



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@jujm.com.

A 36-Year-Old Male with Chronic, Worsening Hip Pain

Figure 1.



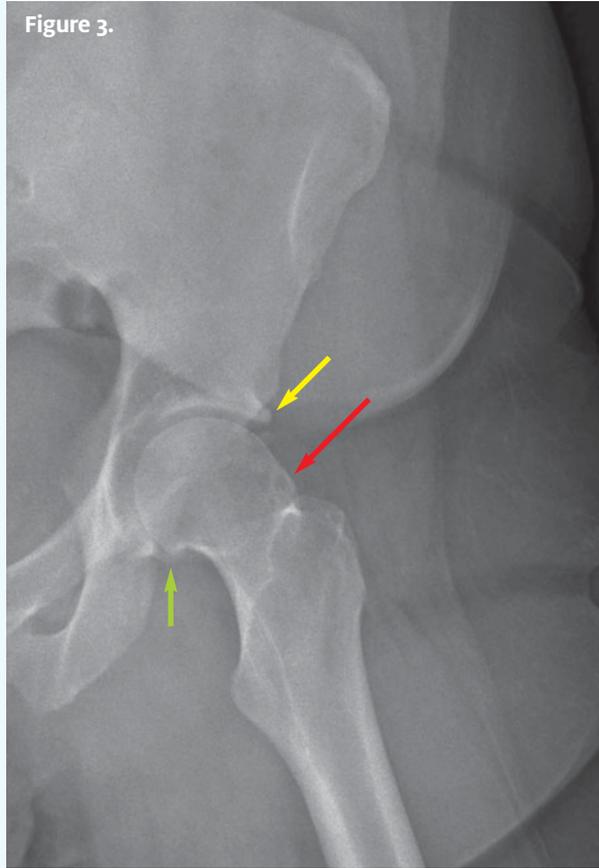
Case

The patient is a 36-year-old male who presents with left hip pain for “years.” The pain is motion- or position-related and over time there has been occasional pain in his buttock, back, and thigh. Additionally, he has stiffness, clicking, locking, and catching.

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 3.

**Differential Diagnosis**

- Cam deformity of the femoral head/neck
- Pincer deformity
- Mixed-type deformity

Diagnosis

This patient was diagnosed with a mixed-type deformity, as he has a cam deformity of the femoral head/neck with added pincer type deformity, predisposing to femoral acetabular impingement.

Learnings/What to Look for

- Acetabular impingement types can be distinguished as follows:
 - Cam type (prominence of bone at junction of femoral head and neck reducing offset)
 - Pincer type (increased acetabular coverage most commonly due to osteophytosis)

- Mixed type (as in this case)

- Cam-type bone build-up at the femoral head and neck can be seen (red arrow)
- Pincer-type increased acetabular coverage can also be seen. There is spurring of the superolateral acetabular margin with a well-corticated ossicle (yellow arrow), as well as a rounded prominence of the anterolateral margin (green arrow)

Pearls for Urgent Care Management

- Conservative treatment includes rest, activity modification, anti-inflammatory medications, and sometimes physical therapy
- If symptoms do not resolve or are severe at presentation, referral to an orthopedist for surgical consideration is warranted

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



A 6-Year-Old Girl with Papules on Her Abdomen



Case

A 6-year-old girl presents to urgent care for vaccinations at the start of the school year. Her father asks the pediatric provider to look at bumps that developed on her abdomen about 4 weeks ago. They consist of tiny papules, some scattered and some in linear configurations. The patient is asymptomatic without pain or itching. Her father is concerned because they have not resolved.

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

THE RESOLUTION

**Differential Diagnosis**

- Keratosis pilaris
- Lichen nitidus
- Lichen planus
- Atopic dermatitis

Diagnosis

This patient was diagnosed with lichen nitidus, a rare, benign, chronic, cutaneous eruption characterized by the presence of small, discrete, uniform, often skin-colored or glistening papules that present in clusters or linear arrays. It most commonly affects children and young adults, although it can be found in patients of any age.

Learnings/What to Look for

- Lichen nitidus may be generalized or focal, but it is commonly found on the chest, abdomen, flexor surfaces of the upper extremities, dorsal hands, and anogenital region (including the shaft and glans of the penis)

- Patients may complain of pruritus over affected areas, although these micropapules are typically asymptomatic
- It is typically not associated with laboratory abnormalities
- While the etiology of lichen nitidus is inflammatory, the cause is unknown
- Medication-related cases (following administration of nivolumab, tremelimumab, mogamulizumab, and interferon alpha) and familial forms have been reported

Pearls for Urgent Care Management

- Lichen nitidus is chronic and persistent, but most patients ultimately clear spontaneously over the course of several months without residual skin changes or medical complications

Acknowledgment: Images and case presented by VisualDx (www.VisualDx.com/JUCM).



A 57-Year-Old Female with Shortness of Breath and Weeks of Chest Pain

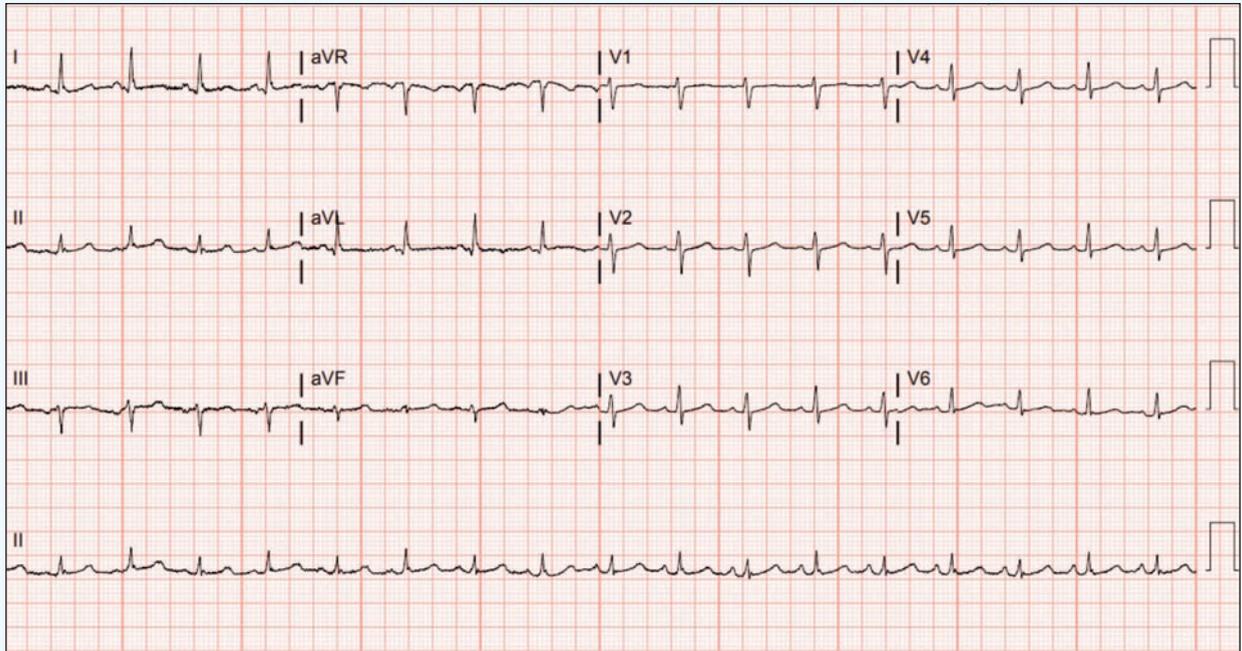


Figure 1.

The patient is a 57-year-old female who presents to urgent care with progressive shortness of breath and chest pain of “several weeks” duration. On exam, she is nonobese, normotensive, slightly tachycardic, and tachypneic with clear lungs and distant heart sounds.

View the initial 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 Archana Reddy, MD, PGY3 in the McGovern Medical School Department of Emergency Medicine, The University of Texas Health Sciences Center of Houston.)

THE RESOLUTION

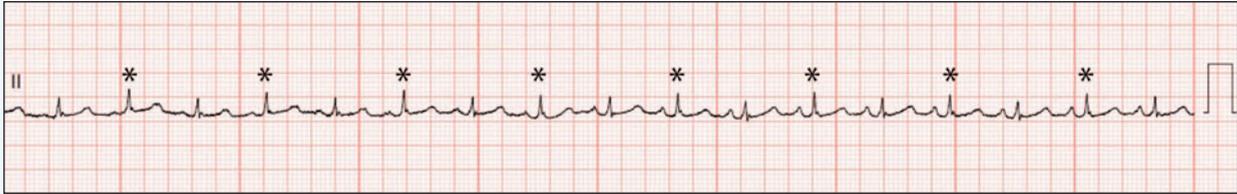


Figure 2. Electrical alternans. Larger QRS complexes are designated with asterisks with smaller QRS complexes between them.

Differential Diagnosis

- Normal sinus rhythm (normal ECG)
- Low voltage
- Inferior STEMI
- Sinus bradycardia
- Brugada syndrome

ECG Analysis

This ECG shows sinus rhythm with a rate of 102 bpm and low-voltage QRS complexes. *Low voltage* is defined as either 1) all limb lead amplitudes less than 5 mm or 2) all precordial lead amplitudes less than 10 mm.¹

This ECG meets the precordial low voltage criteria, as the largest amplitude precordial QRS complex is 7 mm (in V2 and V3). Additionally, the QRS amplitudes in the rhythm strip of lead II can be seen to alternate between larger and smaller complexes, a phenomenon known as electrical alternans. The presence of electrical alternans suggest a pericardial effusion.

The differential diagnosis of low-voltage QRS can be separated into two categories: increased impedance and decreased

“If the patient is hemodynamically unstable, the urgent care provider should immediately obtain intravenous access and fluid resuscitate, as these patients are preload dependent. Cardiac tamponade is an emergency and patients with suspected tamponade should be immediately transferred to a higher level of care.”

impulse generation (Table 1).¹

Careful consideration of this patient’s presentation and analysis of the ECG can secure the diagnosis.

The presence of clear lungs makes thoracic diagnoses like pulmonary edema, COPD, and pleural effusion unlikely.

The presence of electrical alternans (Figure 2) secures the diagnosis of cardiac tamponade. *Electrical alternans* is defined as alternating QRS amplitude, often resulting from the pendulous-like swinging of the heart inside a fluid-filled pericardium. Other pathologies associated with electrical alternans include Wolff-Parkinson-White, accelerated idioventricular rhythm, and supraventricular tachycardia.^{2,3}

Cardiac tamponade occurs when fluid accumulates in the pericardial space, causing impaired right ventricular filling, and leading to hemodynamic compromise. Signs of tamponade include distended neck veins, muffled heart sounds, and hypotension (Beck’s triad).⁴

While this patient was normotensive, the presence of tachycardia and tachypnea suggests she is at high risk for hemodynamic collapse and warrants immediate transfer.

If the patient is hemodynamically unstable, the urgent care provider should immediately obtain intravenous access and fluid resuscitate, as these patients are preload dependent.

Cardiac tamponade is an emergency and patients with suspected tamponade should be immediately transferred to a higher level of care for a pericardiocentesis or a surgical pericardial window.

Table 1. Causes of Low Voltage

Increased Impedance	Decreased Impulse Generation
Pericardial	Prior myocardial infarction
Effusion	Infiltrative cardiomyopathy (amyloidosis, sarcoidosis)
Constrictive pericarditis	Myocarditis
Pneumopericardium	Hypothyroidism
Thoracic	
• Intrapleural	
– Pneumothorax	
– Pleural effusion	
• Pulmonary	
– COPD	
– Pulmonary edema	
• Mediastinum	
– Pneumomediastinum	
Soft tissue	
• Peripheral edema	
• Obesity	

THE RESOLUTION

“If ultrasound is available, tamponade physiology is diagnosed by observing right ventricle collapse during diastole.”

Learnings/What to Look for

- Low voltage is defined as either 1) all limb lead amplitudes less than 5 mm, or 2) all precordial lead amplitudes less than 10 mm
- Electrical alternans is a phenomenon seen when the heart moves rhythmically inside a fluid-filled pericardium, predictably altering the electrocardiographic voltage
- Exam findings include clear lungs, jugular venous distension, and muffled heart sounds (Beck’s triad)

- If ultrasound is available, tamponade physiology is diagnosed by observing right ventricle collapse during diastole

Pearls for Urgent Care Management

- If cardiac tamponade is considered, immediately obtain intravenous access
- Intravenous fluids may be used to promote right ventricular filling
- Initiate immediate transfer to a facility capable of performing a pericardiocentesis and/or surgical pericardial window

References

1. Madias JE. Low QRS voltage and its causes. *J Electrocardiol.* 2008;41(6):498-500.
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4. Honasoge AP, Dubbs SB. Rapid fire: pericardial effusion and tamponade. *Emerg Med Clin North Am.* 2018;36(3):557-565.

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