



Challenge your diagnostic acumen: Study the following x-rays, electrocardiograms, and photographs and consider what your diagnosis might be in each case. While the images presented here are authentic, the patient cases are hypothetical. Readers are welcome to offer their own patient cases and images for consideration by contacting the editors at editor@jujm.com.

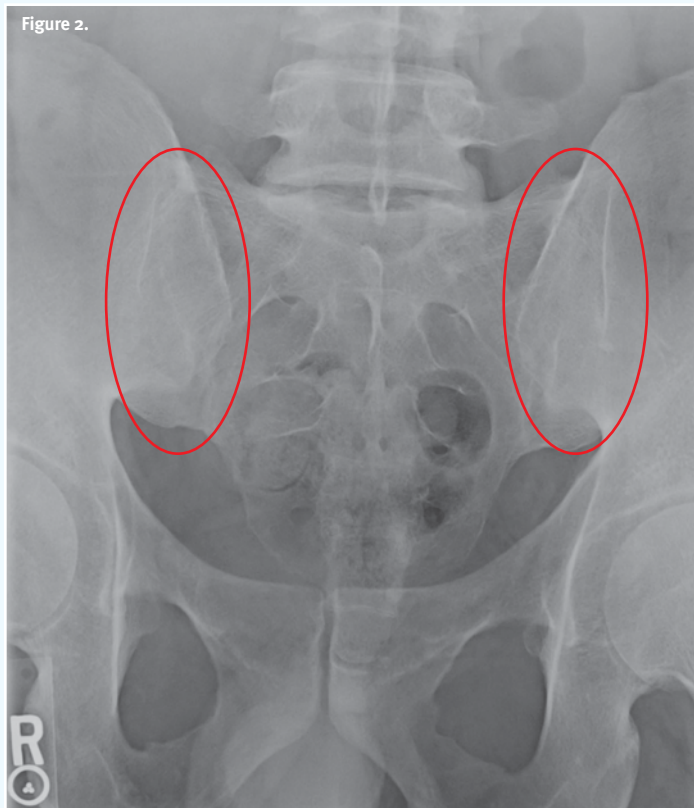
38-Year-Old With Pelvic Pain After a Fall



A 38-year-old man present to urgent care complaining of pain around his entire pelvis after a fall on a slippery floor at home. Imaging is obtained.

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

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

**Differential Diagnosis**

- Vertebral compression fracture
- Pubic rami fracture
- Fused sacroiliac joints
- Tailbone (coccyx) fracture

Diagnosis

The correct diagnosis is fused sacroiliac joints. On the image above, there is no joint space present in either the left or right sacroiliac joints. This is a chronic condition that results from prolonged inflammation of the sacroiliac joints (sacroiliitis). Common causes for bilateral symmetric sacroiliac joint fusion include: ankylosing spondylitis, inflammatory bowel disease (eg, Crohn's disease, ulcerative colitis), osteitis condensans ilii, osteoarthritis, Reiter's syndrome/reactive disease, and rheumatoid arthritis (adult).

What to Look For

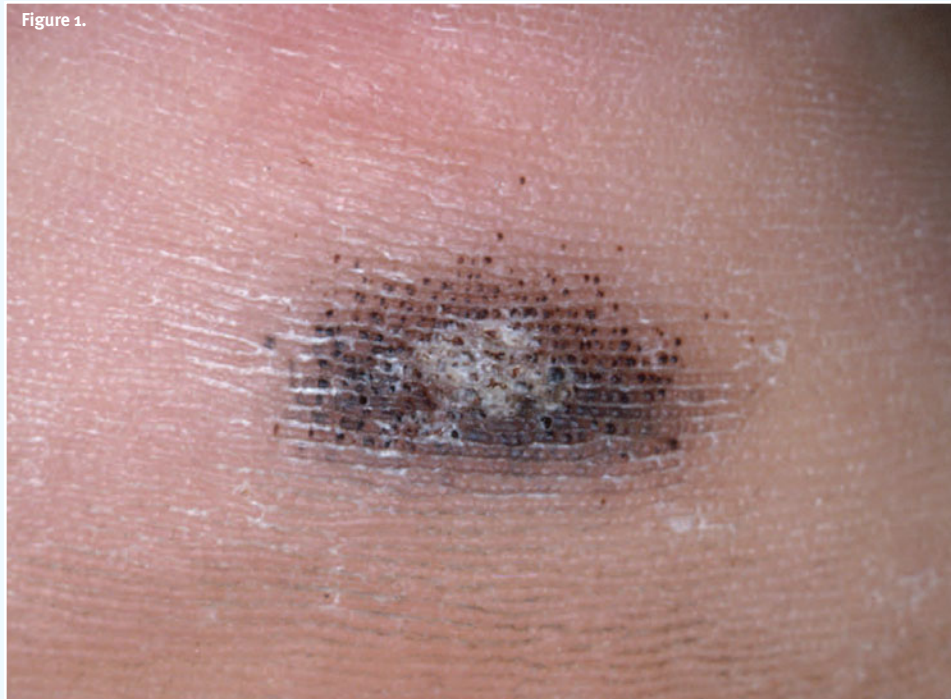
- Morning stiffness and pain with symptoms improved during exercise but not rest
- Pain and tenderness overlying the sacroiliac joint regions of the lower back
- Limited range of motion of the lower back

Pearls for Urgent Care Management

- Treatment with nonsteroidal anti-inflammatory medications is first line
- Referral to a rheumatologist for further evaluation of the underlying cause is warranted



21-Year-Old With Heel Lesion

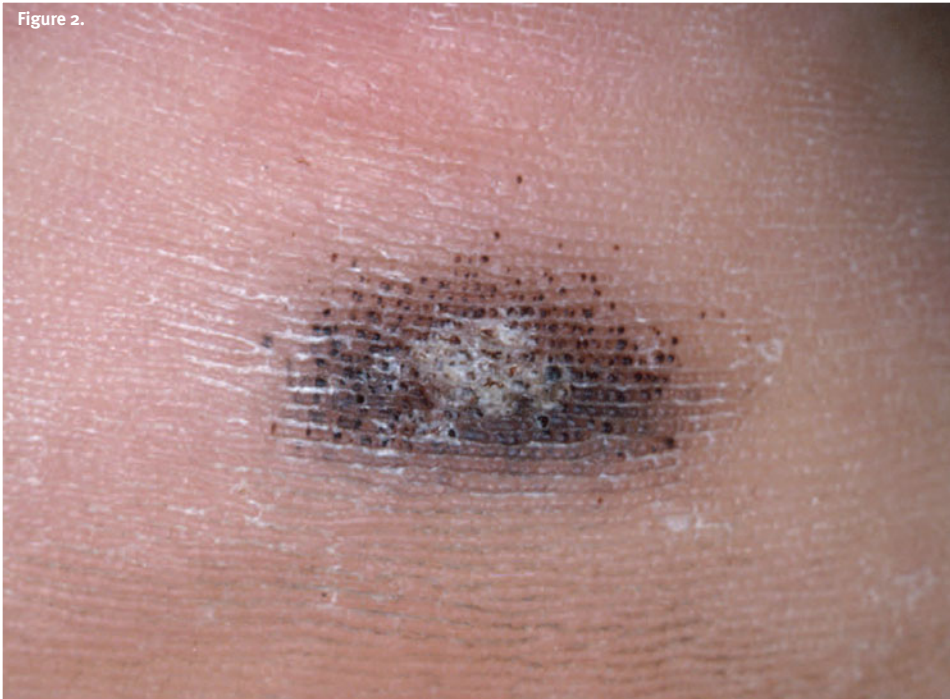


A 21-year-old man presents to urgent care concerned about a painless blackish lesion that had developed on his left heel. On examination, a stippled, deeply violaceous, blackish patch with overlying scale was seen on his plantar heel. He had no history of dermatological disease but mentioned he played in a basketball tournament last week.

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

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

Figure 2.

**Differential Diagnosis**

- Acral lentiginous melanoma
- Atypical nevus
- Talon noir
- Tinea nigra

Diagnosis

The correct diagnosis is talon noir, also referred to as calcaneal petechiae. Resulting from intraepidermal hemorrhage, this asymptomatic discoloration of acral skin can be caused by shear-force injuries. Talon noir tends to present on the posterior foot, lateral foot, heel, and palm. Lateral shearing forces can cause tearing of blood vessels in the papillary dermis, common in patients who participate in athletic activities. The punctate papillary dermal hemorrhages lead to extravasation of blood into the epidermis and intracorneal retention of hemoglobin. Because of its location in the stratum corneum, it cannot be cleared by phagocytic cells.

What to Look For

- The condition is asymptomatic and painless, so patients may not recall specific etiological events
- On close dermoscopic exam, band like pigmentation may be present

Pearls for Urgent Care Management

- No intervention is required for this condition, it will resolve spontaneously
- Resolution may take 4-6 weeks and may require cessation of triggering activity
- It is important to distinguish from melanoma by its reddish color, sharply defined borders and segmented band like pigmentation



61-Year Old With Light-Headedness

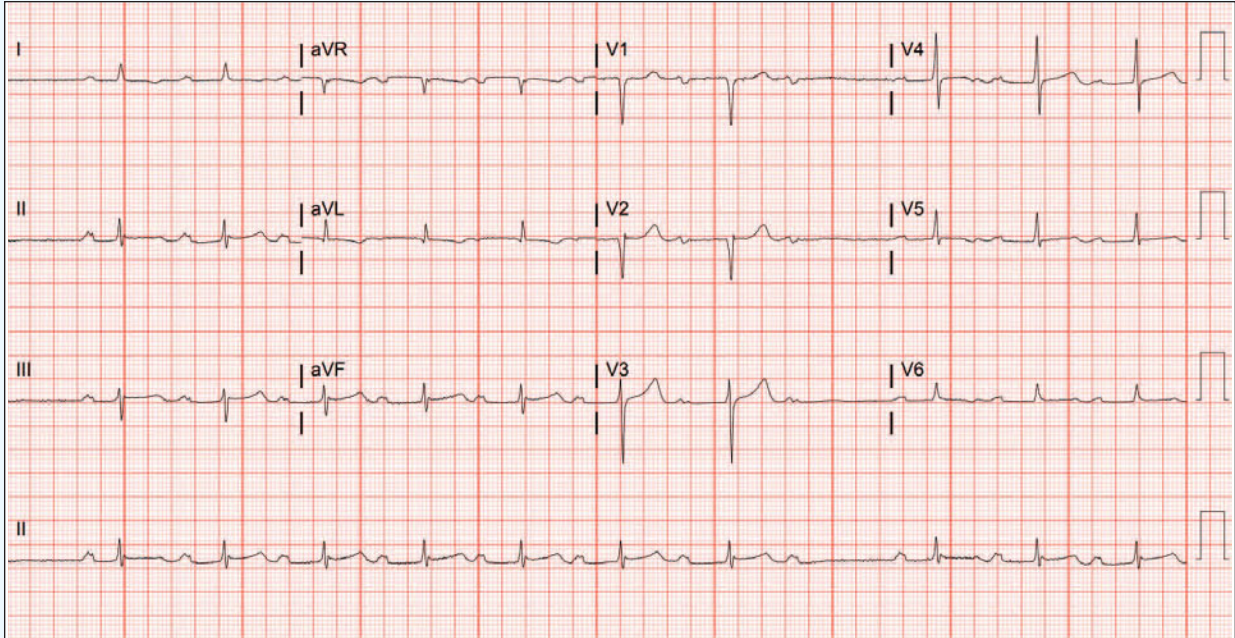


Figure 1: Initial ECG

A 61-year-old male presents to urgent care complaining of light-headedness. The patient has a medical history of hypertension and recently started metoprolol.

View the ECG captured above 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, The University of Texas Health Science Center at Houston, Department of Emergency Medicine

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

ECG STAMPEDE



Figure 2: Progressively prolonging PR interval (horizontal lines) preceding a “dropped” P wave (asterisk). There are 8 P waves to 7 QRS complexes (ie, 8:7 conduction).

Differential Diagnosis

- Normal sinus rhythm
- First degree atrioventricular block
- Second degree atrioventricular block, Mobitz I (Wenckebach)
- Second degree atrioventricular block, Mobitz II
- Third-degree atrioventricular block

Diagnosis

The diagnosis is second-degree atrioventricular block, Mobitz I (Wenckebach). The ventricular rate is 60 beats per minute, and the rhythm is irregular. The PR interval is prolonged and progressively lengthens until a P wave is “dropped,” or fails to conduct to the ventricular system, resulting in the absence of an associated QRS complex. There are 8 P waves for every 7 QRS complexes, representing 8:7 conduction (**Figure 2**).

Discussion

Atrioventricular conduction block refers to a set of disturbances in which conduction from the atria to the ventricles is delayed, intermittently blocked, or completely blocked—classified as first-, second-, and third-degree, respectively. Identifying the type of block has important prognostic implications. First-degree atrioventricular block, indicated by a prolonged PR interval (greater than 200 msec), usually suggests delayed conduction through the atrioventricular node and is generally considered to be benign when not associated with other conduction deficits.¹ Third-degree atrioventricular block occurs when there is complete atrioventricular dissociation (ie, failure of conduction between the atria and the ventricles).² Patients with third-degree block should be immediately referred to an emergency department (ED).

Second-degree atrioventricular block describes intermittent atrioventricular conduction and can be caused by conduction deficits in the atrioventricular node or distal. There are 2 types of second-degree atrioventricular block: Mobitz I (or Wenckebach conduction), and Mobitz II. Electrocardiographically, Mobitz I conduction is characterized by a progressively prolonging PR interval until conduction from the atria to the ventricle fails, resulting in a “dropped” beat (**Figure 2**). These blocks are often asymptomatic and can be seen in active, healthy patients without heart dis-

ease. It is usually caused by delayed conduction through the atrioventricular node and is unlikely to progress to complete heart block.² Transfer to the ED is not indicated in patients with Mobitz I conduction when not accompanied by significant bradycardia or other conduction deficits (eg, bundle branch block); however, atrioventricular nodal blocking agents (eg, metoprolol) should be avoided in the setting of Mobitz I conduction.

Second-degree atrioventricular block, Mobitz II is characterized electrocardiographically by a constant PR interval with “dropped” beats that fail to conduct to the ventricular system. Mobitz II is caused by conduction disease distal to the atrioventricular node and is likely to progress to complete heart block. Patients with Mobitz II should be immediately referred to an electrophysiology-capable facility for pacemaker placement.²

What To Look For

- The presence of more P waves than QRS complexes should prompt consideration of atrioventricular block.
- Identifying the type of block has important prognostic implications.
- First-degree and second-degree Mobitz I block generally represent delayed conduction through the atrioventricular node and are not likely to progress to complete heart block.
- Second-degree Mobitz II and third-degree block (ie, complete heart block) indicate conduction disturbance distal to the atrioventricular node.

Pearls For Initial Management And Considerations For Transfer

- Patients with second-degree Mobitz II or third-degree block warrant immediate transfer to an electrophysiology-capable facility.
- Patients with first-degree or second-degree Mobitz I block (in the absence of other conduction deficits or significant bradycardia) do not warrant transfer.
- Consider transcutaneous pacing and immediate transfer to an ED in patients with unstable bradycardia secondary to atrioventricular block.

References

1. Costa D Da, Brady WJ, Edhouse J. Bradycardias and Atrioventricular conduction block. *Br Med J*. 2002;324(March):535-538.
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: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhyth. *Circulation*. 2019;140(8):e382-e482.