

2023

Hypothenar Hammer syndrome presenting as critical limb ischemia in a 41-year-old Caucasian female; A case report

Gogo-ogute E. Ibodeng

Thomas Hospital Internal Medicine residency, 750 Morphy Avenue, Fairhope, Alabama, USA Zip code; 36532, gogo.ibodeng@infirmaryhealth.org

Omotunde Olagunju

University Hospitals Coventry and Warwickshire NHS trust, Clifford bridge road, Coventry, CV2 2DX, United Kingdom

Queendaleen Chukwurah

Thomas Hospital Internal Medicine residency, 750 Morphy Avenue, Fairhope, Alabama, USA Zip code; 36532

Michael Broadwell

Thomas Hospital Internal Medicine residency, 750 Morphy Avenue, Fairhope, Alabama, USA Zip code; 36532

Follow this and additional works at: <https://scholarlycommons.gbmc.org/jchimp>

Recommended Citation

Ibodeng, Gogo-ogute E.; Olagunju, Omotunde; Chukwurah, Queendaleen; and Broadwell, Michael (2023) "Hypothenar Hammer syndrome presenting as critical limb ischemia in a 41-year-old Caucasian female; A case report," *Journal of Community Hospital Internal Medicine Perspectives*: Vol. 13: Iss. 5, Article 23.

DOI: 10.55729/2000-9666.1230

Available at: <https://scholarlycommons.gbmc.org/jchimp/vol13/iss5/23>

This Case Report is brought to you for free and open access by the Journal at GBMC Healthcare Scholarly Commons. It has been accepted for inclusion in Journal of Community Hospital Internal Medicine Perspectives by an authorized editor of GBMC Healthcare Scholarly Commons. For more information, please contact GBMCcommons@gbmc.org.

Hypothenar Hammer Syndrome Presenting as Critical Limb Ischemia in a 41-year-Old Caucasian Female; A Case Report

Gogo-ogute Ibodeng^{a,*}, Omotunde Olagunju^b,
Queendaleen Chukwurah^a, Michael Broadwell^a

^a Thomas Hospital Internal Medicine Residency, 750 Morphy Avenue, Fairhope, AL, 36532, USA

^b University Hospitals Coventry and Warwickshire NHS Trust, Clifford Bridge Road, Coventry, CV2 2DX, United Kingdom

Abstract

Traumatic injuries to the hand are commonly encountered in the adult population. Arterial occlusion from digital emboli due to thrombosis is a less frequently observed etiology. An example is hypothenar hammer syndrome, which usually arises following a mechanical injury. We report a case of hypothenar hammer syndrome in a 41-year-old Caucasian female following a blunt injury from exercise. She presented to our facility with complaints of intermittent severe pain in her left hand with discoloration of her fourth and fifth digits. Her symptoms began following an intense upper body strength exercise session and recurred intermittently over the following four to six weeks. MRI of the left hand showed no bony fractures or soft tissue injury. She was commenced on aspirin and Xarelto and subsequently had an arteriogram revealing thrombosis in the distal left ulnar artery. She ultimately had surgical resection of the thrombosed artery with repair using a venous graft which led to the resolution of her symptoms. Xarelto was discontinued after surgery, but she remains on Aspirin.

Keywords: Trauma, Anticoagulation, Angiogram, Blunt-injury, Ischemia

1. Introduction

Traumatic injuries to the hand are commonly encountered in the adult population. Arterial occlusion from digital emboli due to thrombosis is a less frequently observed etiology. An example is hypothenar hammer syndrome, which usually arises following a mechanical injury. The ulnar artery is susceptible to mechanical injury along the hypothenar eminence as it exits the Guyon's canal and branches into the superficial and deep palmar arches. Here, we report a case of hypothenar hammer syndrome in a 41-year-old Caucasian female following a blunt injury from exercise.

2. Case presentation

A 41-year-old Caucasian female with a past medical history of gastroesophageal reflux disease,

hypertension, and a tobacco usage history presented to our facility with complaints of intermittent severe pain in her left hand with discoloration of her fourth and fifth digits. Her symptoms began approximately one week following an intense upper body strength exercise session (weight lifting exercises) and recurred intermittently over the following four to six weeks. She had not visited the gym nor had any intense exercise for about 5 years since her last pregnancy and delivery until the recent event which prompted her symptoms.

She was previously on hormonal contraceptives, but quit about 5 years prior to presentation and has no significant family history.

Physical examination findings were pertinent for moderate to severe tenderness in the palmar region of the left hand and diminished arterial flow in the left hand on Allen's test. She had no swelling, ulcers, or necrosis of her hands.

Received 27 February 2023; revised 26 May 2023; accepted 12 June 2023.
Available online 2 September 2023

* Corresponding author at: Thomas Hospital, Infirmary Health, 750 Morphy Avenue, Fairhope, 36532, Alabama, USA.
E-mail address: gogo.ibodeng@infirmaryhealth.org (G.-o. Ibodeng).

<https://doi.org/10.55729/2000-9666.1230>

2000-9666/© 2023 Greater Baltimore Medical Center. This is an open access article under the CC BY-NC license (<http://creativecommons.org/licenses/by-nc/4.0/>).

Her lab panel, auto-immune and thrombophilia workup were negative. Her cardiovascular workup, including an echocardiogram and a venous doppler ultrasound scan of the left upper extremity, was normal. MRI of the left hand showed no bony fractures or soft tissue injury. She was commenced on aspirin and Xarelto and subsequently had an arteriogram revealing thrombosis in the distal left ulnar artery. She then had surgical resection of the thrombosed artery with repair using a venous graft which led to the resolution of her symptoms. Xarelto was discontinued after surgery, but she remains on Aspirin.

INVESTIGATIONS	RESULTS
CBC	Normal
Cardiac panel	Negative
Rheumatology/Auto-immune workup	Normal
Hypercoagulable workup (Lupus anticoagulant, Factor V leiden Mutation, Cardiolipin Antibody etc)	Within normal limits
MRI Left hand	No fractures or soft tissue injury
Arteriogram	Distal ulnar artery thrombosis

3. Discussion

Hypothenar hand syndrome (HHS) occurs due to repeated traumatic events involving the hypothenar muscles. It may arise due to blunt or sharp injuries and is commonly reported in middle-aged males with fewer cases reported in females.¹ The pathophysiology is explained by ulnar artery thrombosis which leads to emboli in the digits.¹ It usually presents with color changes in the hand, paresthesia, and occasional progression to ulcerations/necrosis of the digits in advanced cases. Our patient presented with severe pain and discoloration of skin in the hypothenar region of the left hand which we believe are early signs of critical limb ischemia.

HHS is more prevalent in occupations such as machinists, butchers, and heavy tool operators. It is also common in athletes, cyclists, and heavyweight lifters. Repetitive chronic trauma in this group of patients is believed to be directly responsible for HHS however a single blunt injury may be responsible in some cases.² Our patient had previously visited the gym after a long absence and engaged in some weight-lifting exercises which, we believe may have elicited a blunt injury to her left ulnar artery. This case highlights the need for a high

index of suspicion in cases of isolated blunt traumatic/non-traumatic injuries as a possible etiology of HHS. The prevalence of HHS amongst workers and the general population remains low at 1.1–1.3% and 1% respectively²

Other etiologies to be considered include Raynaud's disease, Buerger's disease, vasculitis, carpal tunnel syndrome, and venous thrombosis. Color-coded duplex sonography should be the first line of investigation in suspected cases of HHS, followed by arteriography/angiogram to lead to a definitive diagnosis.^{2,3}

The management of HHS involves both conservative and pharmacologic therapies. Conservative recommendations would include smoking cessation, cold avoidance, and the use of protective equipment for the hands. Pharmacologic therapies to be utilized would include aspirin, and calcium channel blockers. The use of anticoagulants in the management of HHS remains controversial. However, ulnar artery resection of the thrombosed segment with a reconstruction of the artery or artery bypass grafting should be performed if conservative measures fail or in advanced cases to prevent long-term complications.³

Early diagnosis and prompt intervention are essential to limit complications of ulnar artery thrombosis in order to obtain better outcomes of sustained blood flow to the digits and other structures of the hand.

4. Conclusion

HHS can arise from blunt traumatic injuries and should be diagnosed with an arteriogram. Early diagnosis and prompt intervention are essential for better outcomes of sustained blood flow to the digits and other structures of the hand.

Conflict of interests

No conflict of interest to declare.

References

- Şahin MŞ, Özyüreköglü T, Çakmak G. Hypothenar hammer syndrome: a case series and literature review. *Jt Dis Related Surg.* 2015;26(1):11–15.
- Moradi A, Hajian A. Presentation of the hypothenar hammer syndrome as a low incidence aneurysmal disorder of the ulnar artery. *Int J Surg Case Rep.* 2021 Aug 1;85, 106200.
- St-Pierre F, Shepherd RF, Bartlett MA. Diagnosis of hypothenar hammer syndrome in a patient with acute ulnar artery occlusion. *BMJ Case Rep CP.* 2019 Sep 1;12(9), e230963.