

A Man with Cyanotic Digits

Tess Wiskel, MD*
Jonathan Bass, MD†
Jeffrey Feden, MD*

*Brown University Warren Alpert Medical School, Department of Emergency Medicine, Providence, Rhode Island

†Brown University Warren Alpert Medical School, Department of Plastic and Reconstructive Surgery, Providence, Rhode Island

Section Editor: Rick A. McPheeters, DO

Submission history: Submitted December 18, 2016; Revision received February 7, 2017; Accepted February 23, 2017

Electronically published July 6, 2017

Full text available through open access at http://escholarship.org/uc/uciem_cpccem

DOI: 10.5811/cpcem.2017.2.33371

[Clin Pract Cases Emerg Med. 2017;1(3):262–264.]

CASE PRESENTATION

A 37-year-old right-handed male auto mechanic with a 40 pack-year smoking history presented to the emergency department with progressive digital pain, cyanosis and paresthesias to his right hand over the prior month. Physical exam revealed cyanosis of the second through fifth digits with sparing of the thumb, absent digital artery Doppler signals, and a diminished deep palmar arch signal (Image 1).

Conventional angiography of the hand revealed an

aneurysmal appearance of the palmar ulnar artery adjacent to the hook of the hamate, and abrupt truncations to the digital arteries consistent with hypothenar hammer syndrome (Image 2a). The patient returned two weeks later for surgical intervention with right ulnar artery reconstruction and ulnar nerve decompression (Image 2b). Following surgery, the cyanosis resolved and there was return of biphasic digital artery signals, normal capillary refill, motion, sensibility, and good wound healing.

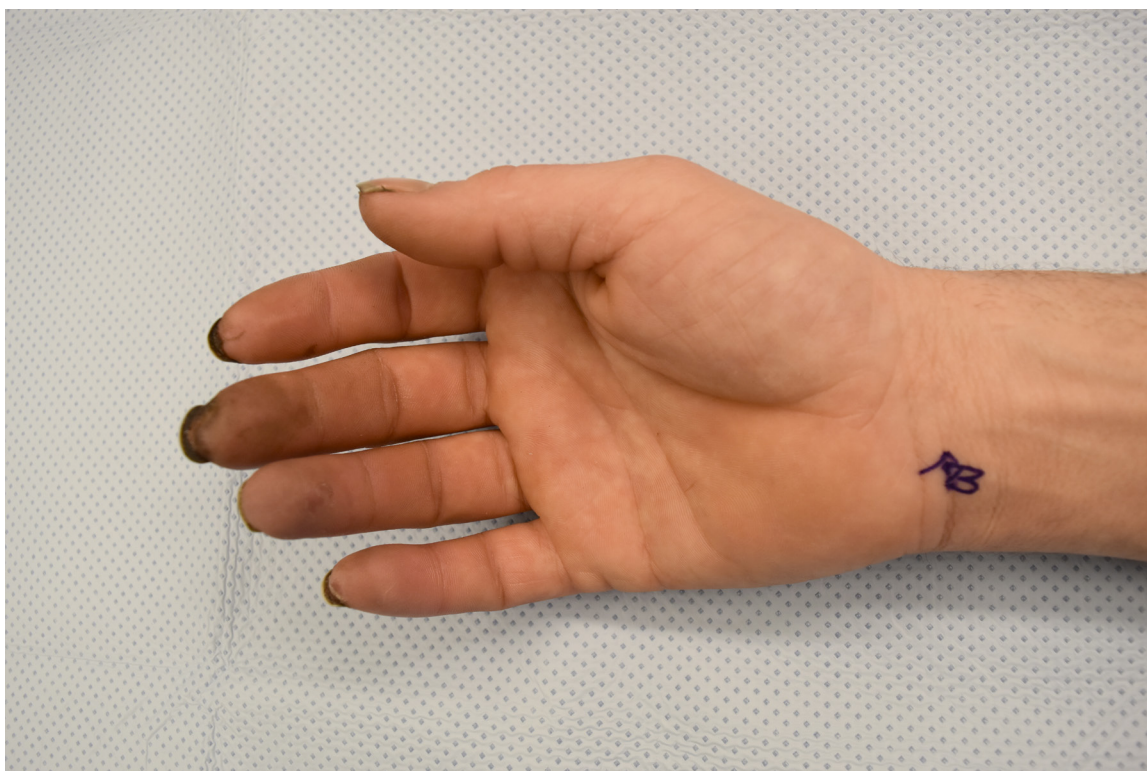


Image 1. Initial appearance of hand with cyanotic digits 2-5.

DISCUSSION

Hypothenar hammer syndrome is characterized by vascular insufficiency of the digits. It often results from repetitive blunt trauma to the hypothenar eminence causing ulnar artery damage, likely against the hook of the hamate, resulting in arterial thrombosis or aneurysm.^{1,2} This rare syndrome occurs most commonly in athletes and industrial workers.³ The differential diagnosis includes other causes of digital ischemia, such as Raynaud's disease, Buerger's disease, atherosclerotic and embolic disease, vasculitis, and thoracic outlet syndrome.² The gold standard for diagnosis is arterial imaging, preferably angiography, which demonstrates the classic corkscrew or aneurysmal appearance of the ulnar artery. Additionally, point of care ultrasound has been used to aid in diagnosis of this syndrome.⁴ Management ranges from conservative medical management to endovascular thrombolysis or surgical grafting, as in this case.²

CPC-EM Capsule

What do we already know about this clinical entity?

Hypothenar hammer syndrome is characterized by vascular insufficiency to the digits from repetitive blunt trauma to the hypothenar eminence, which results in arterial aneurysm or thrombosis.

What is the major impact of the image(s)?

These images illustrate the physical exam findings of digital ischemia, the underlying vascular pathology demonstrated by angiography and the intra-operative gross anatomic dissection.

How might this improve emergency medicine practice?

Hypothenar hammer syndrome is a rare condition not often encountered in emergency medicine practice or literature, and these images intend to increase awareness in clinical practice.

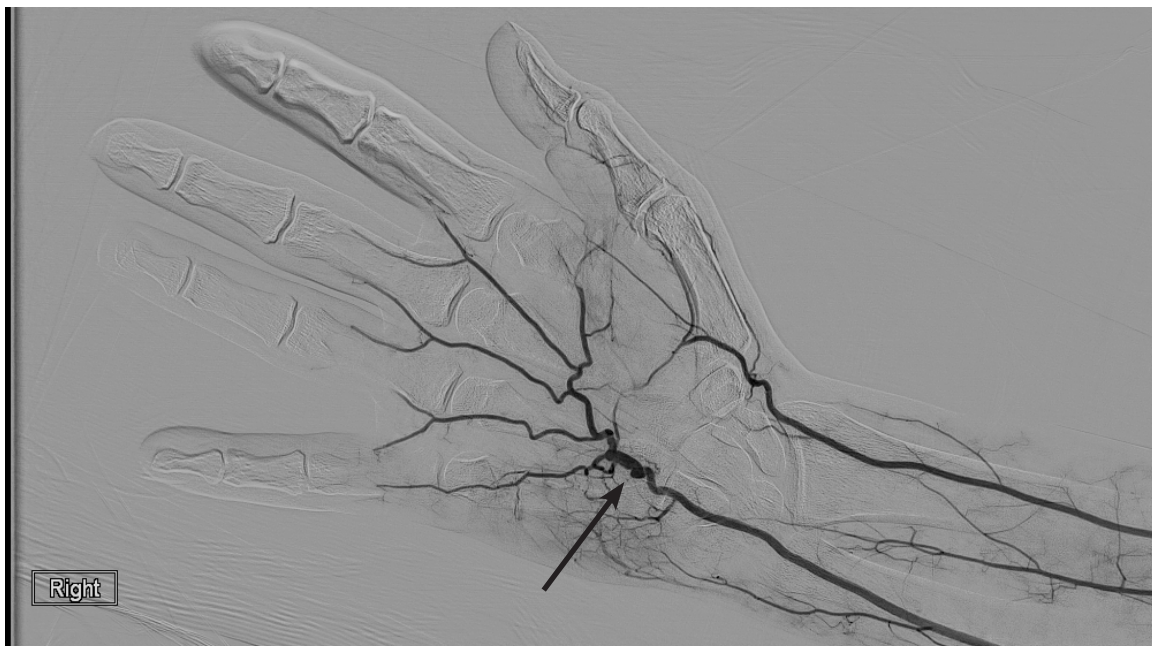


Image 2a. Angiogram demonstrating abnormal aneurysmal appearance of ulnar artery (arrow).

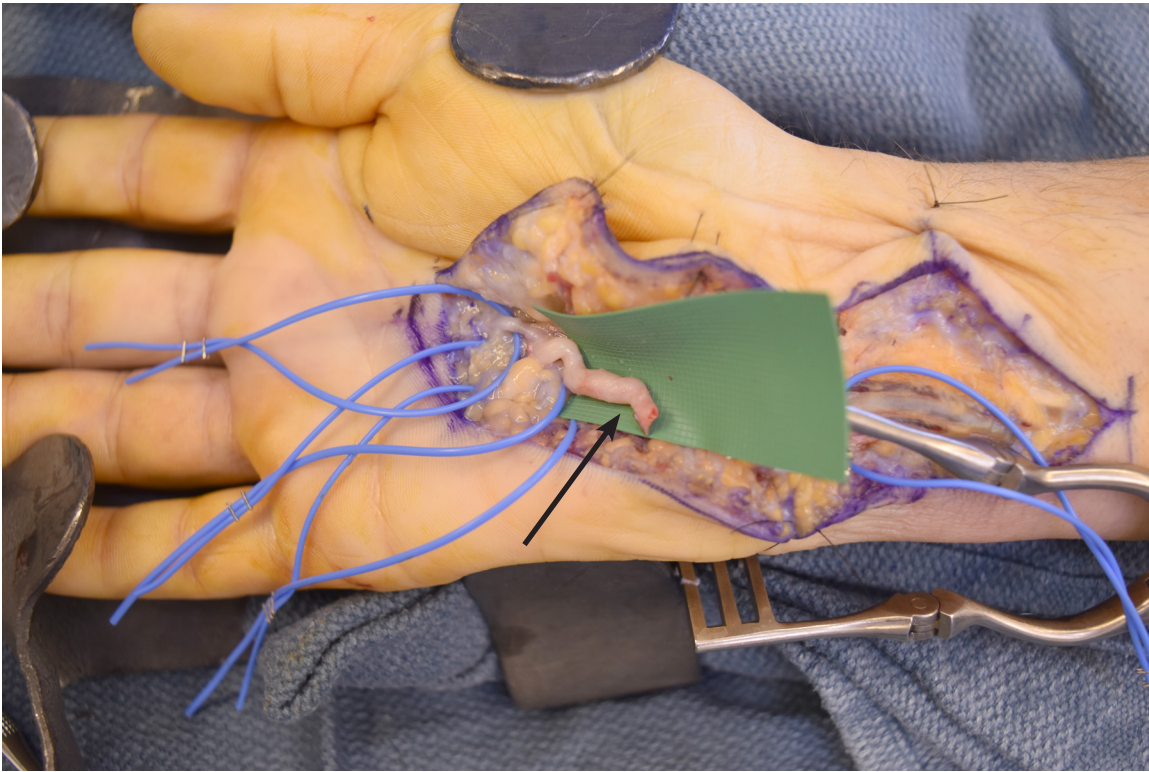


Image 2b. Intra-operative aneurysmal ulnar artery with corkscrew appearance (arrow).

Address for Correspondence: Tess Wiskel, MD, Brown University Warren Alpert Medical School, 593 Eddy Street Claverick 100, Providence, RI 02903. Email: Tess_wiskel@brown.edu.

Conflicts of Interest: By the *CPC-EM* article submission agreement, all authors are required to disclose all affiliations, funding sources and financial or management relationships that could be perceived as potential sources of bias. The authors disclosed none.

Copyright: © 2017 Wiskel et al. This is an open access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) License. See: <http://creativecommons.org/licenses/by/4.0/>

REFERENCES

1. Carter PM, Hollinshead PA, Desmond JS. Hypothenar hammer syndrome: case report and review. *J Emerg Med.* 2013;45(1):22-5.
2. Yuen JC, Wright E, Johnson LA, et al. Hypothenar hammer syndrome: an update with algorithms for diagnosis and treatment. *Ann Plast Surg.* 2011;67(4):429-38.
3. Rabczyński M, Kuźnik E, Guziński M, et al. Critical ischemia of the fingers in an auto mechanic as a result of occupational exposure. *Int J Occup Med Environ Health.* 2015;28(1):169-73.
4. Ken J, Khangura D, Stickles SP. Point-of-care ultrasound to identify distal ulnar artery thrombosis: case of hypothenar hammer syndrome. *West J Emerg Med.* 2015;16(4):565-7.