Case Report

A Pseudoaneurysm of Median Artery—A Case Report

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ABSTRACT

Median artery represents the persistence of part of the arterial axis of upper limb. We report a case of pseudoaneurysm formation from a palmar type median artery after a cut wrist injury. It is important to recognize this anatomical variant that can pose diagnostic difficulty in upper limb injury.

Introduction

Median artery is a persistent part of the embryonic arterial axis of the upper limb, which normally regresses in the 2nd embryonic month. Two types of median artery were described, namely, the palmar type and the antebrachial type. The Palmar type artery one that reaches the palm, whereas the antebrachial type median artery ends proximal to the wrist. Different complications including pronator syndrome, carpal tunnel syndrome, and compression of the anterior interosseous nerve and inadvertent cannulation of a median artery of a 1-year-old child1 were reported.

Case Report

A 35-year-old man had a history of schizophrenia, presented with a volar left wrist swelling for 1 month in August 2006. He had a superficial cut injury of his left wrist with a cutter 1 month ago left untreated.

On admission, physical examination showed a 1.5-cm pulsatile swelling at the volar aspect of his left wrist. Motor function and sensation were normal. Allen’s tests confirmed the competence of ulnar and radial arteries.

Ultrasonography confirmed the presence of a pseudoaneurysm of size 1.15 cm × 0.93 cm × 1.34 cm on the volar aspect of the patient’s left wrist. There was active leakage of blood into the pseudoaneurysm cavity. Computed tomography angiogram (Figure 1) showed the presence of a median artery with a pseudoaneurysm arising from it. The ulnar artery appeared to be rudimentary, distal to the pseudoaneurysm.

Surgical exploration (Figure 2A) confirmed the presence of a median artery. The ulnar artery lied just deep to the fascia of forearm. Palmaris longus was absent. There was a communicating branch connecting the ulnar and median arteries. The pseudoaneurysm shown in the angiogram was actually arising from the ulnar end of the communicating branch. The fingers flexors and the median nerve were intact. The pseudoaneurysm was ligated and excised with part of the adjacent ulnar artery. End-to-end anastomosis of the ulnar artery was performed without tension (Figure 2B). The left hand circulation was good on follow up.

Discussion

The reported incidence of palmar type of median artery ranged from 1.5% to 50%, whereas the incidence of antebrachial type ranged from 70% to 100%. The palmar type is of more clinical importance.

Rodríguez-Nifedenführ et al2 reported the incidence of palmar type median artery to be 20% in 120 cadavers. There was no significant difference in incidence between male and female as well as right and left side. Unilateral involvement was more common. The origin of palmar type median artery is most frequently located at caudal angle between the ulnar artery and the common interosseous artery. The median artery travels alongside the...
median nerve in the upper forearm. The median artery can pass in front of or behind the anterior interosseous nerve. In a small proportion (8% in Rodríguez-Nifedenführ’s study), the median artery pierces through the anterior interosseous nerve. Gainor and Jeffries in 1987 reported a case of pronator syndrome caused by a persistent median artery piercing through the median nerve. The patient’s symptoms improved after ligation of the median artery.

The palmar type median artery enters the palm through the carpal tunnel. It joins the superficial palmar arch, or it may end as the 1st and 2nd common digital artery. Rodríguez-Nifedenführ et al reported the incidence of antebrachial type median artery to be 76%. It appears more common in females. The commonest origin of this type of median artery is from the anterior interosseous artery. The artery terminates in the forearm within the flexor tendon sheath or the median nerve sheath.

D’Costa et al reported communicating branch between median and radial arteries.

In our patient, the ulnar artery was abnormally superficial that accounts for its susceptibility for injury and the formation of pseudoaneurysm with a superficial cut or minor trauma. The association of abnormally superficial ulnar artery with persistent median artery was not previously described.

Although true aneurysm and arteriovenous malformation of median artery have been reported in the literature, a pseudoaneurysm arising from median artery was not previously described. Pseudoaneurysm arising from forearm artery can be treated with excision and venous interposition grafting. In our patient, we were able to excise the pseudoaneurysm and primarily anastomose the artery without significant tension.

In conclusion, the incidence of persistent median artery is high. It is important to be aware of this anatomical variance, particularly the palmar type. It can pose diagnostic difficulties when evaluating patients with wrist or forearm injury and disastrous accidents during routine surgical procedures on the wrist.

**Figure 1.** The computed tomography angiogram shows the presence of a pseudoaneurysm arising from the communicating branch between the median and the ulnar artery (intraoperative finding).

**Figure 2.** (A) Intra-operative photograph. The ulnar artery is indicated by the pink arrows. The median artery is indicated by the yellow arrows. (B) Relationship of median artery (marked with red vascular sling) and ulnar artery (marked with blue vascular sling). A communicating branch (indicated with yellow arrow) connects the median artery and the ulnar artery. The pseudoaneurysm arises from the ulnar end of the communicating branch.
References