

Differential Diagnosis

- Hand sprain
- 4th Metacarpal (barber pole) fracture
- 5th Metacarpal (boxer's) fracture
- Ulnar styloid avulsion fracture

Diagnosis

This is a 4th metacarpal shaft fracture, specifically a “barber pole” fracture. Findings on the AP x-ray reveal a spiral band of sclerosis that has the appearance of a barber pole as well as a displaced spiral fracture of the 4th metacarpal on the oblique view. This type of barber pole fracture is common and may involve fractures of the metacarpal head, neck, and/or shaft. The mechanism of injury for a shaft fracture includes axial loading or direct trauma (eg, clenched fist and solid surface impact). Rotational and/or torsional force may also result in this type of injury.

What to Look For

- Metacarpal fractures are most often the result of direct trauma but may also occur from repetitive stress
- Locations metacarpal fractures include the head, neck, shaft and base of the metacarpal
- Key examination components include evaluation for bony deformity, malrotation, skin breakage and neurovascular compromise

Pearls for Urgent Care Management

- Metacarpal fractures with significant angulation first require reduction
- Treatment includes gutter splint immobilization for nondisplaced metacarpal fractures with minimal angulation and no malrotation; immobilize metacarpophalangeal joints in 70-90° of flexion and splint for at least 4 weeks
- Referral to orthopedics is indicated for open fractures, unacceptable angulation, malrotation, and multiple fractures for consideration of operative management



64-Year-Old With Facial Lesion



A 64-year-old man presents to urgent care with a lesion on his face for the last 2 months. On examination, a shiny, eroded, blue-black nodule was seen on his right cheek. He is a postal worker. Histopathology examination showed aggregates of melanin and melanocytes within sheets of basaloid keratinocytes with peripheral palisading and surrounding clefts within a fibromyxoid stroma containing melanophages.

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).



Differential Diagnosis

- Blue nevus
- Cutaneous squamous cell carcinoma
- Pigmented basal cell carcinoma
- Superficial basal cell carcinoma

Diagnosis

The correct diagnosis in this case is pigmented basal cell carcinoma (BCC)—the most common type of cancer in humans. A neoplasm of basal keratinocytes, BCC is rarely fatal. Accumulation of melanin and melanophages in the BCC tumor nodules produces clinically pigmented BCCs, which can occur on any site but most commonly on the head and neck. The condition has greater incidence in older individuals with a median age at diagnosis of 68 years. Pigmented BCCs are observed twice as frequently in Hispanic patients as compared to White patients, and environmental factors such as indoor tanning or exposure to ionizing radiation also increase risk of BCC.

There are several subtypes of BCC, including nodular; superficial; infundibulocystic; fibroepithelial; morpheaform (sclerosing, desmoplastic); infiltrative; micronodular; and basosquamous.

What to Look For

- Nodular BCC typically presents as a pink, pearly, flesh colored papule which may be translucent with visible telangiectatic vessels. It may also be pigmented as in the case above. It frequently has a rolled border and an ulcerated center.
- Superficial BCC typically presents as a light red to pink flesh-colored macules, patches, or thin plaques that may have a slight scale. These may also be pearly or shiny.

Pearls for Urgent Care Management

- Referral to dermatology for biopsy and eventual surgical excision is indicated
- Topical therapies are considered second-line



52-Year-Old With Palpitations

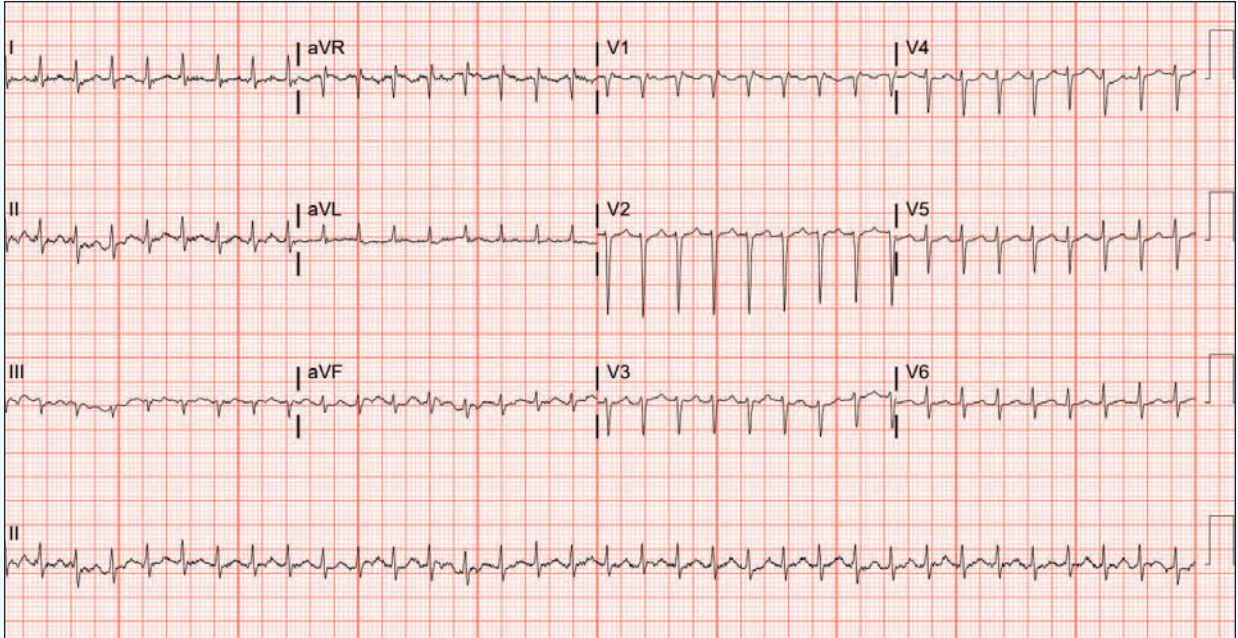


Figure 1: Initial ECG

A 52-year-old male presents to urgent care complaining of palpitations. 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 Benjamin Cooper, MD, McGovern Medical School, The University of Texas Health Science Center at Houston, Department of Emergency Medicine.

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





Figure 2: Pseudo-R waves in V1 represent retrograde P' waves (arrowheads).

Differential Diagnosis

- Atrioventricular nodal reentrant tachycardia
- Sinus tachycardia
- Atrial tachycardia
- Atrial flutter

Diagnosis

The diagnosis in this case is atrioventricular nodal reentrant tachycardia. The rate is tachycardic at 200 beats per minute with a narrow QRS and a regular rhythm. P waves cannot be clearly delineated; however, retrograde P' waves can be seen immediately following the QRS complexes in V1, where they create a pseudo-R appearance (**Figure 2**).

Discussion

The differential for narrow complex regular tachycardia includes sinus tachycardia, atrioventricular nodal reentrant tachycardia (AVNRT), atrioventricular reentrant tachycardia, atrial flutter, and atrial tachycardia. P waves can aid the diagnosis but are often obscured by the preceding P waves at faster rates. If P waves are present in a sawtooth pattern (especially in the inferior leads), atrial flutter is likely (2:1 conduction usually has a ventricular response rate around 150). AVNRT is a micro-reentrant circuit within the atrioventricular node that typically has a rate between 140 and 220 beats per minute. While most cases of AVNRT do not have visible P waves, up to one-third of AVNRT cases will have retrograde P' waves immediately following the QRS complex, giving the appearance of a "pseudo-S wave" in the inferior limb leads, or a "pseudo-R wave" in V1 (**Figure 1**).¹⁻³ The presence of tachycardia beyond the maximum expected heart rate (220 minus the age), and lack of R-R variation also favor AVNRT.

Treatment of AVNRT includes atrioventricular nodal blocking agents (eg, adenosine, diltiazem, metoprolol, amiodarone) or maneuvers to increase vagal tone.³ Vagal maneuvers are techniques to increase the parasympathetic tone and can be helpful for treating certain arrhythmias; examples include the Valsalva maneuver, carotid massage, and gagging or vomiting. The modified Valsalva technique includes a passive leg raise after the Valsalva strain and is reported to be nearly 50% effective.⁴ While cardioversion

is recommended for unstable patients, this equipment is rarely available in Urgent Care, so 911 activation is indicated. Having an automated external defibrillator (AED) near the patient while awaiting ambulance transport is appropriate, however, applying the pads is not indicated unless the patient loses consciousness. This patient's rhythm converted to sinus after administration of adenosine.

Atrioventricular reentrant tachycardia involves an accessory pathway, the stigmata of which can be seen on the resting ECG (ie, delta wave and shortened PR interval). Atrial tachycardia involves an ectopic focus that delivers impulses typically at a rate of 150 to 250 beats per minute.⁵ With atrial tachycardia, the P wave axis will be abnormal (usually down in aVR and up in lead II indicating non-sinus activity).

What to Look For

- AVNRT is narrow, fast, and regular
- Rates typically exceed the maximum expected heart rate (220 minus the age)
- One-third of cases will have retrograde P' waves immediately following the QRS complexes in V1 or lead II

Pearls for Initial Management, Considerations for Transfer

- When AVNRT is suspected, attempt bedside vagal maneuvers first
- If vagal maneuvers are unsuccessful, medications can be attempted if available; otherwise, transfer to a capable facility
- If unstable, immediate electrical cardioversion is indicated

References

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