

True aneurysm of a thumb digital artery in a radiographer: A case report

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ABSTRACT

True aneurysms of the digital artery are very rare. We report a case of true aneurysm of a proper digital artery of the right thumb in a radiographer. Treatment by ligation and excision resulted in complete relief of symptoms.

Key words: aneurysm, digital artery, thumb

INTRODUCTION

True aneurysms in the upper extremity are reported to occur as a result of various factors^{4,5} such as trauma, atherosclerosis, vasculitis, and infection, or to be idiopathic.^{7,8} However, true digital aneurysm, which develops in the finger due to trauma, is very rare. We report a case of true aneurysm of a proper digital artery which developed due to chronic trauma in the ulnar side of the right thumb in a radiographer.

CASE REPORT

A 47-year-old right-handed man visited our clinic with a complaint of pain and a mass in the ulnar side of the right thumb. The patient had worked as a radiographer in a general hospital for 27 years since the age of 20. About three weeks previously, he had developed pain and an enlarging mass on the ulnar aspect of his right thumb without any clear history of trauma.

Physical examination demonstrated a tender mass on the ulnar side at the proximal level of the interphalangeal joint of the right thumb. The mass had a spindle shape of about 6 mm in size. It was elastic to hard in consistency. No sensory disturbance was observed in the thumb. Plain X-ray examination in the right thumb revealed no abnormalities.

A week later, surgical treatment was performed. A skin incision was made on the ulnar side of the right thumb and revealed no abnormalities in the ulnar proper digital nerve. However, a dark red thrombosed aneurysm with a smooth surface was found in the ulnar proper digital artery (Fig. 1). The aneurysm was resected and ligation of the digital artery was performed at each site of excision.

Microscopic examination revealed the dilated



Figure 1 An aneurysm of the ulnar proper digital artery of the right thumb (white arrow).

lumen of the vessel and thrombus formation inside of it. The internal elastic laminae and tunica media were present on the vascular wall. These findings confirmed the diagnosis of a true aneurysm (Fig. 2). Postoperatively, the sutures were removed 10 days after surgery and the patient returned to work three weeks after surgery. At follow-up 13 months after surgery, the patient had no pain or swelling in the thumb.

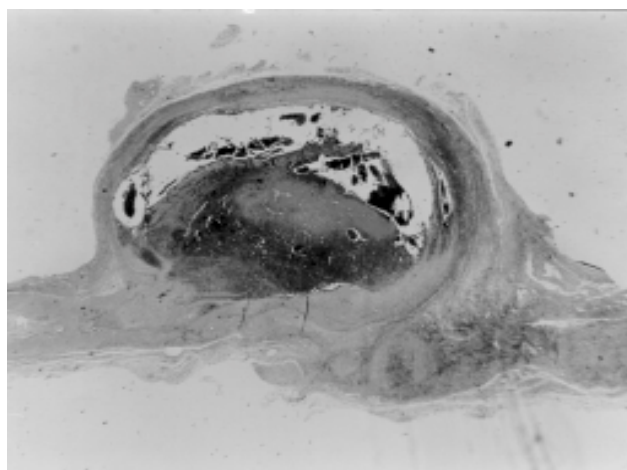


Figure 2 Histopathologic section showing the presence of the internal elastic laminae and tunica media, confirming the diagnosis of a true aneurysm. (Haematoxylin-eosin stain. Original magnification $\times 10$.)

DISCUSSION

True digital aneurysm due to trauma is very rare, with only seven cases reported in the English literature. These reports included three patients who developed aneurysm in the thumb,^{1,2,9} two who developed it in the middle finger,^{5,6} and two who developed it in the ring finger.^{4,10} The type of trauma was classified as chronic or acute. Causes of chronic trauma included sports activities in five patients, and occupational activities in one.¹ Types of sports activities included baseball,⁹ golf,¹⁰ bowling,² and volleyball.^{4,5} The cause of acute trauma was crush injury in one patient.⁶

There was only one report of true aneurysm developing in the proper digital artery due to occupational activity,¹ as in the present patient. However, a history of hemophilia was present in that case. We assume that, in the present case, since the patient is a radiographer, radiographic cassettes chronically stimulated the proper artery of the ulnar side of his right thumb, and the vascular wall of the digital artery was extended, leading to formation of true aneurysm.

Bowler's thumb is a disorder known to be caused by repeated small external force to the ulnar side of the thumb.³ In Bowler's thumb, perineural fibrosis occurs due to repeated chronic external force to the proper digital nerve of the ulnar side of the thumb, leading to neurological disorder. Its clinical symptoms include sensory disturbance in the thumb, tenderness in the palmar side of the thumb, and tactile perception of a painful mass.

Digital aneurysm of the ulnar side of the thumb has many similarities to Bowler's thumb.² Therefore, preoperative differential diagnosis between proper digital aneurysm and Bowler's thumb was difficult in the present case. Angiography, magnetic resonance imaging, radionuclide scan, and ultrasonography may be useful for it.^{4,10}

In cases of traumatic true digital aneurysm, since natural healing cannot be expected, surgical treatment should be performed immediately after the diagnosis is made. In our case, excision was performed after ligation, and the postoperative course was satisfactory. For surgical treatment of traumatic true digital aneurysm, excision of the aneurysm after ligation of the digital artery can be easy and reliable.

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