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A CASE OF ARTERIOVENOUS MALFORMATION INVOLVING THE HAND

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Abstract. Arteriovenous malformations of the hand and wrist are uncommon and may involve any anatomic structure of the body. They may often lead to chronic pain and dysfunction. Treatment ranges from conservative measures to amputation with a high risk of complications and recurrence. We hereby report a rare case of an arteriovenous malformation in a 47-year-old woman who presented with a painless swelling of the dorsum of her left hand, which was treated successfully by surgical excision.

Keywords: arteriovenous malformations; vascular malformations; management; hand.

Background

An arteriovenous malformation is a collection of abnormal vessels forming a lesion that is present at birth and grows proportionately with the child [1]; they can develop in any part of the body and may be classified as capillary, venous (slow flow), arterial (fast flow) or lymphatic, while combined channel anomalies are common [2].

Arteriovenous malformations can occur in patients with a history of blunt or penetrating trauma and/or those who underwent vascular interventional procedures [3].

Vascular malformations may involve any anatomic structure of the hand (skin, bone, tendon, muscle, etc.); they can cause disability, pain, and discomfort constituting a significant challenge of management [4].

Plain radiographs can show calcified phleboliths or bone lysis while ultrasonography using color doppler flow analysis can confirm fast-flow anomalies [5, 6].

Computed tomography-scan or magnetic resonance imaging (MRI) are warranted for diagnosis and outline the extent of surrounding tissue involvement.

Angiography is the current gold standard imaging modality, especially in extensive lesions [7].

Treatment of arteriovenous malformation includes conservative treatment, selective embolization/sclerotherapy, partial excision, radical excision and amputation in extensive and complicated cases [8].

Radical excision is generally difficult especially in the palmar side since the lesion is located in a small space with a high risk of failure and neurovascular injury [9].

Sclerotherapy is a safe and effective therapy for arteriovenous malformation of the hand; it yields satisfactory results when combined with partial excision [10].

The risk of recurrence after surgical excision increases with the presence of arteriovenous shunts, local tissue infiltration, and lesions greater than 2 cm [11].

Case presentation

We report the case of a 47-year-old, right handed, unemployed woman, presented with a painless swelling of the left hand; her medical history was unremarkable. On physical examination, a non-tender subcutaneous movable soft mass was evident over the dorsal surface of the left hand; the skin was supple without discoloration. Muscle strength and vascular status were normal. Plain-film radiograph was without any abnormality. Ultrasonography revealed non-specific hypoechogenic regions 3x3.5cm in diameter between the extensor tendons of the thumb and the third finger (Fig. 1). Sclerotherapy was not performed as the patient was financially incapacitated. Surgical exploration under upper extremity regional anesthesia and tourniquet control revealed vascular malformation mass which appeared to infiltrate and invaginate the peritendon.

The lesion was dissected meticulously from the involved structures (radial nerve and extensors); ligation/partial excision of the radial branch artery and rigorous hemostasis (Fig. 2).

Histological examination confirmed the diagnosis of arteriovenous malformation and excluded malignancy (Fig. 3).

The post-operative courses were uneventful. There was no recurrence within six months of follow-up.

Conclusions

Arteriovenous malformations of the hand are a rare

Fig. 1. A large movable soft mass over the dorsal surface of the left hand

Fig. 2. Perioperative appearance of surgical excision

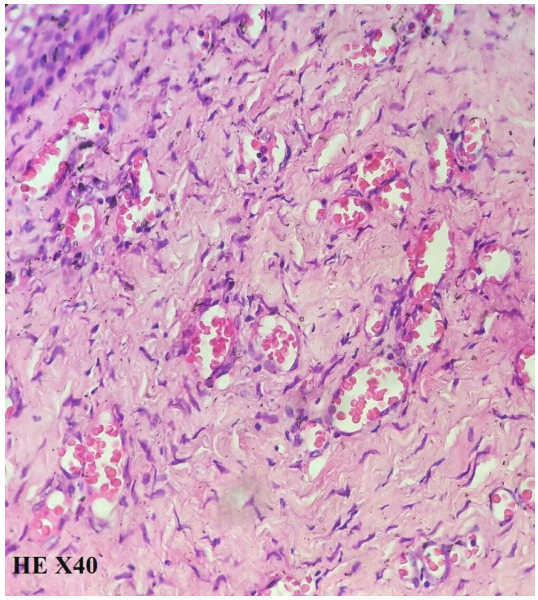

Fig. 3. Histopathological examination of the lesion revealed a gaping and communicating vessels proliferated without malignancy

condition that are not often considered in the differential diagnosis of hand and wrist lesions. Their management ranges from conservative measures to amputation. Regular long-term clinical follow-up is essential due to the inherent risk of recurrence.

Source of support
Declared none.

Competing interests
The authors declare no competing interests.

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