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Case Report

Pulsatile numbness in the fingers: Surgical management of a common digital artery aneurysm

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Abstract

Common digital artery aneurysms are rare vascular pathologies of the hand. Clinically, they manifest as pain, tenderness, a pulsatile sensation, and numbness in the fingers. Early diagnosis and appropriate management are crucial for preventing vascular complications. A 51-year-old female patient presented with pain and tenderness localized to the third common digital artery of the left hand, along with pulsatile numbness in the third and fourth fingers. Physical examination revealed a distinct pulsatile mass. Doppler ultrasonography and magnetic resonance angiography confirmed the diagnosis of an aneurysm. The aneurysm was surgically excised, and vascular reconstruction was performed using a graft. Postoperatively, the patient experienced complete resolution of her symptoms. Although rare, common digital artery aneurysms can cause significant functional impairments. Surgical excision and reconstruction offer both diagnostic and therapeutic benefits. Given the limited number of reported cases, this presentation aims to increase awareness and enhance understanding of the diagnostic and treatment processes.

Keywords: Common digital artery aneurysm, hand vascular pathologies, aneurysm surgery

INTRODUCTION

Common digital artery aneurysms are exceptionally rare vascular lesions, typically resulting from trauma or connective tissue disorders, though idiopathic cases also occur [1-3]. They may mimic more common conditions such as carpal tunnel syndrome or Raynaud's phenomenon, complicating diagnosis [4,5]. We report an idiopathic case in a 51- year-old woman presenting with pulsatile numbness in her third and fourth fingers. Doppler ultrasonography and magnetic resonance angiography revealed a 1 cm aneurysm of the third common digital artery. Given her neurological symptoms, surgical excision with end-to-end anastomosis was performed. This case highlights the importance of considering vascular causes in the differential diagnosis of digital neuropathic symptoms and demonstrates the utility of MRA in preoperative planning [6,7].

CASE REPORT

A 51-year-old female patient presented to our clinic with complaints of numbness in the third and fourth fingers of her left hand, accompanied by intermittent pulsatile pain. The patient reported that her symptoms had been ongoing for approximately three months and had become more pronounced in recent weeks. Her personal history revealed no smoking or repetitive trauma, nor any known chronic illnesses or connective tissue disorders. Additionally, there was no family history of vascular diseases.

Physical examination revealed tenderness and a prominent pulsatile mass upon palpation in the third interdigital space of the left hand. The mass, approximately 1 cm in diameter, caused distinct pulsation and pain during palpation. Sensory examination revealed mild sensory deficits in the third and fourth fingers, while motor function was intact. Pulses were palpable

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and symmetrical at the wrist level, with no discoloration, skin atrophy, or ischemic signs at the fingertips.

Imaging studies were planned to support the diagnosis. Doppler ultrasonography revealed a well-defined aneurysmal dilation approximately 1 cm in length in the third common digital artery of the left hand, with turbulent blood flow observed but no evidence of thrombosis. Magnetic resonance angiography (MRA) confirmed the aneurysm's extent along the vessel without distal arterial obstruction or ischemia (Figure 1,2).

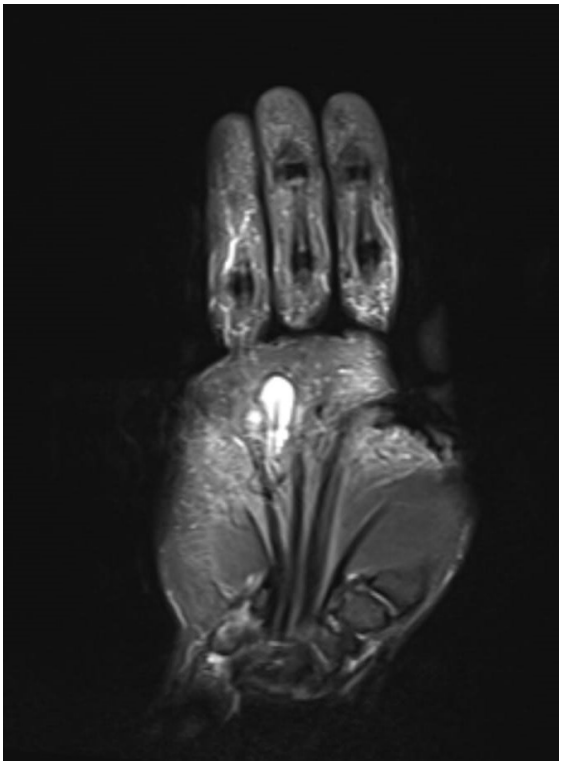

Figure 1. Coronal MR image of digital artery aneurysm

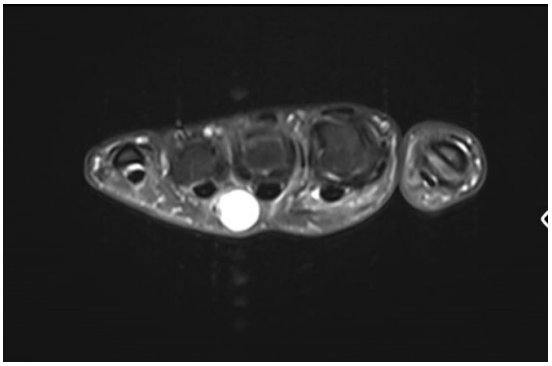

Figure 2. Axial MR image of digital artery aneurysm

The findings and proposed treatment options were thoroughly explained to the patient. Conservative management was deemed inadequate due to the aneurysm's associated risks of pain, sensory symptoms, and potential complications (e.g., thrombosis or embolization). Surgical intervention was recommended, and informed consent was obtained.

During the surgical procedure, the aneurysmal segment of the third common digital artery (Figure 3) was excised using microsurgical techniques (Figure 4), and a primary anastomosis was performed between the artery ends. In the postoperative period, the patient experienced significant pain relief. Sensory symptoms in the fingers resolved completely within a few weeks. Follow-up Doppler ultrasonography confirmed normal blood flow at the surgical site with no complications.

Figure 3. Intraoperative image of digital artery aneurysm

Figure 4. Intraoperative excision material

DISCUSSION

Common digital artery aneurysms are among the rare vascular pathologies of the hand, with only a limited number of cases reported in the literature [1]. Aneurysms are often associated with trauma, arterial wall weakness, connective tissue diseases, or vasculitis. However, in this case, there was no history of trauma, systemic disease, or vascular risk factors, making it a more intriguing and rarer example in the literature [5].

The main symptoms observed in our patient included pain, a pulsatile mass, and sensory disturbances in the fingers [5,8]. These symptoms may be related to the local mechanical effect of the aneurysm and turbulence in arterial flow, or they may result from compression of neurovascular structures. Non-invasive imaging modalities such as Doppler ultrasonography and magnetic resonance angiography (MRA) play a critical role in confirming the diagnosis and planning surgical interventions [6]. MRA was preferred over CT due to better soft tissue resolution in small vessel evaluation and the absence of radiation exposure, which is critical for this anatomical region. At the same time, MRI was preferred because the suspicion of common digital nerve neuroma continued. As demonstrated in this case, these methods are ideal for assessing anatomical details and hemodynamic changes.

Surgical treatment is an effective approach to alleviate symptoms and prevent potential complications. The surgical excision of the aneurysm and end-to-end anastomosis provided both symptomatic relief and preservation of anatomical integrity. Surgical options include resection with anastomosis (optimal for patency preservation) or ligation (faster but risks distal ischemia) [9]. Endovascular techniques, while minimally invasive, are impractical for small-caliber digital arteries due to device limitations. This case highlights that early surgical intervention yields favorable outcomes, particularly in symptomatic patients. The complete resolution of the patient's pain and numbness postoperatively underscores the efficacy of the treatment.

Although conservative approaches have been suggested for such aneurysms in the literature, surgical treatment is frequently preferred in symptomatic cases. Furthermore, the use of microsurgical techniques during surgery is essential to minimize the risk of complications and achieve optimal outcomes. The absence of postoperative complications in this case supports the success of the chosen surgical method [10].

This case provides valuable guidance for clinicians in the diagnosis and treatment of common digital artery aneurysms. Early diagnosis and intervention are crucial, particularly given the increased risk of complications with delayed treatment. This report offers significant insights into the clinical and surgical management of this rare pathology, contributing to the limited data available in the literature.

CONCLUSION

This case demonstrates that, despite their rarity, common digital artery aneurysms can be successfully treated with accurate diagnosis and appropriate management. In our patient, surgical treatment through aneurysm excision and end-to-end anastomosis resulted in the complete resolution of symptoms and improved the patient's quality of life. Early diagnosis and a multidisciplinary approach are critical in managing such rare vascular pathologies. This case serves as a valuable example to guide clinicians, enhancing understanding and management strategies for this uncommon condition.

Patient Consent for Publication: Informed consent was obtained, and procedures followed institutional ethical standards

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REFERENCES

1. Jebson PJ, Adams BD. Digital artery aneurysms: a case report and review of the literature. J Hand Surg Am. 1996;21:815-9.
2. Koman LA, Barnes DA. Aneurysms of the digital arteries. Hand Clin. 1987;3:153-7.
3. Sheikh Z, Selvakumar S, Goon P. True aneurysm of the digital artery: a case report and systematic literature review. J Surg Case Rep. 2020;2020:rjz400.
4. Dellon AL. Diagnosis and treatment of peripheral nerve compression in the upper extremity. J Hand Ther. 2001;14:175-84.
5. Grossman JA, Posner MA. Aneurysms of the digital arteries: case report and review of the literature. J Hand Surg Am. 1997;22:331-5.
6. Seror J, Schvartzman P. Ultrasound and Doppler imaging of hand vascular pathologies. Clin Imaging. 2005;29:257-61.
7. Hobson RW, Wilson SE. Vascular imaging in extremity vascular disorders. In: Creager MA, Dzau VJ, Loscalzo J, eds. Vascular Medicine: A Companion to Braunwald's Heart Disease. 1st ed. Saunders; 2005.
8. Watson HK, Rogers WD. Surgical management of digital vascular disorders. Hand Clin. 1992;8:159-73.
9. Marzella L, Lazzerini A, De Vitis R. Surgical management of vascular malformations in the hand and wrist. J Hand Surg Eur Vol. 2025;50:1114-5.
10. Gelberman RH, Boyes JH. The treatment of arterial aneurysms of the hand. J Bone Joint Surg Am. 1978;60:96-9.