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 e-mail the relevant materials and presenting information to editor@jucm.com.

A 69-Year-Old with Neck Pain After a Car Crash

Figure 1.

Figure 2.

A 69-year-old man presents with "neck pain" after a motor vehicle accident. Lateral and oblique views of the lower cervical spine are ordered.

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

Figure 3.

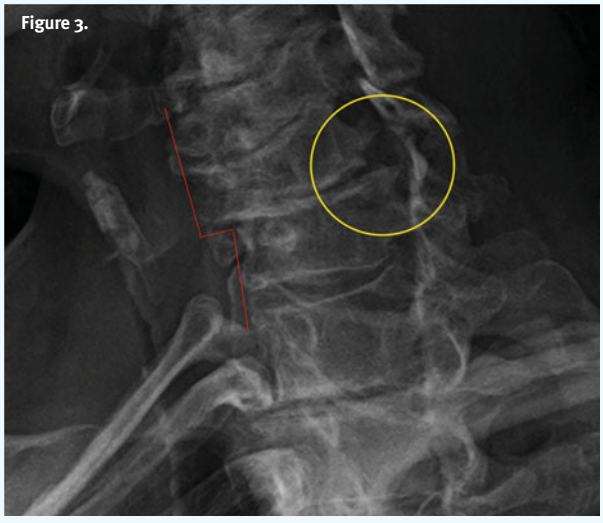

Figure 4.

Differential Diagnosis

- Cervical lateral mass fracture separation
- Osteoarthritis
- Perched facet joint
- Synovial cysts of the facet joints

Diagnosis

The correct diagnosis is perched facet joint, a vertebral facet joint whose inferior articular process appears to sit "perched" on the ipsilateral superior articular process of the vertebra below. The oblique view shows a lack of overlap of the c6 and c7 facets and anterolisthesis of c6 on c7. A step-off is noted along the posterior cervical line at c6 and widened interspinous space posteriorly. Additionally, the x-rays reveal significant degenerative changes with multilevel disc space narrowing, end plate spurring, and loss of height of c5 and c6 (likely chronic).

Learnings/What to Look for

- Any further anterior subluxation of the perched facet joint will result in dislocation, with one facet "jumping" over the other and becoming locked in this position
- Complications include spinal cord injury, especially with bilateral involvement or, in the setting of canal stenosis, vertebral artery injury, including dissection, thrombosis, and stroke
- Diagnosis can be confirmed with radiographs, CT scan or MRI

Pearls for Urgent Care Management

- Treatment usually involves closed or open reduction followed by surgical stabilization

Resources

- Sambhaji CJ. Perched facet joint. *Radiopaedia*. Available at: https://radiopaedia.org/cases/5948. Accessed August 2, 2023.
- Chieng R. Perched facet joint. *Radiopaedia*. Available at: https://radiopaedia.org/articles/5940. Accessed August 2, 2023.
- Forsthoefel C, Moore DW. Cervical facet dislocations & fractures. *Ortho Bullets*. Available at: https://www.orthobullets.com/spine/2064/cervical-facet-dislocations-and-fractures. Accessed August 2, 2023.

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

A 49-Year-Old Female with a 4-Week-Old Lesion on Her Toe

Figure 1.

A 49-year-old woman presents with a lesion that developed over her right toe over the past 4 weeks. It is painless, but has begun to bleed. On examination, a smooth, pink, friable, eroded nodule is seen on the nail bed.

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


Figure 2.

Differential Diagnosis

- Amelanotic melanoma
- Cutaneous squamous cell carcinoma
- Nodular basal cell carcinoma
- Subungual fibroma

Diagnosis

The correct diagnosis is amelanotic melanoma, a clinical subtype of cutaneous melanoma with little to no pigment on visual inspection. Amelanotic melanomas account for 2% to 10% of all melanoma cases. Any subtype of melanoma can present as amelanotic; however, nodular melanomas and unclassified melanomas (including desmoplastic and subungual melanomas) are most commonly reported.

Learnings/What to Look for

- Diagnosis is difficult as the appearance is more consistent with a mole, fibroma, hypertrophic scar, basal cell carcinoma, or squamous cell carcinoma
- Risk factors for amelanotic melanoma include exposure to UV rays, moles, fair skin, blond or red hair, older age, family or personal history of melanoma, and high amount of moles
- While no survival difference between pigmented and amelanotic melanomas exists, amelanotic melanomas tend to be associated with a worse overall survival rate than the pigmented counterpart, likely due to delay in diagnosis

Pearls for Urgent Care Management

- Referral to dermatology is warranted for further treatment considerations, including surgical excision

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

CLINICAL CHALLENGE: CASE 3

A 75-Year-Old Female with Dizziness and a Slow Heartbeat

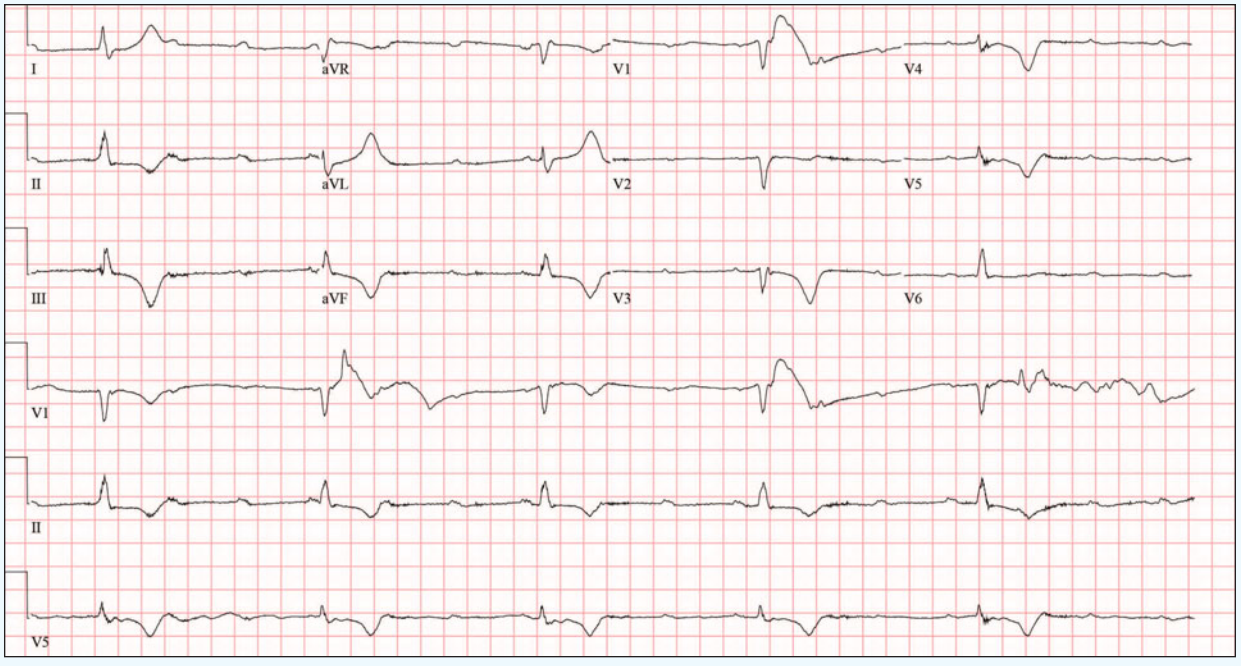

Figure 1. Initial ECG

The patient is a 75-year-old female who presents with dizziness and a slow heartbeat. She has a history of hypertension.

View the ECG taken and consider what your diagnosis and next steps would be. Resolution of the case begins on the next page.

(Case presented by Jonathan Giordano, DO, MS, MEd, McGovern Medical School at UTHealth Houston, Department of Emergency Medicine.)

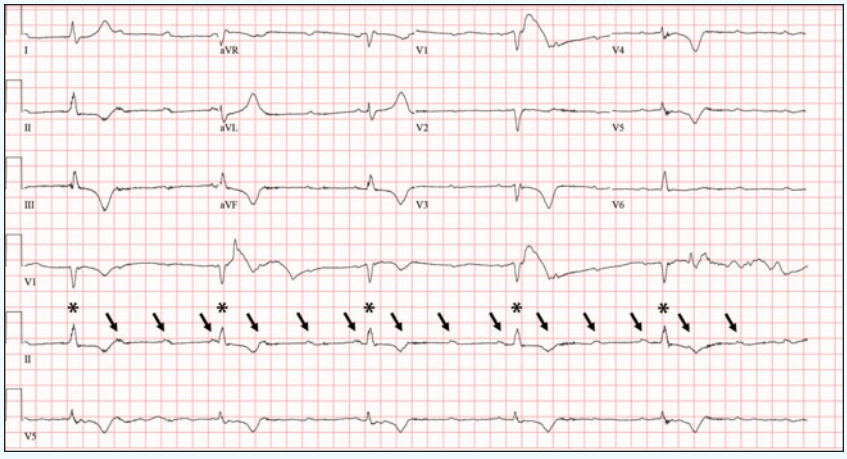

Figure 2. Arrows over the p-waves show the atrial rate. Stars over the QRS complexes highlight the ventricular rate. Note the dissociation between the p-waves and QRS complexes.

Differential Diagnosis

- First-degree heart block
- Second-degree type 1 heart block
- Second-degree type 2 heart block
- Third-degree (complete) heart block
- Hyperkalemia
- Sinus bradycardia

Diagnosis

The patient was diagnosed with a third-degree (complete) heart block. The ECG reveals a complete heart block with atrioventricular dissociation. There is an atrial rate of approximately 100 beats per minute and a ventricular rate of 30 beats per minute. There are no ST-elevations or depressions. T-wave inversions are noted in the precordium as well as in the inferior leads.

Complete heart block (CHB) is characterized by atrioventricular dissociation as atrial impulses fail to conduct to the ventricles. Due to this failure, the atria and ventricles act independently of each other. Systemic perfusion is maintained by an escape rhythm originating from either the junction or the ventricles.

Causes of CHB include myocardial infarction, AV nodal blocking drugs, or idiopathic degeneration of the conduction system. CHB caused by inferior myocardial infarctions tends to lead to junctional escape rhythms, while CHB caused by anterior myocardial infarctions causes slower ventricular escape rhythms.

If the block is the result of a diseased AV node, a junctional focus (escape rhythm) emerges and produces a rate typically between 40 and 60 beats per minute. This is characterized by a narrow QRS complex on ECG. However, when infra-Hisian (below the bundle of His) conduction disease exists as the cause, the escape focus is ventricular in origin, producing a slower, less reliable rhythm—characterized by a wide QRS complex on ECG. If no escape rhythm is present, the patient will not be able to perfuse, and will subsequently arrest due to cardiac standstill.

CHB is life-threatening, and it is typical for patients with this condition to experience severe bradycardia and hypotension. A pacemaker is the necessary treatment for CHB.

Additional examples may be found in the ECG Stampede glossary (www.ecgstampede.com/glossary).

Learnings/What to Look for

- CHB is a life-threatening event and prompt recognition, investigation into the underlying cause, and treatment are imperative
- A careful medication review should be completed for AV nodal blocking agents
- Consider thyroid studies if no other clear cause is identified
- Insults to the conduction system at the AV node are more likely to respond to atropine than infra-Hisian etiologies
- Hyperkalemia could be a mimic for CHB, and should be considered in patients with bradycardia, particularly if there is a wide-QRS complex

Pearls for Urgent Care Management and Considerations for Transfer

- Transcutaneous pacing pads should be placed, with emergent transfer to a higher level of care facility
- If unstable, transcutaneous pacing should be initiated

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

ECG STAMPEDE