

Visual Diagnosis in Emergency Medicine



HYPOTHENAR HAMMER SYNDROME

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CASE REPORT

A 40-year-old male with medical history of tobacco abuse presented to our emergency department for evaluation of pain in his left ring and pinky fingers. Upon arrival the patient was in no acute distress, his vital signs were blood pressure of 125/80 mm Hg, heart rate of 63 beats per minute, respiratory rate of 19 breaths per minute, oral temperature of 97.8°F, and oxygen saturation 99% on room air. He reported that he hit his hand with a hammer 5 days prior. Since onset, the pain and bruising did not improve, and on the day of presentation the tips of his left index, middle, ring, and pinky fingers began appearing “black.” The pain was exacerbated by holding his hand above his head and was associated with decreased sensation in the left ring and pinky fingers. On examination, his left ring and pinky fingers were cyanotic-appearing (Figure 1), cool to touch, with intact but decreased sensation over the left ring and pinky fingers. Allen’s test revealed reperfusion of the palm after release of radial artery in 2 seconds, but reperfusion following ulnar release was 4–5 seconds. A three-view plain film of the hand showed no abnormality. Given the physical examination findings, most notably the cyanotic appearance of the skin in the distribution of the ulnar artery, a computed tomography angiogram of the left upper extremity was performed, which revealed tortuosity of the distal left ulnar artery (Figure 2) just beyond the hamate, as well as an old, incompletely united fracture

through the base of the left hamate hook. On further history, the patient was a self-proclaimed “jack of all trades,” who had been doing construction work his entire life, resulting in repeated trauma to the ulnar aspect of his hand. The patient was ultimately diagnosed with hypothernar hammer syndrome (HHS).

DISCUSSION

HHS is a condition used to describe an aneurysm or thrombosis of the ulnar artery. It was first described in 1934 and



Figure 1. The patient’s left hand with ischemia noted to the distal digits, most pronounced at the pinky finger.



Figure 2. A computed tomography angiogram showing a tortuous ulnar artery.

subsequently named in 1970 (1). It is considered an occupational or recreational injury and is usually a result of a repetitive trauma to the hypothenar region (2). It is most commonly seen in males younger than 50 years of age and is common in athletes (especially in those practicing volleyball and karate) (3–5). HHS is one of the less common causes of symptomatic ischemia of the upper extremity. The ring finger is most frequently symptomatic, whereas the thumb is spared owing to its

radial blood supply (6). This is key in distinguishing HHS from other conditions, such as Raynaud phenomenon, scleroderma, Buerger disease, and vasculitis. If HHS is suspected, diagnostic imaging, such as angiography, can be used to confirm the diagnosis, which usually shows thrombosis or aneurysm of the distal ulnar artery (7,8). In general, treatment is guided by clinical symptoms, ranging from conservative management to revascularization (1). Our patient was started on a daily aspirin and ultimately treated with an ulnar sympathectomy.

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