



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 email the relevant materials and presenting information to editor@jujm.com.

An 11-Year-Old Boy with Forearm and Wrist Pain After a Fall



Case

The patient is an 11-year-old boy who presents complaining of pain in his left and right forearm and wrist after falling from a height of approximately 5 feet. His parents report that he was attempting to hang upside down by his knees from a chin-up bar in his school's gymnasium when he slipped.

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

THE RESOLUTION



Differential Diagnosis

- Bowing fracture of the radius
- Buckle fracture
- Greenstick fracture
- Physiologic bowing
- Stress fracture

Diagnosis

This patient sustained a bowing fracture of the radius. The x-ray shows abnormal gentle bowing of the radial shaft without any definite fracture line or cortical break, as well as soft tissue swelling.

Learnings/What to Look for

- Bowing fractures of the long bones occur exclusively in children and adolescents
- Radius and ulna are the most common sites, followed by the fibula
- Because they're softer, more elastic, and have thinner cortex, pediatric bones tend to bend under angulated longitudinal

force/stress. With low force, the bones bend and return to normal shape and position upon release of the force. If the force is greater than the mechanical strength of the bone, the bone undergoes a plastic deformation and remains deformed and bowed upon release of the force. Pathologically these bowed bones have multiple micro fractures along the concave border of the bone which are not visible on radiographs

- Fractures typically occur following a fall from a height on outstretched hands from furniture, climbing equipment, and monkey bars
- Typical symptoms are painful swelling and deformity

Pearls for Urgent Care Management and Considerations for Transfer

- Bowed fractures with $<20^{\circ}$ angulation are managed conservatively, without manipulation
- Fractures with ≥ 20 angulation are treated with reduction/manipulation

Acknowledgment: Images courtesy of Teleradiology Associates.



A 57-Year-Old Man with 3 Days of Lightheadedness

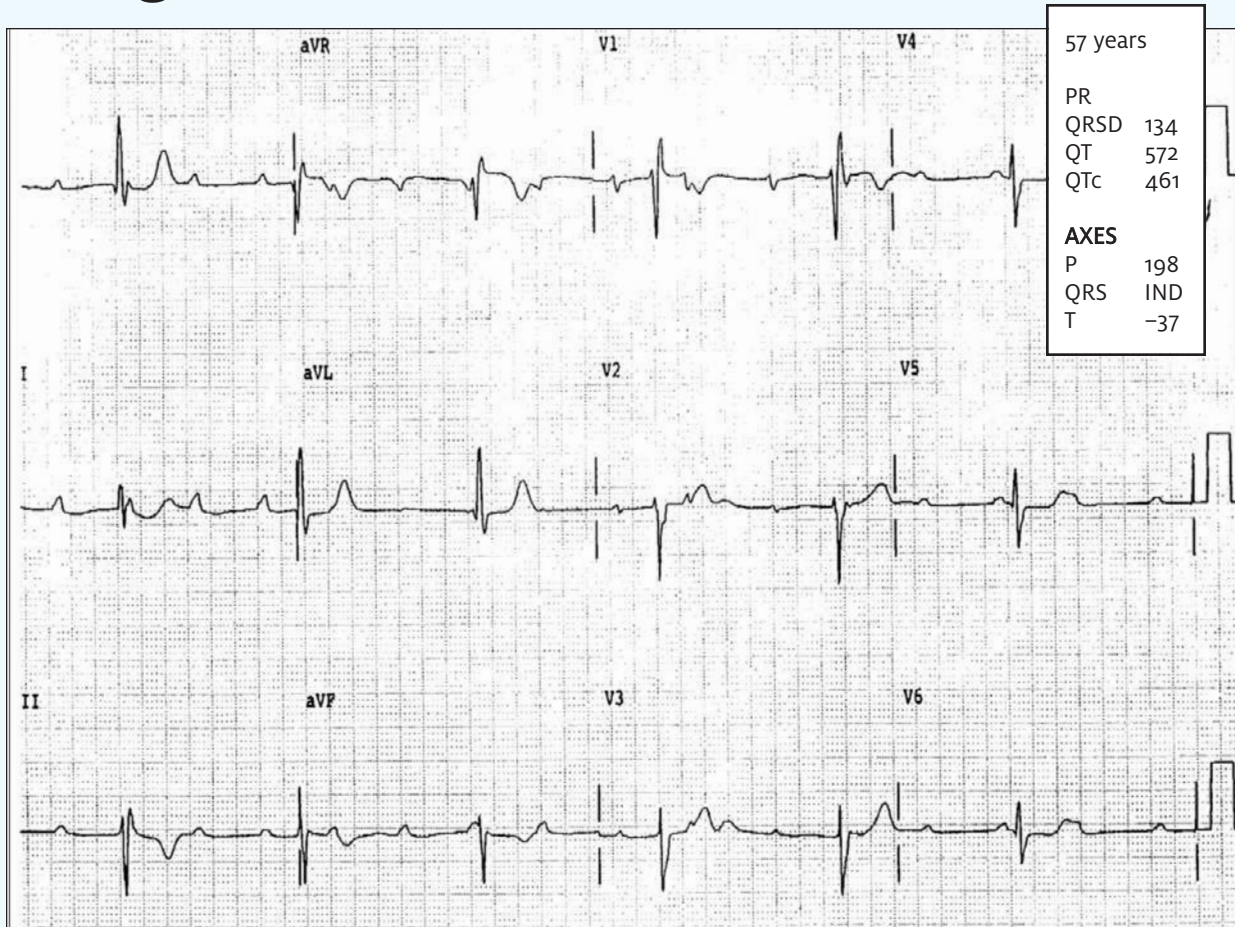


Figure 1.

Case

The patient is a 57-year-old man who complains of lightheadedness for the last 3 days. He has a history of a heart stent placed 4 years ago and has been asymptomatic since that time. He denies vomiting, diarrhea, chest pain, shortness of breath, abdominal pain, or paresthesias. No recent travel. He takes metoprolol and clopidogrel. There is a family history of hypertension.

Upon examination, you find:

- **General:** Sitting comfortably in a chair, alert, breathing comfortably

- **Lungs:** Clear bilaterally
 - **Cardiovascular:** Regular rhythm, without m,r,g
 - **Abdomen:** Soft and NT, no distention, without r/r/g, no pulsatile mass
 - **Ext:** No peripheral edema, pulses are 2+ and equal in all extremities, no LE pain with palpation or asymmetry
- View the ECG and consider what the next steps and diagnosis would be. Resolution of the case is described on the following page.

THE RESOLUTION

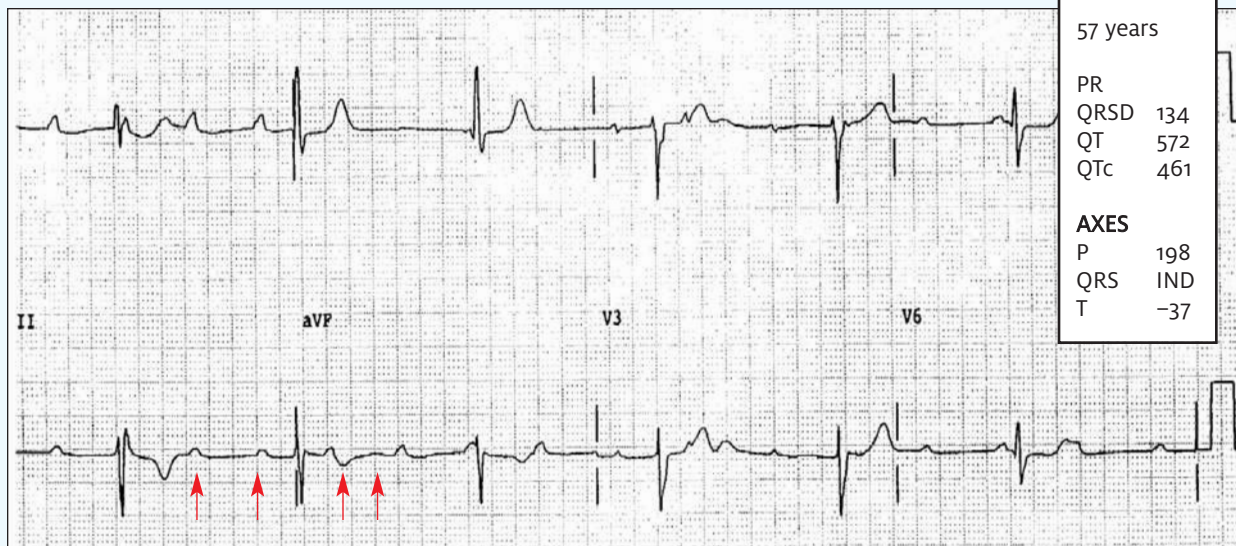


Figure 2. P waves (arrows)

Differential Diagnosis

- First-degree AV block
- Multifocal atrial tachycardia
- Wolff-Parkinson-White syndrome (WPW)
- Sinus bradycardia
- Third-degree heart block

Diagnosis

This patient has a third-degree AV block. The first lesson in ECG interpretation is always to make sure there is a p wave preceding each QRS. This may not often be helpful, but when it is helpful, it is really helpful! This ECG reveals p waves and QRS complexes, but there is not a p preceding each QRS. Curiously, the p waves present are regular (see arrows below the ECG), as are the QRS complexes; they are just not related. This is third-degree heart block. Another clue is the rate, in the high 30s—an unusually slow bradycardia, even in a fit athlete.

The normal PR interval is 120–200 ms, with first-degree AV block a duration longer than 200 ms, but as there is not a defined PR interval, this is not first-degree AV block. Multifocal atrial tachycardia (MAT) is a tachycardia with a rate >100 beats per minute, and secondly is “multifocal” with differing P wave morphology; however, there is a p wave before each QRS, not present in this ECG. The ECG of WPW reveals a gradual upsloping of the initial reflection of the QRS complex (the delta wave usually seen in the lateral precordial leads), as well as a shortened PR interval (<120 ms), a widened QRS complex, and ST/T wave changes—not present on this ECG. Sinus bradycardia is a sinus rhythm <60 beats per minute. This rate is bradycardic, but

is not sinus; this ECG shows third-degree AV block.

Learnings/What to Look for

- Third-degree AV block has complete absence of AV conduction. There is no relation of the p waves and the QRS complexes
- The rate of the atrial depolarization (p waves) is different than the ventricular rate
- The ventricular rate is often in the mid to high 30s
- Third-degree block may degenerate into cardiac arrest and death
- Potential causes include AV blocking medications such as beta blockers, calcium channel blockers, digoxin and amiodarone, electrolyte abnormalities, degeneration of the conducting system, or ischemia

Pearls for Urgent Care Management and Considerations for Transfer

- All patients presenting to the urgent care in third-degree heart block will need emergent transfer per EMS to the emergency department
- If symptomatic in the urgent care, atropine may be tried, but is not commonly successful
- Do not give atropine while awaiting transfer if the patient is asymptomatic
- If the patient is hemodynamically unstable place an IV and monitor, inform EMS for emergent transfer, and speak with the receiving facility



A 27-Year-Old Man with a Lesion on One Hand

Figure 1.



Case

A 27-year-old man presents complaining of a single skin lesion on his hand. He reports that it first appeared as a smooth nodule that ulcerated and spread in a lymphangitic fashion. He grew worried when he started to have a fever. The only unusual activity he'd done in the last few weeks was clean out one of his large saltwater aquariums to prepare for purchasing new fish.

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

THE RESOLUTION

Figure 2.

**Differential Diagnosis**

- Bacterial abscess
- Cutaneous anthrax
- Granuloma annulare
- *Mycobacterium marinum* infection
- Vasculitis

Diagnosis

This patient was diagnosed with *Mycobacterium marinum* infection, an atypical mycobacterial skin infection often contracted from contaminated fish tanks, swimming pools, and, occasionally, ocean or lake water.

Learnings

- The typical skin lesion consists of a pustule or nodule and develops on the exposed extremity 2–3 weeks after exposure
- Constitutional symptoms are rare; fever, if present, is typically low-grade

Pearls for Urgent Care Management and Considerations for Transfer

- The disease is usually self-limited, and lesions tend to heal over a period of 1–2 years if left untreated
- Patients with AIDS, organ transplant recipients, and patients on chronic steroids may occasionally develop disseminated infections to the skin, bone marrow, and joints, leading to synovitis and arthritis

Acknowledgment: Images courtesy of VisualDx.