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Nontraumatic True Aneurysm of the Superficial Palmar Arch: A Case Report

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ABSTRACT

A case of a 62 year-old woman with true aneurysm of the superficial palmar arch with no previous history of trauma is described. The aneurysm was resected without reconstruction based on intraoperative evidence of adequate finger perfusion after clumping the distal and proximal ends. Three years after the operation, there has been no recurrence of the aneurysm and the patient has neither complaints nor symptoms.

INTRODUCTION

True aneurysms in the hand are rare, and usually arise from the ulnar artery at the hypothenar eminence.[3] In the hand, true aneurysms occurring at the superficial palmar arch have been rarely reported.[1-4] We present a case of true aneurysm of the superficial palmar arch with no previous history of trauma.

CLINICAL CASE

A 62 year-old woman presented with a mass on the mid-palmar area of the right hand, accompanied by discomfort for three years. No previous history of trauma was presented. The patient had no cold intolerance and no sensory disturbance. Range of motion of the fingers were full, however grip was limited due to the presence of the mass. Clinical examination showed a one cm palpable tumor with pulsation, however Allen's test was negative. A Magnetic Resonance Angiography (MRA) showed an aneurysm of the superficial palmar arch (Fig.1, 2).

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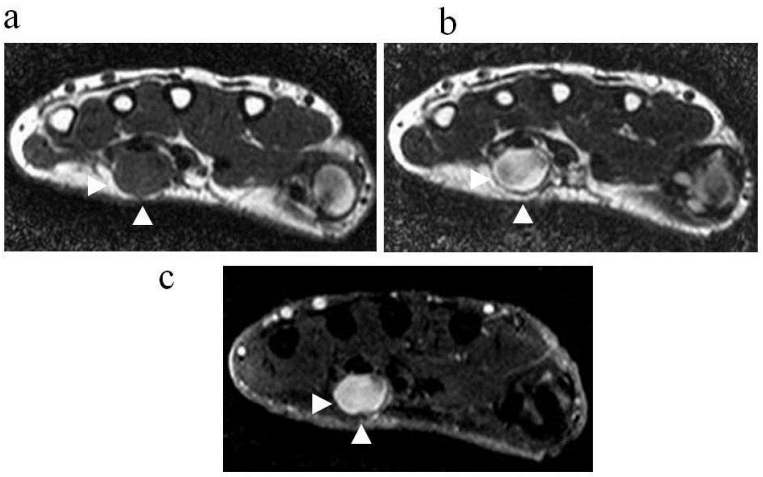

Fig. 1. Magnetic Resonance Image of the hand
a. T1 weighted image b. T2 weighted image c. Gadolinium enhanced image

Fig. 2. Magnetic Resonance Angiography of the hand
MRA shows an aneurysm of the superficial palmar arch of the right hand.

During surgical exploration, a longitudinal skin incision was made directly over the aneurysm. Intra-operatively, a large fusiform aneurysm of the superficial palmar arch involving the common digital artery of the middle and ring finger was revealed (Fig.3). Satisfactory perfusion of the fingers was observed after clamping the both ends. After resection, the symptoms disappeared.

Fig. 3. Intra-operative view of the superficial palmar arch aneurysm

The histology demonstrated a true aneurysm where all three layers of the arterial wall were seen (Fig.4). The patient's postoperative course was uneventful on follow up three years after surgery.

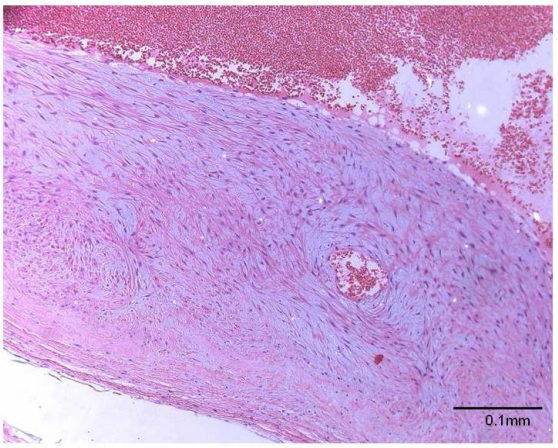

Fig. 4. Microscopic findings
Light microscopy shows three layers in the vessel wall with hematoma consistent with a true aneurysm. No evidence of vasculitis was observed.

DISCUSSION

True aneurysms in the hand are rare and usually result from blunt trauma. A true aneurysm occurring at the superficial palmar arch which is not secondary to blunt trauma, as in our patient, is also rare. The usual treatment, when adequate circulation is observed, is to resect the aneurysm and ligate the arterial ends.[1,3,4] If ischemia is suspected, the vascular reconstruction is performed.[2,7] In our patient, preoperatively the patient had no cold

intolerance and there was intraoperative evidence of adequate finger perfusion, therefore we did not reconstruct the artery and, instead, opted to ligate the aneurysm.

Preoperative arteography is the procedure of choice, because it gives essential information about the localization and the size of the aneurysm. Doppler ultrasound, digital plethymography and pulse oxymetry can also provide important information about the adequacy of collateral circulation. Krinsky et al reported that MRA with gadolinium provides excellent image quality not available with conventional angiography.[5] Price et al reported that in-plane saturation is problematic in tortuous arteries and arteries with slow flow on MRA without gadolinium.[6] However, it is possible to image arteries with fundamentally different contrast mechanism that does not depend upon blood flow in MRA with gadolinium. Gadolinium contrast agents improves the quality of MRA.[6] Therefore, preoperative evaluation of MRA with gadolinium was also useful for preoperative planning.

In conclusion, true aneurysms of the superficial palmar arch in the hand, not secondary to blunt trauma, are rare. If cold intolerance is a presenting symptom, vascular reconstruction play an important role in relieving the symptoms. MRA with gadolinium is useful for preoperative planning for the treatment of the aneurysms.

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