incidence of symptoms and associated complications if left untreated.\(^1\) Most likely complications are distal ischemia of upper limb due to embolization of intraluminal thrombus within the aneurysm or propagation of thrombus to the distal artery. Rarely, it can rupture due to trauma.\(^5\) The diagnosis of true aneurysms can be confirmed by color duplex ultrasonography in most of the cases. Computed tomography and magnetic resonance angiogram are useful to delineate anatomy and rule out other site aneurysms. There is minimal morbidity associated with repair of aneurysm distal to axillary artery under regional anaesthesia. In view of the high incidence of symptoms if left untreated, routine operative repair should be performed.\(^6\) Surgical treatment consists of resection and vascular reconstruction with or without venous graft. Ligation of aneurysm in distal most artery can perform if adequacy of collateral and distal perfusion is assured.

**Conclusion**

True aneurysm of radial artery is very rare. Most of them require surgical treatment to relieve symptoms of pain and paraesthesia and prevent complications such as thromboembolism and limb ischemia. Resection of aneurysmal segment with vascular reconstruction is preferred surgical approach.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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