

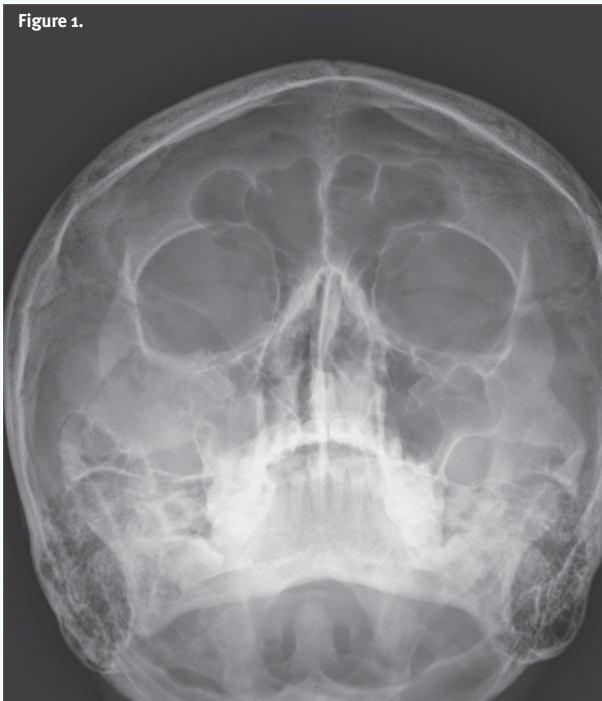


In each issue, *JUCM* will challenge your diagnostic acumen with a glimpse of x-rays, electrocardiograms, and photographs of conditions that real urgent care patients have presented with.

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

A 40-Year-Old with Swelling After a Direct Blow to the Eye

Figure 1.



A 40-year-old male presents with pain and swelling in his right eye after being struck by a foul ball while coaching his daughter's softball game.

Figure 2.



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

Figure 3.

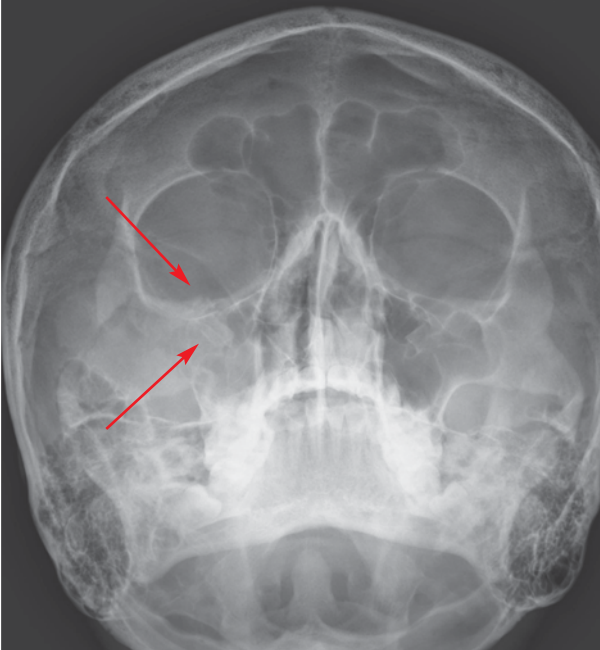
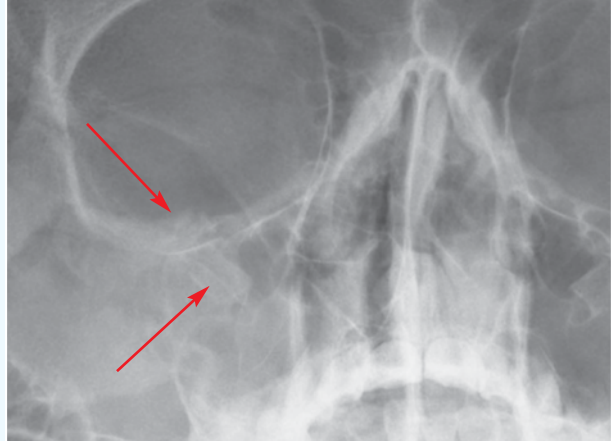


Figure 4.



Differential Diagnosis

- Orbital floor fracture
- Soft tissue edema secondary to trauma
- Traumatic diplopia
- Trochlear nerve palsy

Diagnosis

This patient had a right orbital floor fracture. Findings include partial opacification of the right maxillary sinus, an irregularity on the inferior orbital rim, and a subtle discontinuity on the orbital floor. The most common mechanism is a direct blow to the central orbit from a fist or ball.

Findings/What to Look for

- Orbital fractures can involve any wall of the orbit (medial, lateral, superior or inferior), the orbital rim, or both
- The inferior wall is the most common fractured

Clinical findings can include:

- Enophthalmos (sunken eyes)
- Diplopia (double vision due to extraocular muscle entrapment)
- Orbital emphysema, especially when the fracture is into an adjacent sinus
- Malar region numbness (due to injury to the infraorbital nerve)
- Hypoglobus (affected eye is lower than unaffected eye)

Pearls for Urgent Care Management

- Cold packs should be applied to reduce swelling
- Referral for ophthalmologic or surgical evaluation is needed
- Surgery may be indicated if there is nerve incarceration, acute enophthalmos or hypoglobus, and limitation of gaze

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



A 46-Year-Old with Evolving Sores on Her Hand and Arm



A 46-year-old female presents with an evolving eruption that developed on her right hand and spread to her forearm over the past several weeks. She is an immunocompetent commercial landscaper who lives in Brazil, and she does not recall any specific injury. She is regularly exposed to toxic plants and sustains minor scratches and cuts at work. She also suspects that she could have experienced bug bites.

She appears well and is without systemic symptoms. On examination, you note smooth, scaly, and crusted, erythematous nodules in a linear configuration on her dorsal hand and forearm.

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

- Rocky Mountain spotted fever
- Sporotrichosis
- Mycetoma
- Melioidosis

Diagnosis

The correct diagnosis is sporotrichosis, a disease caused by the dimorphic fungus *Sporothrix schenckii*, found worldwide but more commonly in tropical and subtropical climates. The organism resides in decaying vegetation, plants, and soil. Cutaneous infection usually results from traumatic inoculation. Sporotrichosis is the most common and least severe of the deep mycoses.

Learnings/What to Look for

- The lesions of sporotrichosis may present in three different patterns:
 - Lymphocutaneous or sporotrichoid pattern—as seen above, 75% of cases
 - Fixed cutaneous—no lymphatic dissemination; may be more likely to develop in patients previously sensitized to *S schenckii*
 - Disseminated cutaneous—occurs with systemic in-

volvement, is rare and usually in the context of severe immunosuppressed states

- Thorny plants, such as barberry and rose bushes, are the most common source of cutaneous inoculation of sporotrichosis. Other plant exposures include sphagnum moss, straw, hay, soil, and mine timbers
- Occupational exposures include farmers, florists, gardeners, and forestry workers

Pearls for Urgent Care Management

- Untreated cutaneous sporotrichosis usually waxes and wanes over months to years without systemic manifestations
- Antifungal treatment is the standard of care
- Topical heat to lesions may be beneficial in strains that cause cutaneous or lymphocutaneous sporotrichosis

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



A 69-Year-Old Male with Left-Sided Chest Pain and Dyspnea for 3 Days

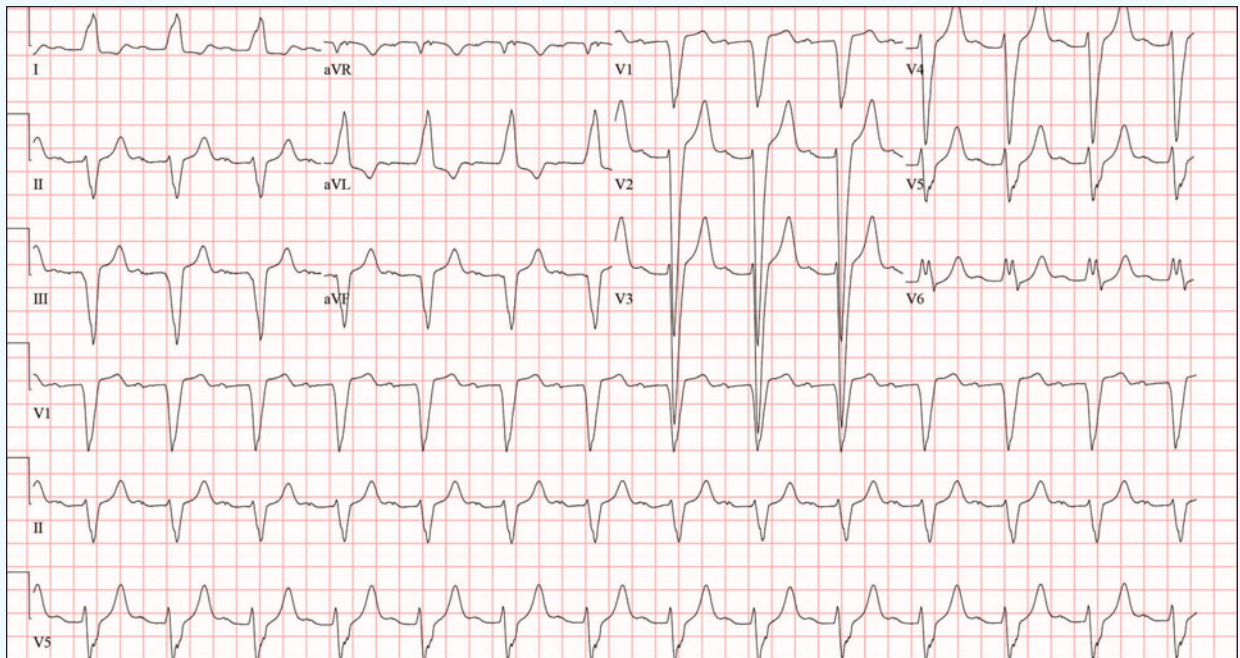


Figure 1. Initial ECG

The patient is a 69-year-old male who presents to urgent care complaining of left-sided chest pain and dyspnea for 3 days. The patient has no known cardiac history.

View the ECG taken and consider what your diagnosis and next steps would be.

(Case presented by Benjamin Cooper, MD, MEd, FACEP, Department of Emergency Medicine, McGovern Medical School at UTHealth Houston.)

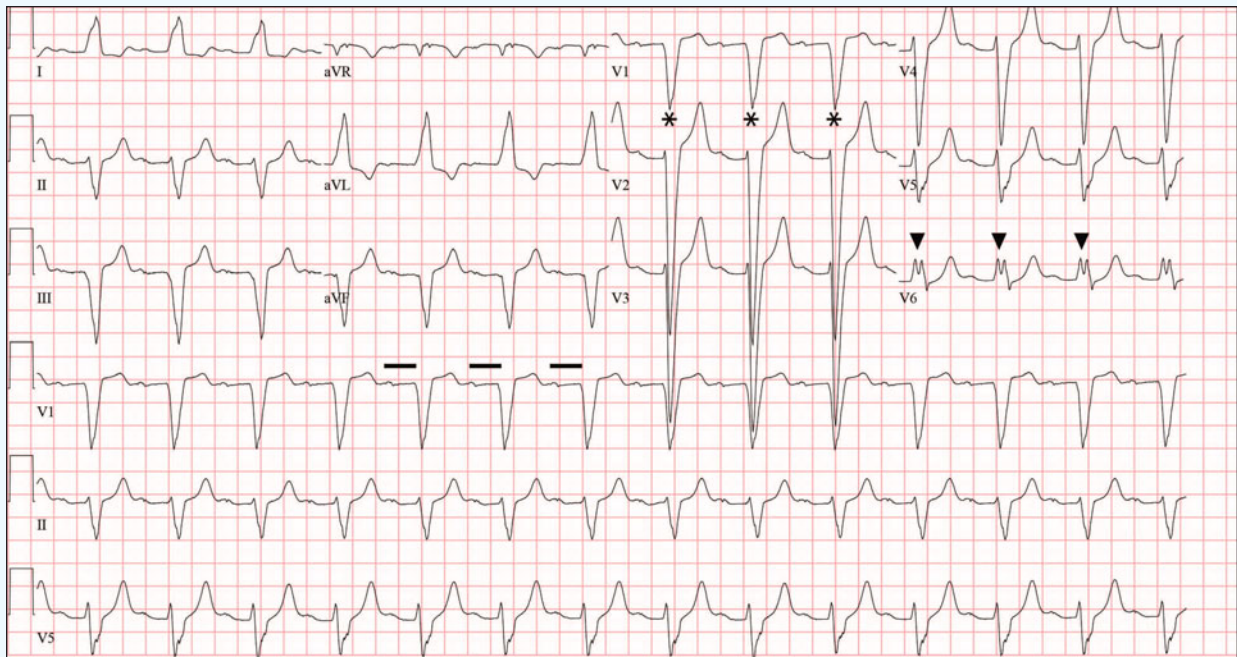


Figure 2: The wide QRS (>120 msec), dominant S wave in V₁ (asterisks), broad notched R wave in V₆ (arrowheads) and absent q waves in lead I, V₅, and V₆ indicates the presence of a left bundle branch block. The PR interval is prolonged (horizontal line).

Differential Diagnosis

- ST-elevation MI (STEMI)
- Left ventricular hypertrophy (LVH) with strain
- Hyperkalemia
- Left bundle branch block (LBBB)
- Ventricular tachycardia

Diagnosis

The ECG reveals a regular, wide-complex, sinus rhythm at a rate of 84 beats per minute. The wide QRS complex (>120 msec), dominant S wave in V₁, broad notched R wave in the lateral leads (I, aVL, V₆), and left axis deviation indicate the presence of a left bundle branch block (LBBB). The prolonged PR interval represents a first-degree atrioventricular block.

Our understanding of the trifascicular framework of the intraventricular conduction system comes from the seminal work of Rosenbaum, et al from 1969 to 1973.

These works elucidated three conduction terminals—one in the right ventricle (the right bundle) and two in the left ventricle (the anterior and posterior divisions of the left bundle).¹⁻³

Conduction disturbances of any or all three conduction terminals may result from structural abnormalities of the His-Purkinje system caused by necrosis, fibrosis, calcification, infiltrative disease, electrolyte disturbances, or im-

Table 1. Abbreviated electrocardiographic criteria for complete LBBB⁴

Dominant S wave in V₁ QRS duration greater than or equal to 120 ms in adults

Broad notched or slurred R wave in leads I, aVL, V₅, and V₆

Absent q waves in leads I, V₅, and V₆, but in the lead aVL, a narrow q wave may be present in the absence of myocardial pathology

R peak time greater than 60 ms in leads V₅ and V₆ but normal in leads V₁, V₂, and V₃

Associated features:

ST and T waves usually opposite in direction to QRS
Left axis deviation

paired vascular supply.⁴

When conduction is impaired to both left ventricular terminals, the result is an LBBB. **Table 1** lists the established electrocardiographic criteria for the diagnosis of LBBB.

Historically, LBBB was thought to prevent accurate recognition of acute myocardial infarction, resulting in poor allocation of reperfusion therapy.⁵ In fact, for many years (until 2013), new or presumed new LBBB was considered equivalent to an ST-elevation myocardial infarction.⁶

The Sgarbossa/modified Sgarbossa criteria can help to

Table 2. Modified Sgarbossa criteria for determining myocardial infarction in the presence of a LBBB⁷

ST-segment elevation ≥ 1 mm and concordant with the QRS in at least 1 lead

ST-segment depression ≥ 1 mm in any of leads V₁–V₃
Excessively discordant ST-segment elevation in any one lead

Defined by most negative ratio of ST/S and at least 1 mm of STE

Cut point for ST/S ratio < -0.25

Note that the presence of any one of the three criteria rules in for myocardial infarction.

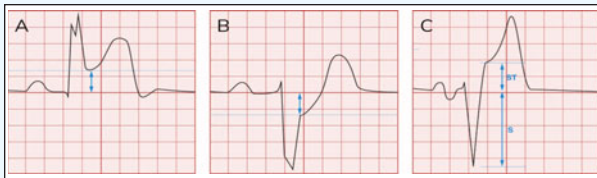


Figure 3. Panel A shows concordant ST-segment elevation. Panel B shows concordant ST-segment depression in leads V₁, V₂, or V₃. Panel C shows excessively discordant ST-segment elevation. Images used with permission from ddxof.com.

identify underlying myocardial infarction in patients with symptoms of acute coronary syndrome in the setting of a LBBB (Table 2 and Figure 3).

Our patient does not meet Sgarbossa criteria, but the presence of an LBBB and a first-degree atrioventricular block does indicate significant pathologic conduction disease.

The symptomatic patient with an LBBB should be transferred to a catheterization-capable facility for further work-up. The ECG Stampede glossary at www.ecgstampede.com/ glossary includes additional examples.

Learnings/What to Look for

- Electrocardiographic findings of left bundle branch blocks include a wide QRS, a dominant S wave in V₁,

and a notched or slurred R wave in leads I, aVL, V₅, and V₆

- Apply the modified Sgarbossa criteria for consideration of myocardial infarction in patients with symptoms of acute coronary syndrome with a left bundle branch block
- Always compare with prior ECGs when available

Pearls for Urgent Care Management

- Patients with symptoms concerning for acute coronary syndrome should be transferred to catheterization-capable facility for evaluation
- A new left bundle branch block, in and of itself, does not indicate the need for emergent reperfusion; however, the provider must always consider the entire clinical picture

References

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

ECG STAMPEDE