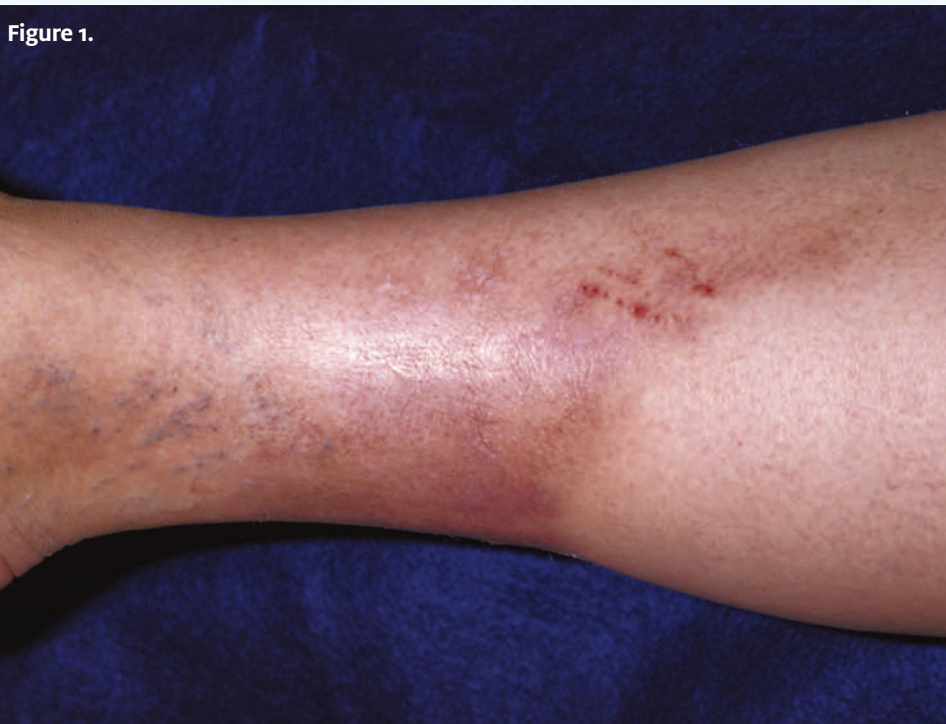




In each issue, *JUCM* will challenge your diagnostic acumen with a glimpse of x-rays, electrocardiograms, and photographs of conditions that real urgent care patients have presented with.

If you would like to submit a case for consideration, please e-mail the relevant materials and presenting information to editor@jujm.com.

A 46-Year-Old Woman with a Painful, Erythematous Plaque on Her leg



Case

The patient is a 46-year-old female who presents with a painful, erythematous, indurated plaque on her lower leg. She reports that it developed over the past month. At first she attributed the pain to “a bump” of unknown origin, but as the area of red skin expanded she became concerned, as she reports a history of deep-vein thrombosis.

View the image taken and consider what your diagnosis and next steps would be. Resolution of the case is described on the next page.

THE RESOLUTION

**Differential Diagnosis**

- Lipodermatosclerosis
- Cellulitis
- Erythema nodosum
- Necrobiosis lipoidica

Diagnosis

This patient was diagnosed with lipodermatosclerosis, also known as lipomembranous panniculitis, sclerosing panniculitis, venous liposclerosis, and hypodermis sclerodermiformis. This is an inflammation of subcutaneous fat, usually on the lower extremities, secondary to chronic venous insufficiency.

Learnings/What to Look for

- Lipodermatosclerosis is classified as acute if present for less than 1 month and appears as a localized, exquisitely tender, erythematous, indurated plaque

- Subacute lipodermatosclerosis (present for 1 month to 1 year) and chronic lipodermatosclerosis (more than 1 year) appear as a nontender, hyperpigmented, sclerotic plaque which can contain venous ulcers
- Advanced lipodermatosclerosis on the lower leg has the appearance of an "inverted champagne bottle," whereby the proximal leg is edematous from chronic venous stasis while the lower portion of the leg is atrophied and sclerotic from fat necrosis (or lipodystrophy) and scarred from chronic ulcerations

Pearls for Urgent Care Management

- First-line treatment for lipodermatosclerosis is compression therapy to improve venous insufficiency
- Anticlotting medications, weight loss in obese patients, and elevation are helpful for venous insufficiency in general
- Surgery may be required for persistent cases

Acknowledgment: Images and case presented by VisualDx (www.VisualDx.com/JUCM).



A 67-Year-Old on Dialysis with Syncope

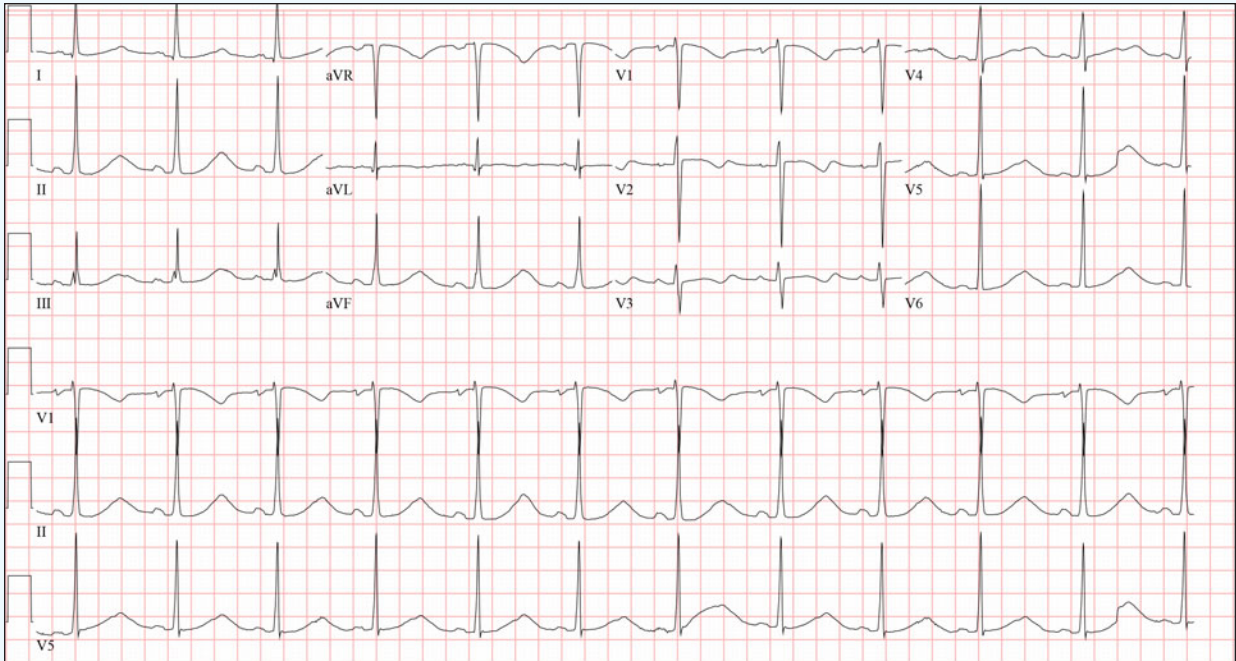


Figure 1.

History: A 67-year-old female presents to urgent care complaining of one episode of syncope earlier in the day. No seizure-like activity was noted by the family and she returned to baseline within a minute. She has a past medical history of end-stage renal disease on scheduled hemodialysis, hypertension, diabetes, coronary artery disease, and chronic nausea. Medications include aspirin, insulin, amlodipine, hydralazine, ondansetron, metoclopramide, and amiodarone.

View the ECG taken and consider what your diagnosis and next steps would be.

(Case presented by Jonathan Giordano, DO, MS, MEd, The University of Texas Health Science Center at Houston/McGovern Medical School.)

THE RESOLUTION

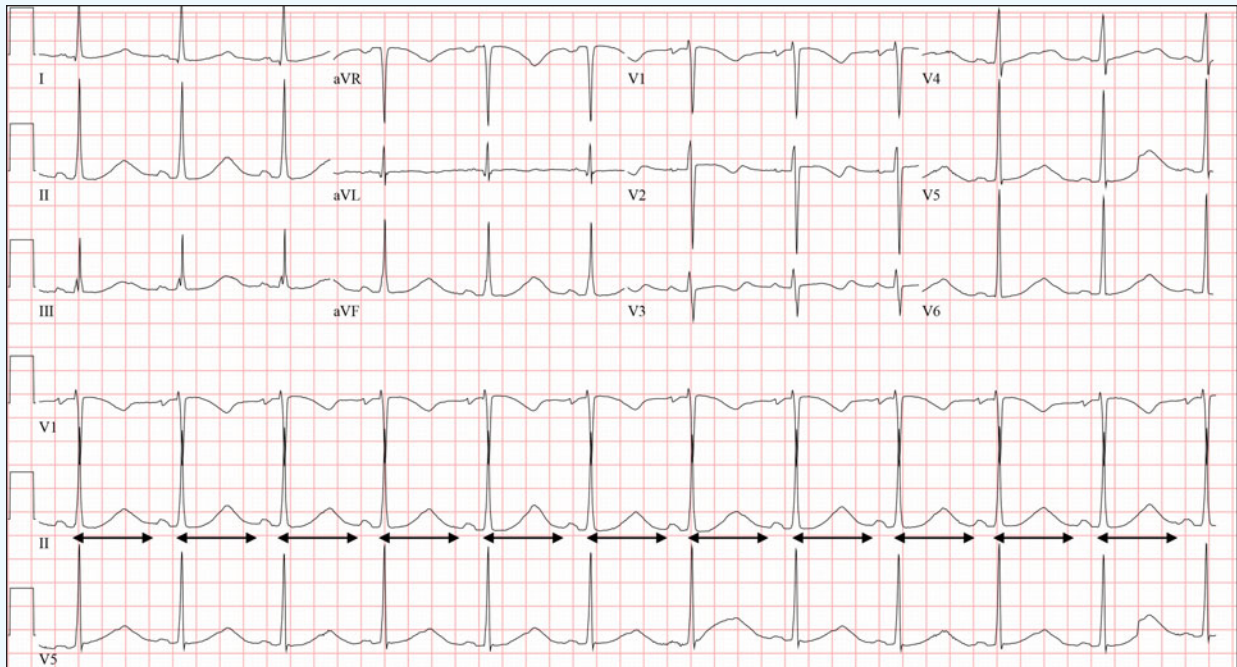


Figure 2. The QT interval, denoted by arrows, is over 600 msec.

Differential Diagnosis

- ST-Elevation MI (STEMI)
- Brugada pattern
- Diffuse subendocardial ischemia
- Hyperkalemia
- Long QT

Diagnosis

Long QT. The ECG reveals a regular, narrow-complex, sinus rhythm at a rate of 72 beats per minute. There is a normal axis and normal PR and QRS intervals. The QT interval is prolonged. There are no signs of acute ischemia. This ECG is consistent with neither ST-elevation MI nor diffuse subendocardial ischemia. There are no findings of hyperkalemia (ie, peaked T waves, widened QRS), and the ECG does not demonstrate the Brugada pattern (ie, coved ST-segment in lead V1 >2 mm or >1 mm in V1-V3 followed by a negative T-wave).

Measuring the QT interval

The QT interval is measured from the start of the Q wave through the end of the T wave (or U wave if present) and represents the time from ventricular depolarization through ventricular repolarization.¹ The QT interval is inversely proportional to the heart rate—meaning the QT interval will shorten with faster heart rates, and lengthen at slower heart rates.

In order to standardize for heart rate, multiple formulas are

available for a corrected QT interval (QTc), including the Bazett, Framingham, and Fridericia, among others.

A normal QTc is typically described as less than 440 msec in men, and 460 msec in women. The easiest way to remember risk associated with prolonged QT is an interval greater than 500 msec, which is associated with an increased risk of ventricular dysrhythmias, particularly torsades de pointes (TdP), a type of polymorphic ventricular tachycardia.

Causes of prolonged QT

There are many causes of prolonged QT intervals, including:²

- hypokalemia
- hypomagnesemia
- hypocalcemia
- hypothermia
- congenital long QT syndrome
- myocardial ischemia
- elevated intracranial pressure
- medications

Management

Management is focused on the prevention of syncope and sudden cardiac death.³ Emergency treatment typically involves electrolyte repletion/treating the underlying cause and removal of the offending agent if medication- or drug-induced. Overdrive pacing is also a treatment option as the QT interval is in-

THE RESOLUTION

versely proportional to the heart rate (meaning the paced tachycardia is protective in patients with long QT).⁴

Syncope in the setting of a long QT should be viewed as secondary to a ventricular dysrhythmia until proven otherwise; patients should be admitted for telemetry monitoring.

The patient in the clinical scenario described here was determined to have a prolonged QT interval secondary to multiple medications she was taking—ondansetron, metoclopramide, and amiodarone.

Learnings/What to Look for

- A prolonged QT interval is associated with an increased risk of ventricular dysrhythmias, particularly TdP
- A prolonged QT can be caused by many different etiologies
- History and medication list review is imperative in patients with long QT
- Patients with syncope in the setting of a long QT should be admitted for telemetry monitoring and treatment of the underlying cause

Pearls for Urgent Care Management

- In patients with syncope, obtain an ECG and look specifically for a QTc >500ms, Wolff-Parkinson-White (WPW), Brugada, hypertrophic cardiomyopathy, ischemia, or findings associated with electrolyte abnormalities
- Patients with long QT should be placed on telemetry and monitored for ventricular dysrhythmias
- Identify and initiate treatment of the underlying cause
- Patients with symptoms which could be attributed to a prolonged QT interval (eg, syncope) should be transferred to a facility capable of providing telemetry monitoring

References

1. Postema P, Wilde A. The measurement of the QT interval. *Curr Cardiol Rev.* 2014;10(3):287-294.
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3. Shah SR, Park K, Alweis R. Long QT syndrome: a comprehensive review of the literature and current evidence. *Curr Probl Cardiol.* 2019;44(3):92-106.
4. Charlton NP, Lawrence DT, Brady WJ, et al. Termination of drug-induced torsades de pointes with overdrive pacing. *Am J Emerg Med.* 2010;28(1):95-102.

Acknowledgment: JUCM appreciates the assistance of ECG Stampede (www.ecgstampede.com) in sourcing content for electrocardiogram-based cases for Insights in Images each month.

ECG  STAMPEDE



A 36-Year-Old Man with Wrist Pain After a Traumatic Impact

Figure 1.



Figure 2.



Case

The patient is a 36-year-old man who presents with wrist pain after “hitting it on something.” Further history reveals that he punched a wall in a fit of anger and felt sharp pain immediately. He has no past medical history and takes no medications.

View the images taken and consider what your diagnosis and next steps would be. Resolution of the case is described on the next page.

THE RESOLUTION

Figure 1.



Figure 2.

**Differential Diagnosis**

- Capitate fracture
- Coronal fracture of the body of the hamate with dorsal metacarpal dislocation
- Pisiform fracture
- Triquetrum fracture

Diagnosis

The AP view of this right hand series shows a displaced coronal fracture of the hamate located on the dorsal aspect of the distal carpal row. The oblique view reveals dorsal metacarpal dislocation of the 5th metacarpal. These views also show an overlap of the 4th and 5th metacarpals with the hamate which supports the dislocation component of this injury.

The correct diagnosis is a coronal fracture of the body of the hamate with dorsal metacarpal dislocation of the 5th and likely also the 4th metacarpal—an uncommon injury that accounts for <2% of all carpal bone fractures.

Learnings/What to Look for

- The typical mechanism of injury for this diagnosis is direct impact against a hard surface with a clenched fist in ulnar deviation and palmar flexion (flexion produces metacarpal dislocations)
- The hamate fracture may be associated with 4th or 5th metacarpal base fractures or dislocations which are present in approximately 15% of cases
- Hamatometacarpal fracture-dislocation may be missed at initial presentation, in up to 71% in some studies
- Routine radiographic evaluation with only anteroposterior and lateral views of the wrist may not reveal the lesion, being only visible with an oblique view of 30° of forearm pronation

Pearls for Urgent Care Management

- A high-resolution CT scan of the wrist is considered mandatory to completely evaluate these injuries and determine appropriate treatment
- Open reduction and internal fixation is likely to be required

Acknowledgment: Images and case presented by Experity Teleradiology (www.experityhealth.com/teleradiology).