Radial Artery Aneurysm Resulting from Repetitive Occupational Injury: Tailor’s Thumb

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Introduction
True radial artery aneurysms are very rare and a cause is rarely identified. Case report: An unusual case of a true radial artery aneurysm in a tailor of fifty years; presenting with a growing, tender lump at the base of his thumb.

Discussion
Radial artery aneurysms are classically pseudoaneurysms from iatrogenic traumatic injury — arterial cannulation. This is the first case in the literature to demonstrate a true aneurysm secondary to repetitive occupational injury.

Case Report
A 62 year old right handed tailor presented with a lump at the base of his right thumb. The lesion had been growing slowly for two years. In the few months preceding presentation, it had rapidly increased in size, becoming very tender. It was associated with some numbness in the hand. His main complaint was difficulty using scissors to cut cloth. The scissors handle rested just distal to the lump at the base of his thumb (Fig. 1) causing compression with each cut. He had been a tailor for fifty years. There was no history of arterial or venous puncture in his right arm.

On examination a spherical, smooth, firm, pulsatile swelling arose from the anatomical snuffbox. It was mobile in the horizontal not the vertical plane and unattached to the overlying skin. Radial and ulnar pulses were present. Allen’s test showed dominant ulnar supply to the palmar arch. Duplex ultrasound demonstrated a 1.9cm true, saccular aneurysm of the radial artery.

The lesion was explored and an aneurysmal sac found arising dorsally from the radial artery (Fig. 2). Proximal and distal control was gained. Temporary occlusion of the radial artery was performed and excellent ulnar artery supply demonstrated. Bypass was considered unwise due to risk of recurrence when he returned to work. The aneurysm was tied proximally and distally, and excised. Histological examination demonstrated a true aneurysm. There was no evidence of atherosclerotic or vasculitic disease. Unfortunately, the specimen contained no normal artery to look for underlying dysplasia.

Post operatively the patient had no numbness or hand claudication and returned to work as a tailor (Fig. 3).
Discussion

This case suggests a true aneurysm formed secondary to repetitive occupational trauma. There are only a few reports of true radial artery aneurysms; some describe an idiopathic aetiology\(^1,2\) another atherosclerotic.\(^3\)

This case is analogous to the repetitive occupational trauma seen in hypothenar hammer syndrome (HHS); repeated force through the end of a hammer (or other instruments) in the hypothenar eminence is thought to cause vessel injury and result in finger ischaemia from distal emboli. In documented cases of HHS there is evidence that the arteries are abnormal prior to traumatic injury and only those with pre-existing vessel dysplasia are prone to developing the syndrome.\(^4\) It has also been highlighted that occupational and recreational trauma history should be sought. This information can allow appropriate investigation and management and prevent upper limb digital ischaemia.\(^5\)

Due to the rarity of true radial artery aneurysms, there are no reports exploring the morphology of the arteries in these individuals. It is certainly plausible that only those with pre-existing dysplastic vessels will go on to develop an injury as described in this case. We would encourage anyone encountering a similar case to consider including a small segment of normal artery in their specimen to investigate this hypothesis.
Fig. 3 demonstrates that the handle from the scissors lay over the thumb itself, a few centimetres away from the aneurysm in the anatomical snuff box. The patient explained that the lower loop of the handle (held with his third and fourth fingers) stabilised the scissors whilst the upper loop gripped by the thumb, moved up and down in order to cut material. Repeated compression of the radial artery may have caused a back pressure of flow towards the wrist and resulted in aneurysm formation. Alternatively compression of the distal artery necessitated a high pressure system proximally causing the aneurysm; similar to a case in which the absence of an ulnar supply to the hand may have increased the necessary perfusion pressure in the radial artery.²

As far as we are aware, this case represents the first demonstration of a true radial artery aneurysm formed secondary to repetitive occupational injury. In this patient’s case, the aneurysm was safe to excise without the need for reconstruction.

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References


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