



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@jucm.com.

A 41-Year-Old with Dorsal Wrist Pain After a Slip-and-Fall



Case

A 41-year-old male presents to urgent care following a slip-and-fall on a wet swimming pool surface. He complains of dorsal/posterior wrist pain. On exam you find soft tissue swelling of the posterior wrist.

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**

- Avulsion fracture, dorsal wrist
- Wrist sprain
- Ulnar styloid fracture
- Scaphoid fracture

Diagnosis

This patient was diagnosed with an avulsion fracture of the dorsal wrist (typical location is a dorsal avulsion fracture of the triquetrum). The triquetrum may be fractured by means of impingement from the ulnar styloid, shear forces, or avulsion from strong ligamentous attachments. It is the second most common carpal bone fracture, after the scaphoid.

Learnings/What to Look for

- There are three fracture patterns often observed: dorsal avulsion fractures (93% of fractures), body fractures, and palmar avulsion fractures
- The findings on lateral view are called “the pooping duck” sign

Pearls for Urgent Care Management

- Treatment may be nonoperative or operative
- Indications for nonoperative treatment (immobilization for 4 to 6 weeks) include dorsal cortical fractures without evidence of instability, nondisplaced body fractures, and palmar cortical fractures without evidence of instability
- Indications for operative treatment (open reduction and internal fixation) include dorsal cortical fractures with evidence of instability, displaced body fractures, and palmar cortical fractures with evidence of instability

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



A 4-Week-Old Girl with a New Rash on Her Back



Case

A mother brought her 4-week-old daughter to the doctor concerned about a vesicular rash that developed on the girl's back within the last day. On examination, tiny vesicles in a primarily truncal distribution were seen. The patient had no systemic symptoms and appeared well.

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**

- Neonatal varicella
- Milia
- Neonatal pustular melanosis
- Miliaria crystallina
- Miliaria rubra

Diagnosis

This patient was diagnosed with miliaria crystallina, also referred to as sudamina. This condition is thought to result from increased hydration compounded by humidity and sweating and occurs due to occlusion of the eccrine ducts at the superficial epidermis or stratum corneum. When the occlusion of the sweat duct is deeper in the epidermis, miliaria rubra (prickly heat), miliaria pustulosa, or miliaria profunda (skin-colored papules with possible associated hypohidrosis or anhidrosis) may result. It may occur at any age but is common in neonates and infants, probably secondary to the immaturity and weakness of the duct structure.

Learnings/What to Look for

- While similar to miliaria rubra (heat rash), which is characterized by small erythematous papules, miliaria crystallina presents as 1- to 2-mm fragile vesicles *without an erythematous base*
- Both types of miliaria are benign and the lesions are asymptomatic, with a predilection for the head, neck, and upper torso. These rashes affect up to 40% of infants and typically present in the first month of life
- Predisposing factors include occlusion (excessive clothing or swaddling) and exposure to warm and humid environmental conditions

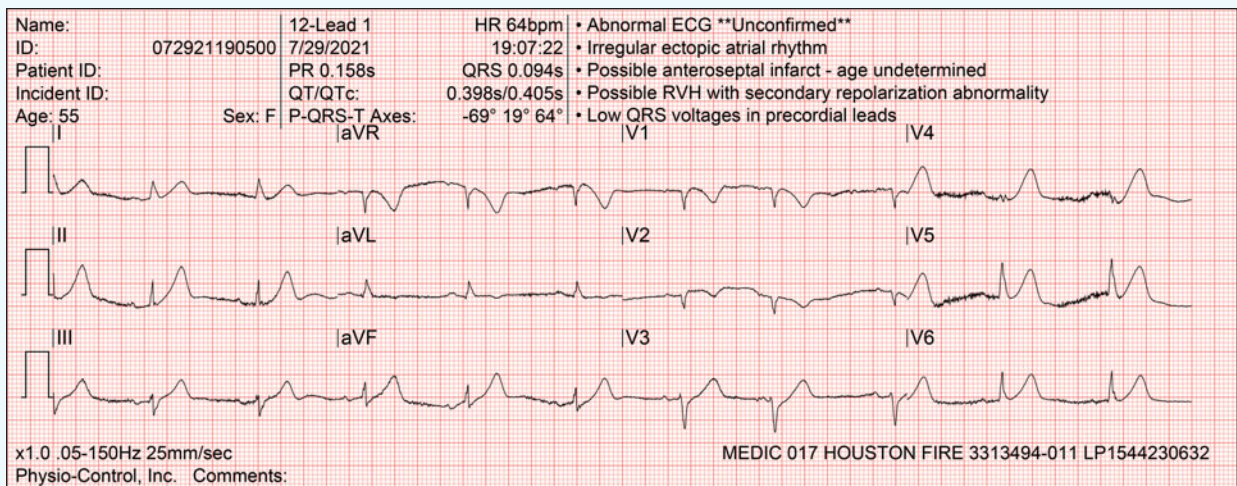
Pearls for Urgent Care Management

- Miliaria crystallina is self-limiting
- Counsel the caregiver to avoid exposure to heat and occlusive clothing in warmer weather
- Avoid ointments and creams that can further occlude sweat glands

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



A 55-Year-Old Female with 1 Hour of Chest Pain



ST measurements are measured at the J point and are expressed in mm.											
I	II	III	aVR	aVL	aVF	v1	V2	V3	V4	V5	V8
0.05	0.05	0.00	-0.06	0.03	0.02	-0.01	-0.15	-0.82	-0.32	-0.16	-0.25

To ensure printer accuracy, confirm that the calibration markers are 10mm high and the grid squares are 5mm wide.

Figure 1.

A 55-year-old female presents to urgent care with chest pain that started 1 hour prior. On exam, she appears diaphoretic with normal vital signs.

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

(Case presented by Benjamin Cooper, MD, McGovern Medical School at UTHealth Houston Department of Emergency Medicine.)

THE RESOLUTION

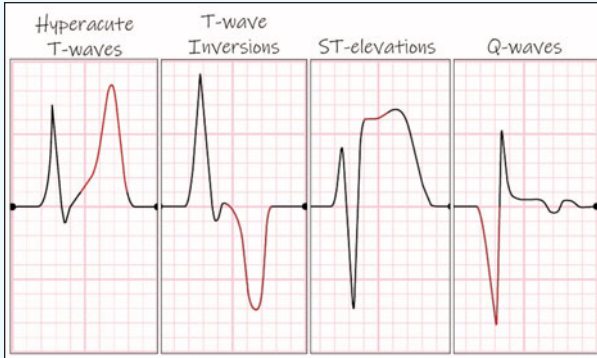


Figure 2. Signs of ischemia.

Differential Diagnosis

- Hyperkalemia
- Myocardial infarction with hyperacute T waves
- Myocarditis
- Hypokalemia
- Brugada syndrome

Diagnosis

This patient was diagnosed with myocardial infarction with hyperacute T waves.

ECG Analysis

This ECG shows sinus rhythm with a rate of 66 bpm and large T

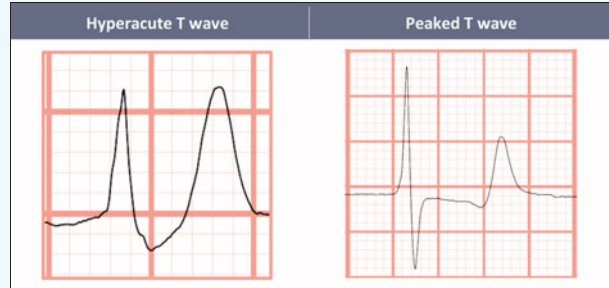


Figure 3. Hyperacute vs peaked T waves.

waves in the inferolateral leads. The T waves in the inferolateral leads are relatively large, broad-based, and symmetric. While the T waves may not initially appear large in terms of absolute amplitude, when compared with the amplitude of the QRS complex they are as large (leads V5 and V6) or larger (leads V4 and II).

Electrocardiographic findings of ischemia include hyperacute T waves, T wave inversions, ST-changes, and Q waves (Figure 2).

Hyperacute T waves are one of the earliest electrocardiographic findings in acute ischemia.¹ They tend to occur within the first 30 minutes of acute occlusion and precede ST-segment elevation.² They are more easily identified when a previous ECG is available for comparison.

Note that hyperacute T waves may not be large in terms of absolute amplitude, but are considered hyperacute if their amplitude exceeds that of the QRS complex (Figure 2). Additionally,

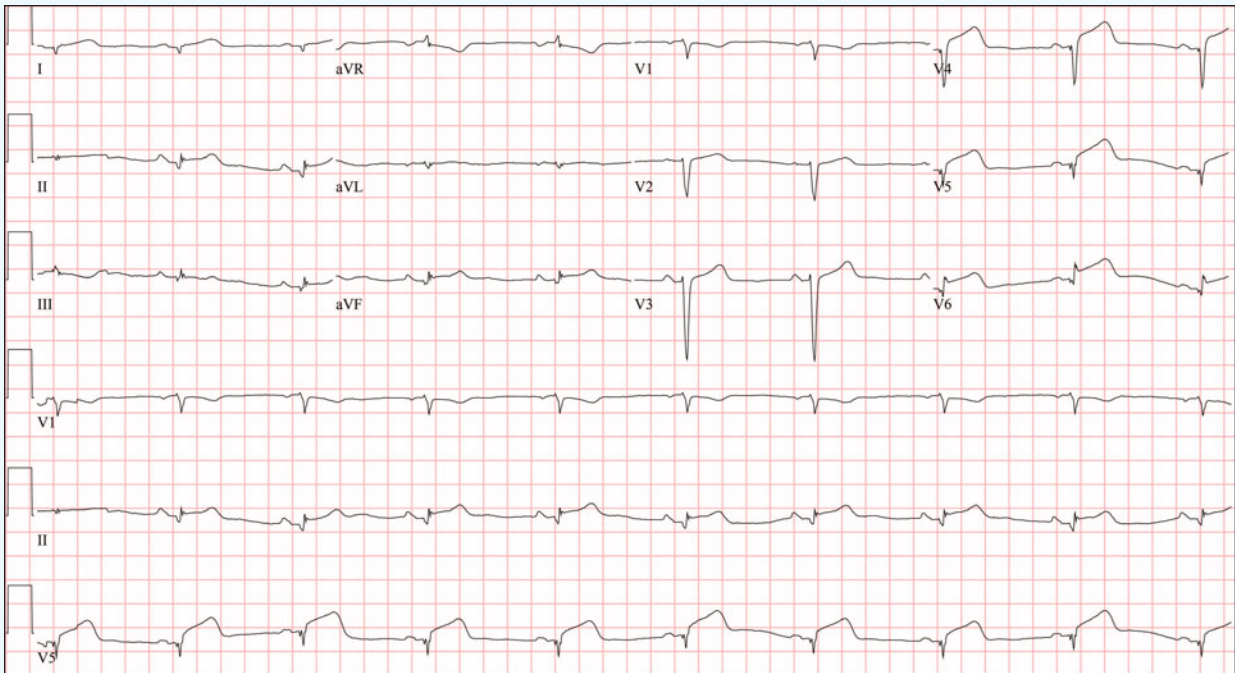


Figure 4. Repeat ECG.

THE RESOLUTION

when preceding T wave inversions are present, hyperacute T waves may become upright and appear normal—a phenomenon referred to as pseudonormalization.^{1,3}

While other differential considerations exist, it is most important to differentiate hyperacute T waves from peaked T waves of hyperkalemia. The peaked T waves of hyperkalemia tend to be more narrow-based with a pointed peak, as opposed to the broad base and rounded peak of hyperacute T waves (**Figure 3**).

While myocarditis can cause hyperacute T waves, they do not tend to have a focal distribution. Hypokalemia can cause a prolonged QT interval by way of delaying repolarization. Brugada syndrome is a sodium channelopathy with a characteristic ECG pattern (pseudo-right bundle branch block pattern with down sloping ST segment elevation in V1 and/or V2) and an increased risk of sudden cardiac death, in the absence of gross structural heart disease.

The patient in this case had a repeat ECG that revealed evolving ST-segment elevation in the lateral precordial leads (**Figure 4**). She was taken for emergent catheterization, which revealed a mid-left anterior descending artery occlusion.

Learnings/What to Look for

- Hyperacute T waves are early electrocardiographic findings of acute ischemia
- Look for large, broad-based, and symmetric T waves which exceed the amplitude of the QRS complex

Pearls for Initial Management

- When hyperacute T waves are encountered, immediate transfer to a percutaneous coronary intervention-capable facility is indicated
- Serial ECGs can help secure the diagnosis of myocardial infarction; however, transfer should not be delayed

References

1. Goldberger AL. Hyperacute T waves revisited. *Am Heart J.* 1982;104(4):888-890.
2. Graham GK, Laforet EG. An electrocardiographic and morphologic study of changes following ligation of the left coronary artery in human beings: a report of two cases. *Am Heart J.* 1952;43(1):42-52.
3. de Zwaan C, Bär FW, Wellens HJ. Characteristic electrocardiographic pattern indicating a critical stenosis high in left anterior descending coronary artery in patients admitted because of impending myocardial infarction. *Am Heart J.* 1982;103(4):730-736.

ECG  STAMPEDE

VisualDx is your trusted second opinion.

Features include:

- ✓ Fast access to insights from the best specialists
- ✓ Handle complex cases directly
- ✓ Engage patients with our handouts

20% OFF
for JUCM readers
visualdx.com/jucm