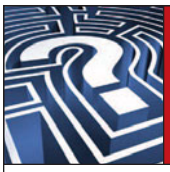

CLINICAL CHALLENGE: CASE 1

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@jucm.com.

30-Year-Old With Back Pain

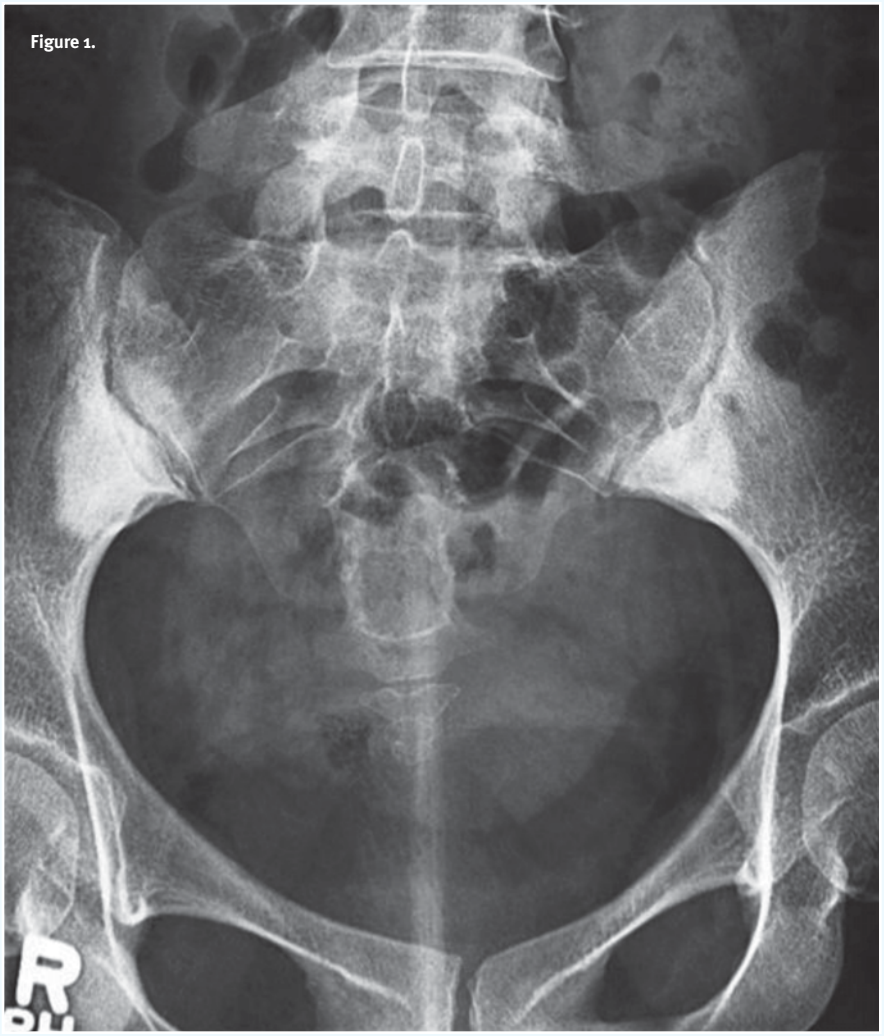

Figure 1.

A 30-year-old woman presents to urgent care with pain in her lower back and pelvis. She denies any injury or accident that might be causing her pain. She has just returned to full-time work after having a baby. An x-ray is ordered.

Review the image 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).

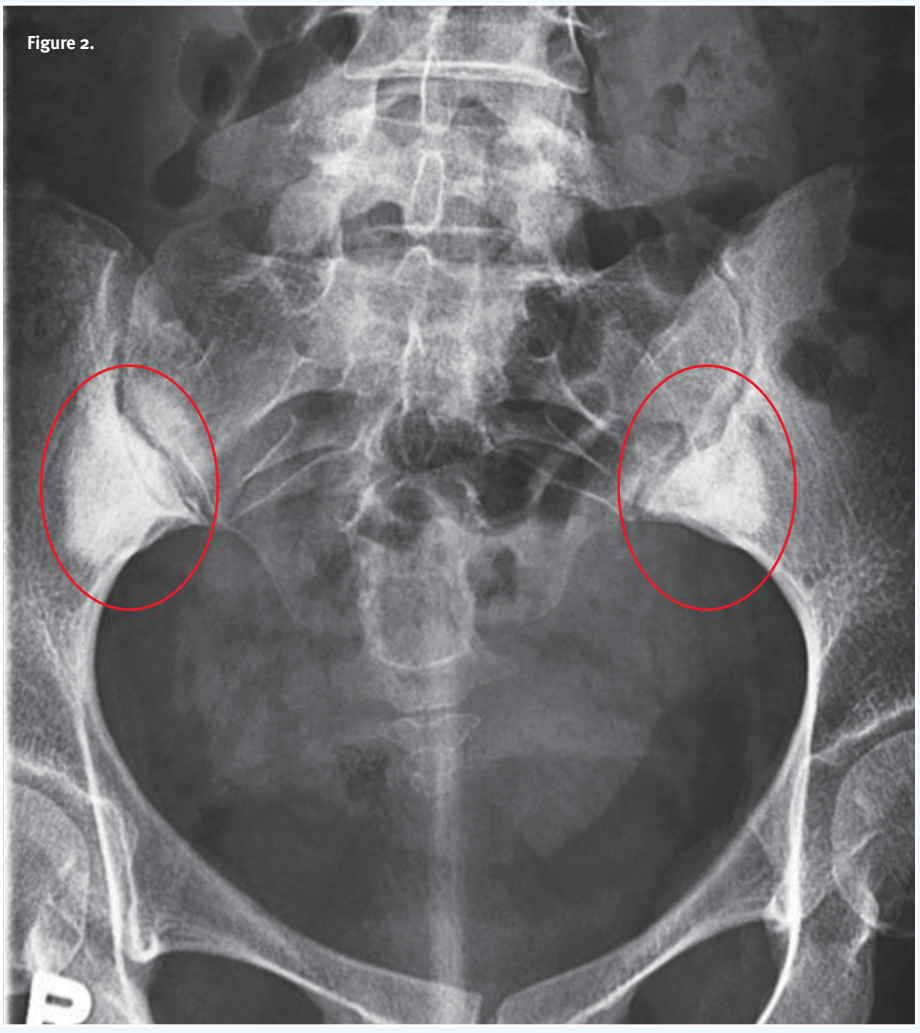
Figure 2.

Differential Diagnosis
- Sacroiliac joint osteoarthritis
- Sacroiliitis
- Osteitis condensans ilii
- Ankylosing spondylitis

Diagnosis
The correct diagnosis in this case is osteitis condensans ilii. This x-ray shows triangular sclerosis of the bilateral iliac sides of sacroiliac joints. Minimal sclerosis of the right sacrum adjacent to the joint is observed. With osteitis condensans ilii, the sacroiliac joint is normal with no irregularity, erosions, or loss of joint space.

What to Look For
- Characterized by benign sclerosis of the ilium adjacent to the sacroiliac joint, it is typically bilateral and triangular in shape.
- The condition is usually asymptomatic but may cause axial lower back pain, buttocks or thigh pain—typically not centered over the sacroiliac joints.
- While osteitis condensans ilii has a low incidence, it is more common in women than men. In women, it is seen primarily in pregnancy and the puerperium period after giving birth.

Pearls for Urgent Care Management
- Osteitis condensans ilii is benign and self-limited.
- Initial treatment is with anti-inflammatory medications, physical therapy, and rest.

CLINICAL CHALLENGE: CASE 2

25-Year-Old With Hand Rash


Figure 1.

A 25-year-old man undergoing chemotherapy with cyclophosphamide, vincristine, doxorubicin, and dexamethasone for acute lymphoblastic leukemia arrives in urgent care because he's developed a painful, burning palmar eruption. On examination, tender, shiny, erythematous papules and plaques were seen on the palms and fingers as well as the soles of his feet.

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

- Acquired palmoplantar keratoderma
- Toxic erythema of chemotherapy
- Drug-induced phototoxic reaction
- Erythromelalgia

Diagnosis

The correct diagnosis in this case is toxic erythema of chemotherapy (acral erythema, palmoplantar erythrodysesthesia, or hand-foot syndrome). It can occur following treatment with several systemic chemotherapeutic agents, although the pathogenic mechanisms are unknown.

What to Look For

- It is characterized by a painful erythematous rash, often with associated edema located on the palms, fingers, and soles, preceded by dysesthesia.
- Typically, reactions occur 24 hours to 3 weeks after chemotherapy begins, and more severe cases may occur with bolus chemotherapy than with low-dose continuous infusion.
- Pain may be severe and impact daily activities.

Pearls for Urgent Care Management

- Symptoms usually resolve 2-4 weeks after discontinuation of the causative agent
- Symptoms may resolve with dose reduction of the causative agent
- High potency topical corticosteroids applied 2 times daily can help
- Supportive treatment includes wound care, emollients, and analgesic pain medications

CLINICAL CHALLENGE: CASE 3

59-Year-Old With History Of Hypertension

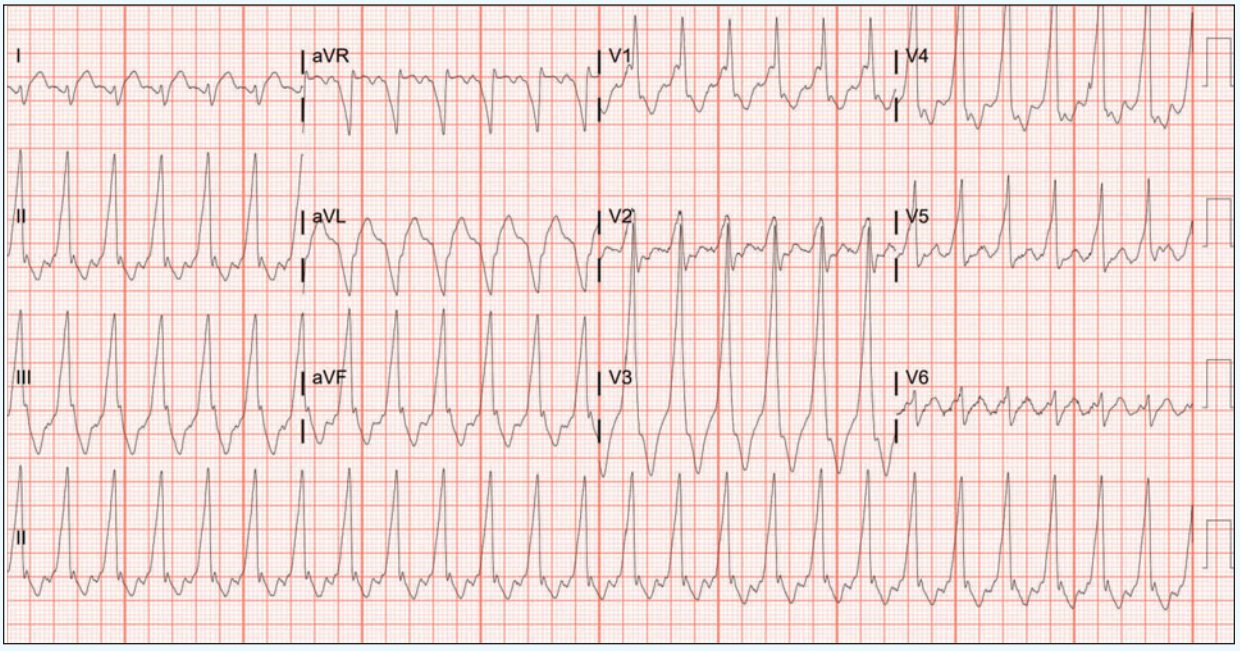

Figure 1: Initial ECG

A 59-year-old male with a past medical history of hypertension presents with dyspnea and pleuritic chest pain in urgent care, and an ECG is obtained.

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 Gabriel Millare, MD, PGY3 at UTHealth Houston.

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

ECG STAMPEDE

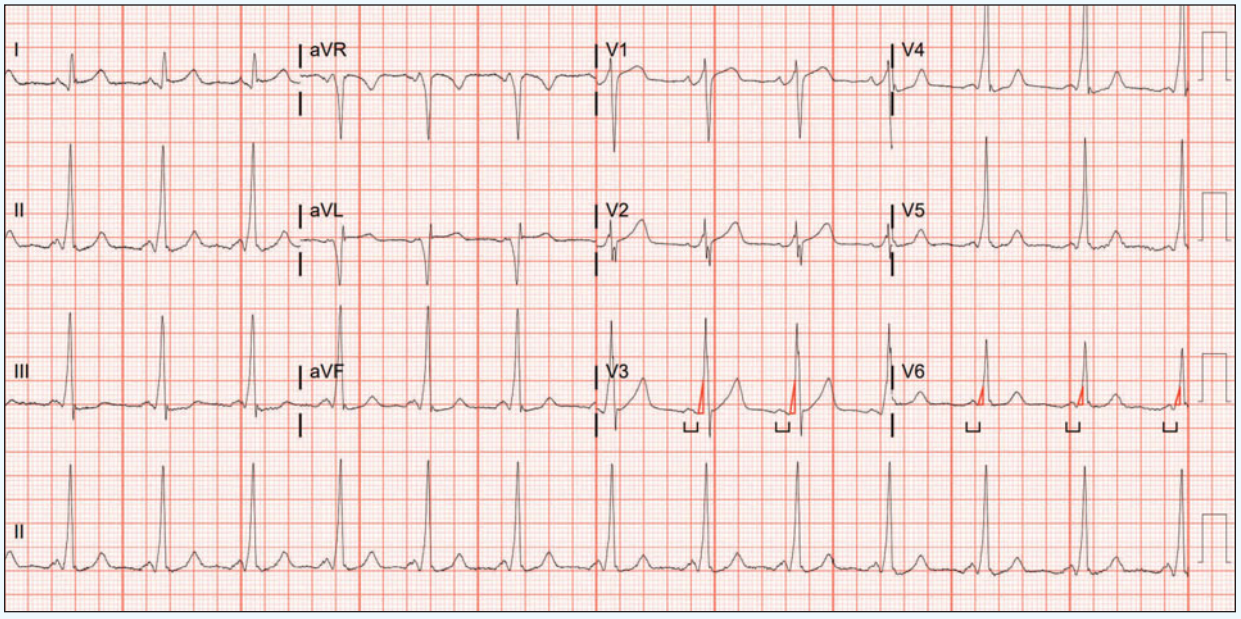

Figure 2: Post-conversion ECG demonstrating short PR interval (brackets) and the delta wave (red triangles) best seen in leads V3 and V6.

Differential Diagnosis

- Ventricular tachycardia
- Supraventricular tachycardia with aberrancy
- Antidromic atrioventricular reentrant tachycardia
- Sodium channel toxicity
- Hyperkalemia

Diagnosis

The diagnosis in this case is antidromic atrioventricular reentrant tachycardia (AVRT). The ECG reveals a fast rate of 156 beats per minute, with P waves difficult to appreciate. There is a left axis deviation and a wide QRS complex. Appreciable ST segment changes are difficult to see with this fast rate.

The differential for regular wide complex tachycardia includes:

- Ventricular tachycardia
- Supraventricular tachycardia with aberrancy
- Antidromic atrioventricular reentrant tachycardia
- Toxicologic/metabolic disturbances.[1]

Eighty percent of wide complex tachycardia is ventricular tachycardia. Several algorithms have been developed to differentiate ventricular tachycardia from other causes of wide complex tachycardia; however, their use in the clinical setting has shown low reproducibility, and it is safest to presume ventricular tachycardia in the absence of compelling information to suggest otherwise.[2–6]

The wide complex tachycardia in **Figure 1** looks like ventricular tachycardia and should be treated as such. This patient was transferred to an emergency department, where the patient was electrically cardioverted. The post conversion ECG demonstrated ventricular pre-excitation evidenced by the short PR interval and slurred upstroke (ie, delta wave, **Figure 2**). The arrhythmia was confirmed to be antidromic AVRT. **Figure 2** shows a sinus rhythm with delta waves seen near the onset of the QRS complexes. The patient's symptoms improved, and he was admitted for a cardiac ablation.

Pre-excitation happens when the ventricle begins to depolarize earlier than normal. This happens when an accessory pathway between the atria and the ventricles (often referred to as the bundle of Kent) conducts a signal to the ventricles slightly before the normal conduction system can.[7] When the accessory pathway pre-excites the ventricles, the ECG will show characteristic features: a shortened PR interval and delta waves. When dysrhythmias occur involving the accessory pathway, it is referred to as the Wolf-Parkinson-White syndrome. Antidromic AVRT is a macro reentrant circuit in which the signal travels anterograde through accessory pathway and retrograde through the atrioventricular node (**Figure 3**). It can be treated with procainamide or electrical cardioversion.

What to Look For

- 80% of wide complex tachycardia is ventricular tachycardia
- Always obtain a post-conversion ECG and look for evidence of pre-excitation

THE RESOLUTION

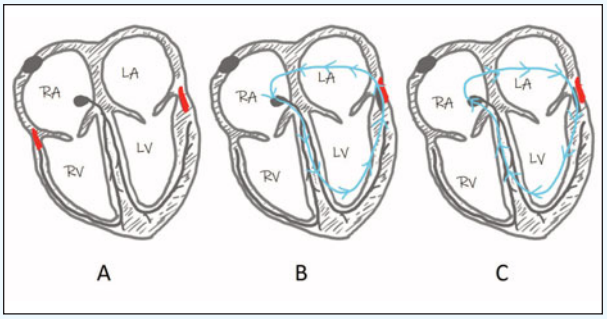

Figure 3: Orthodromic and antidromic atrioventricular reentrant tachycardia. The red bars in panel A represent possible locations of the accessory pathway (type A, between LA and LV; type B, between RA and RV). The blue line in panel B represents orthodromic conduction (narrow complex) and the blue line in panel C represents antidromic conduction (wide complex). RA: right atrium; RV: right ventricle; LA: left atrium; LV: left ventricle.

- Pre-excitation on the resting ECG is demonstrated by a short PR interval and a slurred upstroke of the QRS complex (eg, delta wave)

Pearls for Initial Management, Considerations for Transfer

- Treatment options for most cases of wide complex tachycardia include electrical cardioversion and procainamide
- All wide complex tachycardias should be immediately transferred to an emergency department
- Since most regular, wide complex tachycardia is ventricular tachycardia, decompensation into cardiac arrest can happen quickly and unpredictably, so get the automated defibrillator and have it ready and next to the patient while awaiting emergency medical services

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