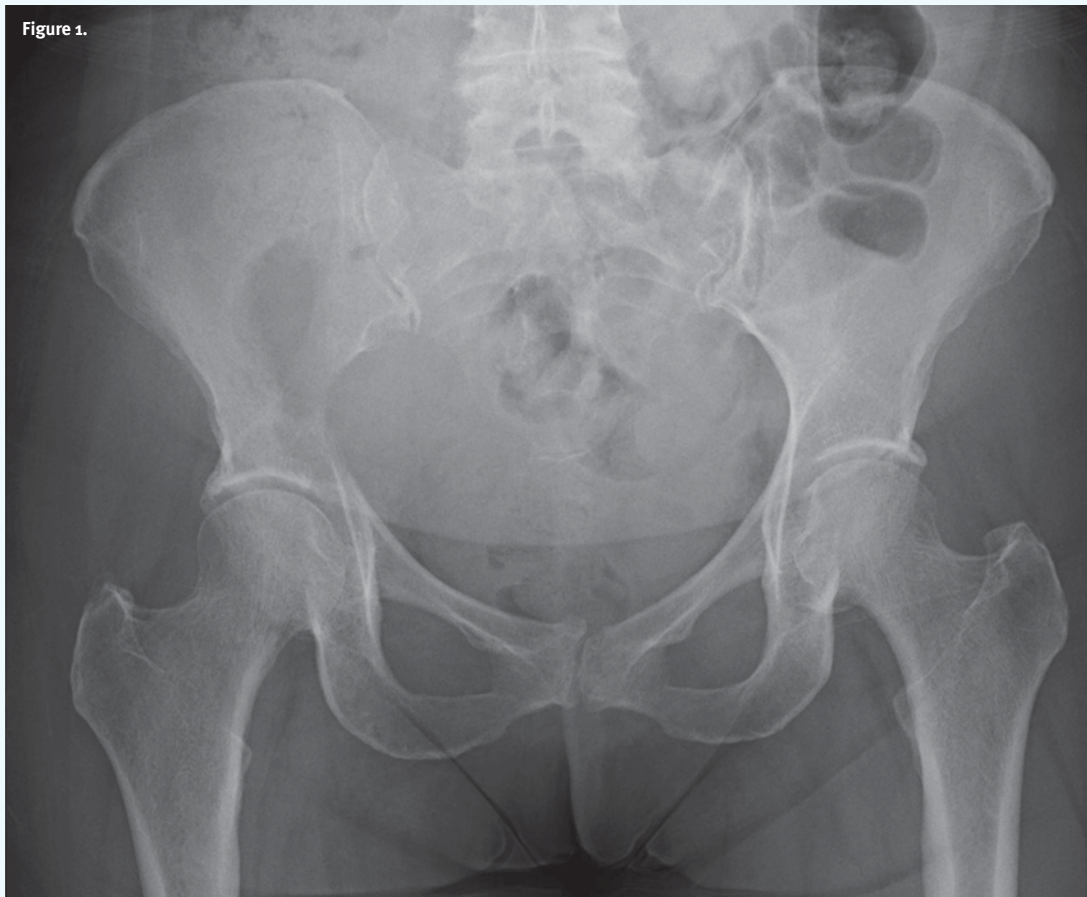




In each issue, *JUCM* will challenge your diagnostic acumen with a glimpse of x-rays, electrocardiograms, and photographs of conditions that real urgent care patients have presented with.

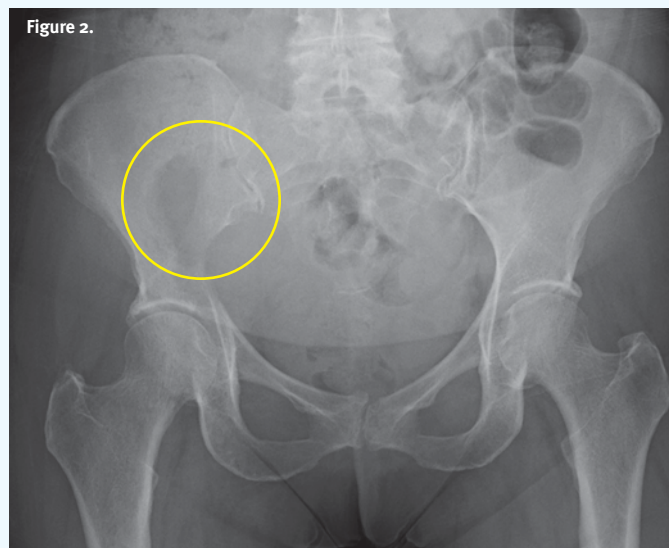
If you would like to submit a case for consideration, please e-mail the relevant materials and presenting information to editor@jucm.com.

4 Year Old With Right-Sided Pelvic Pain



On a Friday afternoon, a worried mother brings her 4-year-old daughter to the urgent care. She says the girl is complaining that her “side hurts.” The mother can’t recall any recent falls or injuries.

Review the image of the anterior to posterior (AP) pelvis taken upon presentation and consider possible diagnoses and next steps you would recommend to the family.



Differential Diagnosis

- Benign:
 - Most occur before the age of 40
 - Osteochondroma
 - Osteoblastoma
 - Giant cell tumor
 - Fibrous dysplasia
 - Aneurysmal bone cyst
 - Chondroblastoma
- Malignant:
 - Osteosarcoma
 - Chondrosarcoma
 - Chordoma
 - Ewing's
 - Metastases
 - Plasmacytoma
 - Lymphoma
 - Post-radiation sarcoma
- Malignancy Mimics:
 - Hemophilic pseudo tumor
 - Osteomyelitis
 - Insufficiency fracture
 - Particle disease

Diagnosis

The imaging reveals a large lytic lesion on the medial right iliac bone with ill-defined lateral margins (cortical destruction) and likely adjacent soft tissue mass. This either represents an aggressive malignancy (ie Ewings Sarcoma, Os-

teosarcoma, metastatic disease such as Neuroblastoma) or an aggressive benign lesion (ie Langerhans Cell Histiocytosis (LCH), Osteomyelitis, Osteoblastoma, Aneurysmal Bone Cyst).

What to Look For

- Age of the patient (4 years old), and painful lesion
- Appearance of the lesion: Fully lytic lesion with wide zone of transition (ill-defined margins) and loss of medial cortex indicating an aggressive lesion, with likely adjacent soft tissue mass
- Look for additional lesions elsewhere in the body

Pearls for Urgent Care Management

- Given the appearance in this case, you would be concerned about adjacent soft tissue mass with bony invasion and/or erosion
- Pediatric orthopedic consultation with a specialist in pediatric bone tumors is recommended
- Advanced imaging (MRI) and biopsy is indicated as directed by the pediatric orthopedic oncologist

References

1. McCarville MB. The child with bone pain: malignancies and mimickers. *Cancer Imaging*. 2009 Oct 2;9 Spec No A(Special issue A):S115-21. doi: 10.1102/1470-7330.2009.9043. PMID: 19965301; PMCID: PMC2797463.
2. Trueworthy RC, Templeton KJ. Malignant bone tumors presenting as musculoskeletal pain. *Pediatr Ann*. 2002 Jun;31(6):355-9. doi: 10.3928/0090-4481-20020601-07. PMID: 12073739.
3. Nik-Ahd M, Agrawal AK, Zimel M. Diagnosis and management of pediatric primary bone tumors in the emergency department. *Pediatr Emerg Med Pract*. 2021 Jul;18(7):1-20. Epub 2021 Jul 2. PMID: 34196516.

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



8 Year Old With Facial Lesions



An 8-year-old-boy presented to urgent care with his father for evaluation of 3 weeks of painless facial lesions. The patient had a history of atopic dermatitis and denies systemic symptoms. On examination, he appeared well. A cluster of umbilicated papules were seen over his right cheek.

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



Differential Diagnosis

- Folliculitis
- Lobular capillary hemangioma
- Milia
- Molluscum contagiosum (pediatric)

Diagnosis

The correct diagnosis for the patient in this case is pediatric molluscum contagiosum.

Molluscum contagiosum is a common viral skin infection of childhood caused by a DNA poxvirus. It is usually transmitted by direct skin-to-skin contact, through fomites, or from autoinoculation. There is an increased incidence in children with underlying atopic dermatitis, swimmers, children who bathe together, those who share towels, and immunosuppressed people. The exact incubation period is unknown but is estimated to be between 2 and 6 weeks. Though self-limited, the infection is often chronic and can range from a few months to 4 years before disappearing.

What to Look For

- Typical lesions are 2-5mm firm, dome shaped, skin-colored papules with a shiny surface and central umbilication
- Lesions can appear anywhere on the body except palms and soles, most commonly on the trunk, axilla, antecubital and popliteal fossa
- Lesions may be itchy and may become inflamed

Pearls For Urgent Care Management

- For immunocompetent patients, molluscum contagiosum is self-resolving with individual lesions resolving in months, however, overall infection may take up to 5 years to resolve
- Treatment with cryotherapy, curettage, cantharidin, and podophyllotoxin may be considered in severe cases
- Molluscum dermatitis is common (eczematous patches surrounding the lesions) and may be treated with topical corticosteroids (low or medium potency)

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



46-Year-Old Male With Severe, Worsening Chest Pain

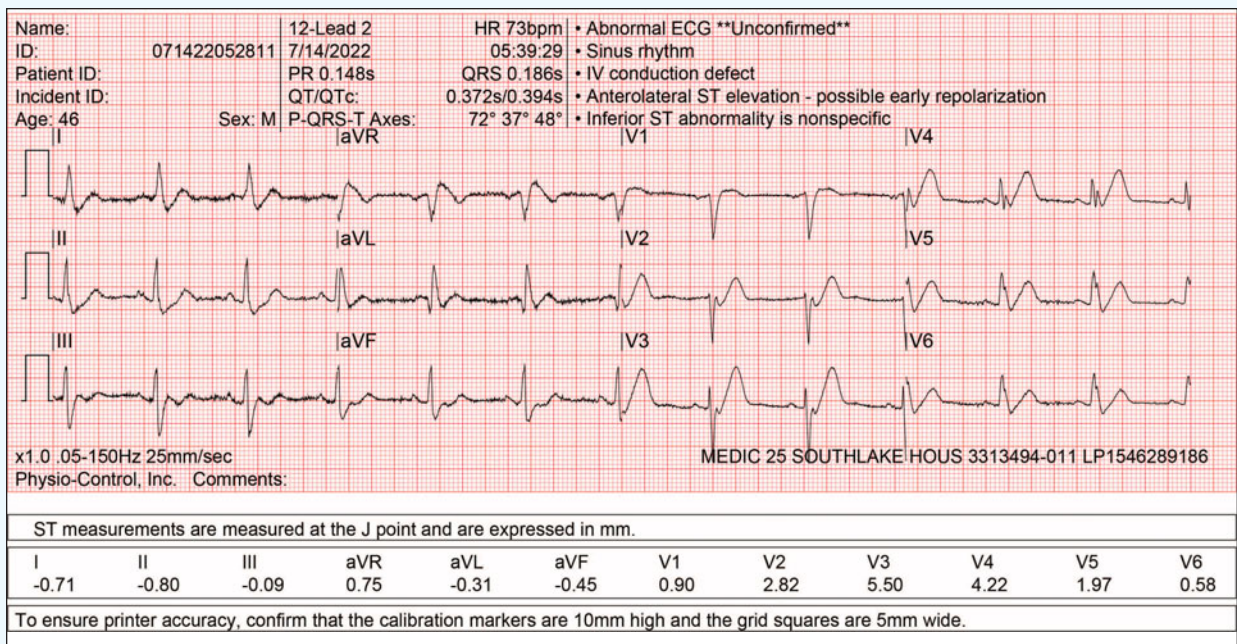


Figure 1. Pre-hospital ECG

A 46-year-old man with a history of hypertension presented in an urgent care center saying he’s had chest pain for 2 days. He also said the pain has been worsening each day, and today it is severe. He denies nausea, vomiting, or shortness of breath. On exam, he appears uncomfortable but has normal vital signs.

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 Catie Reynolds, MD, McGovern Medical School at UTHealth Houston, Department of Emergency Medicine

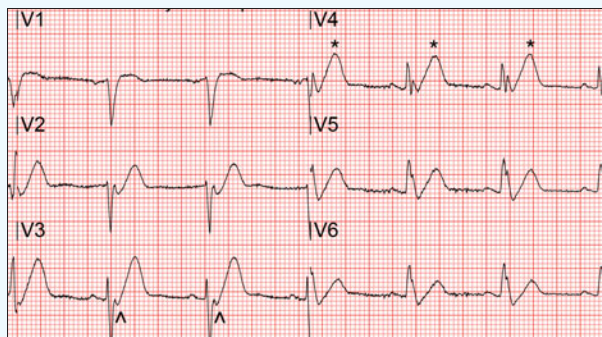


Figure 2: (^) indicate upsloping ST depression, (*) indicate large symmetric T waves seen throughout the precordial leads

Differential Diagnosis

- Benign early repolarization
- Hyperkalemia
- de Winter T waves
- ST-elevation Myocardial Infarction (STEMI)
- Brugada syndrome

Diagnosis

The diagnosis is de Winter T waves. The ECG reveals a normal sinus rhythm and 72 beats per minute. There are tall, symmetrical T waves with upsloping ST depressions in the precordial leads and ST segment elevation in aVR. When compared to the amplitude of the QRS complex, the precordial T waves are large, particularly in leads V4 and V5.

Described in 2008 by de Winter, this pattern of upsloping ST depressions and hyperacute T waves in the precordial leads suggests proximal left anterior descending (LAD) occlusion.¹ While this pattern does not meet classic STEMI criteria, it suggests the presence of an occlusion myocardial infarction that warrants emergent reperfusion. This pattern is seen in just 2% of acute LAD occlusions.² Cath lab activation for the de Winter pattern is recommended just as with a classic STEMI pattern.³

Characterization of the typical de Winter pattern is:

- 1 to 3 mm upsloping ST depression at the J point in precordial leads
- Large symmetrical T waves in precordial leads
- Narrow or slightly widened QRS complex
- 1 to 2 mm ST-segment elevation in aVR
- Loss of precordial R wave progression in some patients¹

Large T waves occur in many conditions including hyperkalemia, benign early repolarization, and ischemia. Large T waves found in patients with ischemia are symmetric and broad-based, with an amplitude that is large compared to the size of the QRS complex. Conversely, hyperkalemia causes peaked T waves with a

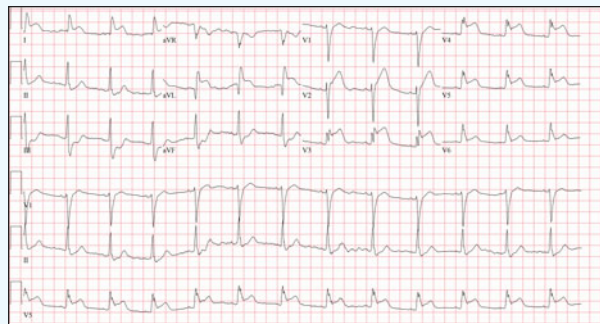


Figure 3: Repeat ECG with ST elevation in precordial leads (V2-5) and ST depressions in inferior leads (II, III, aVF). This ECG meets the criteria for a STEMI.

narrow base and a pointed peak. Benign early repolarization is diagnosed with diffuse, concave up ST segment elevation, as opposed to the ST segment depression seen here.

Hyperacute T waves are found in early ischemia and often precede ST segment elevation. De Winter T waves share many similarities with hyperacute T waves, but the de Winter pattern was originally described as static, persisting until reperfusion. The broad, symmetrical T waves of the de Winter pattern may persist for hours or days without evolving into an overt STEMI.

What to Look For

Tall, prominent, symmetrical T waves with upsloping ST depression in the precordial leads should prompt consideration of de Winter T waves. Repeat ECGs in patients with this pattern may remain static or progress to STEMI.

Pearls for Management; Considerations for Transfer:

- The de Winter pattern is seen in just 2% of acute LAD occlusions and is often under-recognized. While this pattern does not fit classical STEMI criteria, these patients need emergent reperfusion and should be transferred immediately for cath lab activation.
- Recognizing this pattern and expediting transfer will save the life of your patient.

References

1. de Winter RJ, Verouden NJ, Wellens HJ, Wilde AA. A new ECG sign of proximal LAD occlusion. *N Engl J Med.* 2008 Nov 6;359(19):2071-3
2. Verouden NJ, Koch K T, Peters R J, et al. Persistent precordial "hyperacute" T-waves signify proximal left anterior descending artery occlusion. *Heart.* 2009;95(20):1701-6. doi: 10.1136/hrt.2009.174557.
3. Rokos IC, French WJ, Mattu A, Nichol G, Farkouh ME, Reiffel J, et al. Appropriate cardiac cath lab activation: optimizing electrocardiogram interpretation and clinical decision-making for acute ST-elevation myocardial infarction. *Am Heart J.* 2010;160(6):995-1003.

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

ECG STAMPEDE