CLINICAL CHALLENGE: CASE 1

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 Knee Pain After Playing Basketball

Figure 1.

A 41-year-old male presents with knee pain after playing basketball in his driveway with his teenage son. He reports that he had sudden pain and heard a "pop" as he landed after jumping. He is unable to fully extend his leg.

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

THE RESOLUTION

Figure 2.

Differential Diagnosis

- Avulsion fracture
- Patellar fracture
- Patellar tendon rupture
- Patellar tendonitis

Diagnosis

This patient was diagnosed with a rupture of the patellar tendon. The x-ray shows the high position of the patella (patella alta) and thickened, indistinct patellar tendon soft tissues and infrapatellar fat stranding.

Learnings/What to Look for

- Patellar tendon rupture occurs almost exclusively with trauma at either the patellar or tibial insertion of the patellar tendon and is often associated with a small avulsion fracture
- Risk factors include chronic microtrauma (tendinopathy—"jumper's knee"); prior therapeutic intervention such as direct injection of steroids or previous repair of the anterior cruciate ligament; and many chronic systemic illnesses

Pearls for Urgent Care Management

- Nonoperative treatment for partial tears with intact extensor mechanism is immobilization in full extension for 6 weeks with weightbearing and rehabilitation
- Complete patellar tendon rupture will require an operative approach

Acknowledgement: Images and case provided by Experity Teleradiology (www.experityhealth.com/teleradiology).

A 59-Year-Old with a Painful Finger Skin Lesion


Figure 1.

A 59-year-old woman presents with a painful skin lesion near her fingernail which has developed over the past week. She reports a history of advanced non-small-cell lung cancer, for which she was recently started on erlotinib.

On examination you observe a glistening, hemorrhagic papule at the lateral nail fold with surrounding erythema and edema. The patient denies trauma or exposure to skin irritants.

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

Figure 2.

Differential Diagnosis

- Cutaneous metastases
- Drug-induced paronychia
- Felon
- Cellulitis

Diagnosis

This patient was diagnosed with drug-induced paronychia. Acute paronychia occurs rapidly and is associated with redness, pain, and, in the case of infection, purulent drainage. Chronic paronychia lasts for more than 6 weeks and is associated with erythema, loss of the cuticle, and often nail dystrophy.

Learnings and What to Look for

- Paronychia is inflammation of the nail folds
- Generally, acute paronychia is due to infectious etiologies, while chronic paronychia is typically due to irritants
- Drug-induced paronychia correlates with the introduction of the drug. Potential culprits include retinoids, lamivudine, cyclosporine, indinavir, azidothymidine (AZT), cephalexin, sulfonamides, cetuximab, gefitinib, fluorouracil (5FU), methotrexate, vandetanib, capecitabine, doxorubicin, and docetaxel

Pearls for Urgent Care Management

- Drug-induced paronychia typically resolves once the medication is discontinued
- Patients may soak the infected finger(s) in warm water at least 15 minutes daily, and dry the area thoroughly after
- Infectious paronychia can be treated with incision and drainage and/or topical antibiotics
- Chronic paronychia may be treated with topical steroids

Acknowledgment: Image and case presented by VisualDx (www.VisualDx.com/jucm).

CLINICAL CHALLENGE: CASE 3

A 30-Year-Old Male with Chest and Leg Pain—and a History of Polysubstance Use

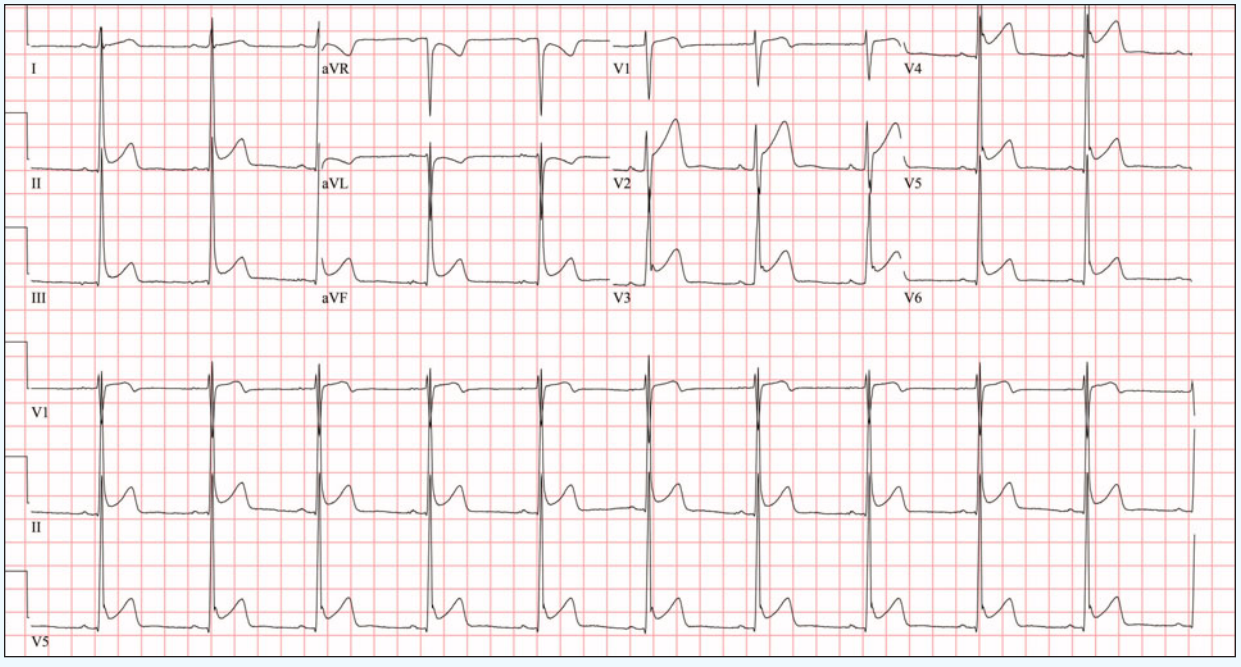

Figure 1. Initial ECG

A 30-year-old male with history of polysubstance use presents after a motor vehicle collision. He reports chest and leg pain, and denies nausea, vomiting, or shortness of breath. He has no known cardiac history.

View the 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 Catie Reynolds, MD, McGovern Medical School at UTHealth Houston, Department of Emergency Medicine.)

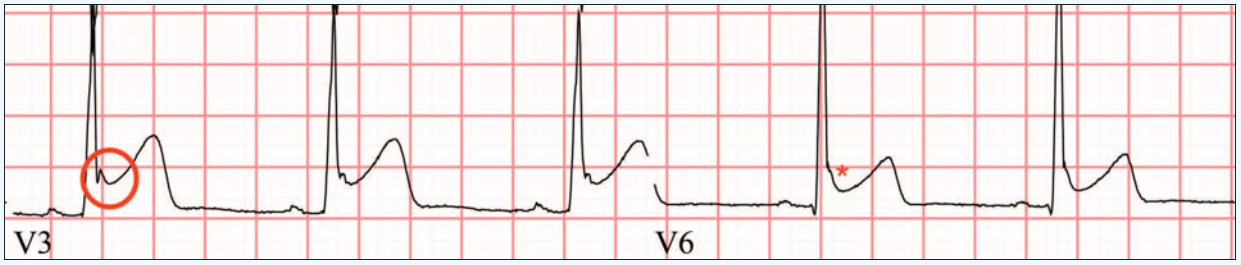

Figure 2: Blown-up image of V3 and V6. The circle shows the J point notching in V3. The asterisks (*) demonstrates slurring of the ST segment in V6.

Differential Diagnosis

- Benign early repolarization
- Hypothermia
- Acute pericarditis
- ST-elevation Myocardial Infarction (STEMI)
- Brugada syndrome

Diagnosis

Benign early repolarization. The ECG reveals a normal sinus rhythm with a rate of 60 beats per minute. There is diffuse, concave-up ST-segment elevation particularly in precordial (V2-6) and limb leads (II, III, aVF), without reciprocal changes. There is J-point notching and slurring of the ST segment, particularly in the precordial leads. Commonly referred to as "benign" early repolarization, or the "J wave pattern," this diagnosis features diffuse ST elevations that are most pronounced in V2-V5, with notching or slurring at the J-point (**Figure 2**), and an ST elevation-to-T wave height ratio ‹0.25 in V6 (**Figure 3**). This ECG diagnosis also characteristically has concordant T waves and lacks reciprocal ST depressions.[1]

Differentiating from other conditions requires a clinician to look at the clinical presentation, additional findings on the ECG, and previous ECGs, if available. Concerning diagnoses to differentiate from benign early repolarization include:

- STEMI: Reciprocal changes are more pronounced and convex ("tombstone" morphology) ST-elevations are expected.
- Pericarditis: Also generalized ST-elevations, but with PR depressions and ST-elevation to T wave ratio ›25.[2]
- Hypothermia: J-point notching is seen in hypothermia, but typically without ST elevation.
- Brugada syndrome: ST-elevation specifically in V1 and V2 (with an R R' pattern).

There is currently no consensus on the etiology of the early repolarization pattern. Studies have found subgroups of patients with a J wave that also have increased risk of ventricular dysrhythmias and sudden cardiac death. Such cases are rare and most cases of J point elevation are considered benign, particularly in the absence of personal or family history of malignant arrhythmia.[3]

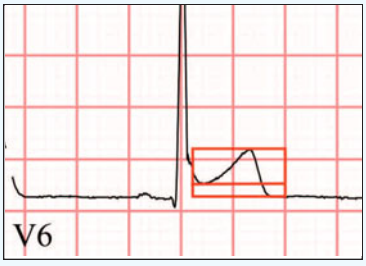

Figure 3. Blown-up image of V6. The lines demonstrate the ST elevation-to-T wave height ratio ‹0.25.

Learnings/What to Look for

- The differential for ST elevation includes not only STEMI, but early repolarization, pericarditis, Brugada syndrome, and hypothermia
- Early repolarization is common in patients under the age of 50. Over 50, consider that ischemia may be a more likely cause of ST elevation
- When diagnosing early repolarization, look for diffuse ST elevations that are most pronounced in V2-V5, notching or slurring at the J-point, an ST elevation-to-T wave ratio ‹0.25, concordant T waves, and a lack of reciprocal ST depressions

Pearls for Urgent Care Management

- Typically, early repolarization is benign and requires no treatment or follow-up. However, don't forget to consider the patient's symptoms and ask about risk of ventricular dysrhythmias and sudden cardiac death
- If diagnosis is unclear, symptoms are concerning, or patient is over 50, transfer to the ED is appropriate

References

1. Mehta MC, et al. Early repolarization. *Clin Cardio.* 1999;22:59-65.
2. Ginzton LE, Laks MM. The differential diagnosis of acute pericarditis from the normal varian. *Circulation*. 1982;65(5): 1004-1009.
3. de Bliek EC. ST elevation: differential diagnosis and caveats. *Turk J Emerg Med*. 2018;18(1):1-10.

Case courtesy of ECG Stampede (www.ecgstampede.com).

ECG STAMPEDE