INSIGHTS IN IMAGES

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

A 17-Year-Old Male with Pain and Swelling in His Thumb

Figure 1.

Case

The patient is a 17-year-old male who presents with pain and swelling in his left thumb. He reports that he fell off an all-terrain vehicle while "mudbogging," bending the thumb back when he reached out to break his fall.

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

THE RESOLUTION

Figure 2.

Differential Diagnosis

- Adductor pollicis tendon rupture
- Arthritic disease of the metacarpophalangeal joint
- Intra articular fracture of the ulnar base of the proximal phalanx
- Displaced intra articular fracture of the ulnar base of the proximal phalanx of the first digit
- Metacarpophalangeal dislocation

Diagnosis

This patient has a mildly displaced intra articular fracture of the ulnar base of the proximal phalanx of the first digit, also known as a gamekeeper's fracture—so called because, in an earlier time, the repetitive breaking of the necks of small game resulted in chronic injury to the ulnar collateral ligament of the metacarpophalangeal joint of the thumb. This is similar to skier's thumb, a reference to injury in which the ski pole or strap forcibly abducts the thumb during a fall or particularly aggressive pole-plant.

Learnings/What to Look for

- Determining mechanism of injury is critical for diagnosis of a gamekeeper's fracture
- Pain on palpation, bruising, and swelling are common signs
- The most frequent site of injury is at the attachment of the ligament to the proximal phalanx; a bony avulsion occurs in approximately 50% of injuries

Pearls for Urgent Care Management and Considerations for Transfer

- If the joint is stable, immobilization for 4 weeks in a cast or splint is warranted
- If the joint is not stable, refer to an orthopedist

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

CLINICAL CHALLENGE: CASE 2

A 58-Year-Old Female with Syncope

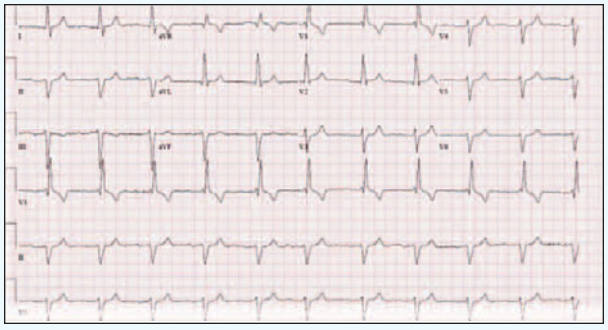
Figure 1.

Case

The patient is a 58-year-old female who reports having an episode of syncope earlier in the day. She denies chest pain, difficulty breathing, or recent illness. She has a history of hypertension, diabetes, coronary artery disease.

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

THE RESOLUTION



Differential Diagnosis

- Myocardial ischemia
- Congestive heart failure
- Myocarditis
- Conduction system disease
  - Infiltrative (sarcoidosis, Lenègre-Lev)
  - Infectious (bacterial endocarditis)
  - Iatrogenic (valve replacement)
- Hyperkalemia
- Digoxin toxicity

Diagnosis

Right bundle branch block, left anterior fascicular block, first-degree AV block (trifascicular block). The ECG reveals a regular, wide-complex, sinus rhythm at a rate of 64 beats per minute. The PR-interval is prolonged (normal 120-200ms), indicating a first-degree atrioventricular block. The wide QRS complex (>120 msec), rSR' appearance in V1, and wide S wave in the lateral leads (V5, V6, I, aVL) indicate the presence of a right bundle branch block. There is also an extreme left-axis deviation (>45° deviation, indicated by a dominant S in the inferior leads II, III, aVF), which suggests an associated left anterior fascicular block.

Collectively, the findings of a right bundle branch block, left anterior fascicular block, and first-degree atrioventricular block suggest trifascicular disease or "trifascicular block."

The term *trifascicular block* is a misnomer, as a true block of all three fascicles (the right bundle branch, left anterior fascicle, and left posterior fascicle) would result in complete heart block. Rather, the term references the presence of diseased conduction in all three fascicles with sufficient sparing of one fascicle (most commonly the left posterior fascicle), resulting in delayed conduction and manifesting as a prolonged PR interval (first-degree atrioventricular block). The American Heart Association guidelines suggest that use of the term "trifascicular block" be abandoned in favor of a description of the identified blocks independently (eg, right bundle branch block, left anterior fascicular block, first-degree AV-block).[1]

First-degree blocks are usually seen in active, healthy patients without heart disease. They typically represent a process within the atrioventricular node itself and are unlikely to progress to complete heart block. However, when accompanied by preexisting conduction disease (eg, right bundle branch block, left bundle branch block, or bifascicular block) they can indicate infranodal conduction disease.

Immediate referral to the emergency department is warranted when patients with significant conduction disease present with symptoms suggesting intermittent bradycardia (eg, syncope or presyncopal lightheadedness), as progression to higher degree blocks, including complete heart block, can occur. These patients should be evaluated for permanent pacemaker placement.

Learnings/What to Look for

- *Trifascicular block* is a misnomer. ECG interpretation should instead describe the identified blocks. Traditionally, the term has referenced blocks involving
- Right bundle branch
- Left anterior or posterior fascicular block
- First-degree atrioventricular block

Pearls for Urgent Care Management and Considerations for Transfer

- Patients with multiple fascicle disease who are bradycardic or symptomatic with presyncope or syncope should be transferred to an emergency department immediately for evaluation
- These patients may need subsequent transfer to a facility with capability for permanent pacemaker placement after stabilization
- If multiple fascicle disease is identified in an otherwise asymptomatic patient (eg, ECG obtained for preoperative evaluation), a careful screening for signs or symptoms of occult cardiac disease should be performed; in some cases ambulatory electrocardiographic monitoring may be considered[2]

References

1. Surawicz B, Childers R, Deal BJ, et al. AHA/ACCF/HRS recommendations for the standardization and interpretation of the electrocardiogram: part III: intraventricular conduction disturbances: a scientific statement from the American Heart Association Electrocardiography and Arrhythmias Committee, Council on Clinical Cardiology; the American College of Cardiology Foundation; and the Heart Rhythm Society. Endorsed by the International Society for Computerized Electrocardiology. *J Am Coll Cardiol*. 2009;53(11):976-981.
2. Kusumoto FM, Schoenfeld MH, Barrett C, et al. 2018 ACC/AHA/HRS Guideline on the Evaluation and Management of Patients With Bradycardia and Cardiac Conduction Delay: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines, and the Heart Rhythm Society. *J Am Coll Cardiol*. 2019;74(7):932-987.

CLINICAL CHALLENGE: CASE 3

A 42-Year-Old Male with a New Symmetrical Rash on His Legs

Figure 1.

Case

The patients is a 42-year-old man who presents with a symmetrical rash of palpable purpura on his legs. He also complains of a fever and arthralgia, but denies any headache or neck pain. He also discloses current infection with the hepatitis C virus.

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

Figure 2.

Differential Diagnosis

- Rocky Mountain spotted fever
- Leukocytoclastic vasculitis (LCV)
- Sjögren syndrome
- Acute meningococcemia

Diagnosis

This patient was diagnosed with leukocytoclastic vasculitis (LCV), a small-vessel vasculitis that predominantly affects postcapillary venules in the dermis.

Learnings/What to Look for

- The clinical hallmark of LCV is palpable purpura; purpuric papules erupt symmetrically on the shins 7-10 days after an inciting factor. Other parts of the lower extremities, including the thighs and dorsal feet, may be involved. Less frequently, the buttocks, upper extremities, and abdomen are involved.
- Purpuric macules seen initially may give way to palpable purpura. In more advanced cases, bullae and ulcers may be seen.
- While the majority of cases are asymptomatic, LCV can be associated with pruritus, pain, or burning.
- Inciting factors may include medications (especially antibiotics, NSAIDs, and diuretics), pathogens (hepatitis viruses, HIV, Epstein-Barr, streptococci), malignancy, inflammatory bowel disease, or connective tissue disease.
- It is important to differentiate skin-limited LCV from systemic vasculitis. The latter should be suspected if fever, myalgias, malaise, lymphadenopathy, abdominal pain, melena, hematochezia, diarrhea, hematuria, lower extremity swelling, or paresthesias are noted.

Pearls for Urgent Care Management and Considerations for Transfer

- Skin-limited LCV does not require treatment beyond rest, elevation of the legs, ice packs, and removal of the inciting factor.
- Treatment of systemic vasculitis may require NSAIDs, oral steroids (prednisone or methylprednisolone), intravenous corticosteroids, or colchicine, depending on severity.
- Inpatient treatment may be required for patients with severe systemic vasculitis syndromes or organ dysfunction.

Acknowledgment: *Images and case courtesy of VisualDx (www.VisualDx.com/JUCM).*