Short Report

Idiopathic True Aneurysm of the Radial Artery: A Rare Entity

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ABSTRACT

Introduction: True aneurysms of the radial artery are extremely rare. Most cases of Radial artery aneurysm are the result of iatrogenic trauma, however other rare causes such as vascular tumours, connective tissue diseases and occupational injury have also been reported.

Case report: A 60-year-old man presented with a pulsating mass in the anatomical snuffbox of the left hand. He underwent distal radial artery ligation and excision of the aneurysm. Histopathology demonstrated this to be a true aneurysm in continuation with the vessel wall.

Discussion: There are only a few cases of true distal radial artery aneurysm described in the literature. Careful examination and pre-operative imaging will help determine the most appropriate surgical management, including the need for vascular reconstruction.

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Introduction

True aneurysms of the Radial artery are extremely rare. Most cases of Radial artery aneurysm are the result of iatrogenic trauma, however other rare causes such as vascular tumours, connective tissue diseases and occupational injury have also been reported. Here we describe a case of an idiopathic true aneurysm of the Radial artery.

Case Report

A 60-year-old man presented with a pulsating mass in the anatomical snuffbox of the left hand. He first noticed a lump 2 years prior to presentation that had progressively increased in size. He worked as an accountant and was a non-smoker in excellent health. There was no history of trauma, recent infection, hospitalisation, repetitive injury or peripheral venous cannulation.

Examination revealed a pulsating mass in the left anatomical snuffbox. It was compressible with rapid re-filling. There was no thrill or audible bruit. Allen's test was negative.

A duplex ultrasound demonstrated a hypoechoic mass with cystic centre associated with arterial Doppler flow. A CT-Angiogram confirmed an irregular loculated aneurysm arising at the level of the dorsal carpal branch of the radial artery. The ulnar artery was patent, however both superficial and deep palmar arches were incomplete. There were numerous communications between the radial and ulnar arteries via metacarpal and digital branches.

Given the increase in size of the aneurysm and the potential for thromboembolic complication or even rupture, a surgical repair was performed under general anaesthesia.

A longitudinal incision was made over the anatomical snuffbox. Despite occlusion of the proximal radial artery, perfusion of the hand distally remained intact. The radial artery was ligated both proximal and distal to the aneurysm using 5/0 Prolene. The excised aneurysm was sent for histopathology (Fig. 1).

Post-operatively there was no motor-sensory disturbance to the hand and general tissue perfusion was excellent. A further 3-month postoperative review was also normal with complete wound healing and no ischaemic symptoms.

The histological specimen demonstrated an aneurysmal dilation composed purely of fibrous tissue arising from the arterial wall. The fibrous tissue was in continuation with the vessel wall, rather than forming a pseudo-capsule. There was no evidence of endothelium or normal smooth muscle components. There was no atherosclerotic plaque seen in any section.

Discussion

This case involves an idiopathic true aneurysm of the distal radial artery. This is an extremely rare occurrence with only a few cases described in the literature. An idiopathic radial aneurysm was reported by Walton, however the patient, a 40-year old computer operator declined surgical intervention given his lack of
symptoms. A second case has been reported by Luzzani in a 63-year-old housewife. She underwent excision and radial artery ligation with no long-term complications.

Most other case reports involve differing aetiologies such as trauma (usually iatrogenic), infection or atherosclerosis. Occupational repetitive injury can result in distal aneurysm formation, as seen in hypothenar and thenar hammer syndrome. The majority of these aneurysms are found within the hand. A case of repetitive occupational injury (Tailor’s Thumb) has also been described.

The natural history of true distal aneurysms in the upper limb remains unclear given their rarity. However, the risk of complication as with other anatomical aneurysms remains a concern. Distal ischaemia is the most likely complication and can result from embolisation of thrombus within the aneurysm or propagation of thrombus to the distal artery. The risk of traumatic rupture is rare, however the dexterous location of the aneurysm does make this a possibility.

Careful examination and pre-operative imaging will help determine the most appropriate surgical management. An Allen’s test will assist in determining the patency of the radial and ulnar arteries. Although Doppler imaging may be adequate in confirming the patency of the superficial and deep palmar arches a CT-Angiogram may offer higher sensitivity (Fig. 2). In our experience, ligation of the radial artery was a safe option. A negative Allen’s test and the evidence of multiple collaterals on CT-Angiogram assisted in this surgical decision. The absence of satisfactory collateral circulation would strongly indicate vascular reconstruction to avoid complication.

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References