Editor's Note: While the images presented here are authentic, the patient cases are hypothetical.

51-Year-Old With Hemoptysis

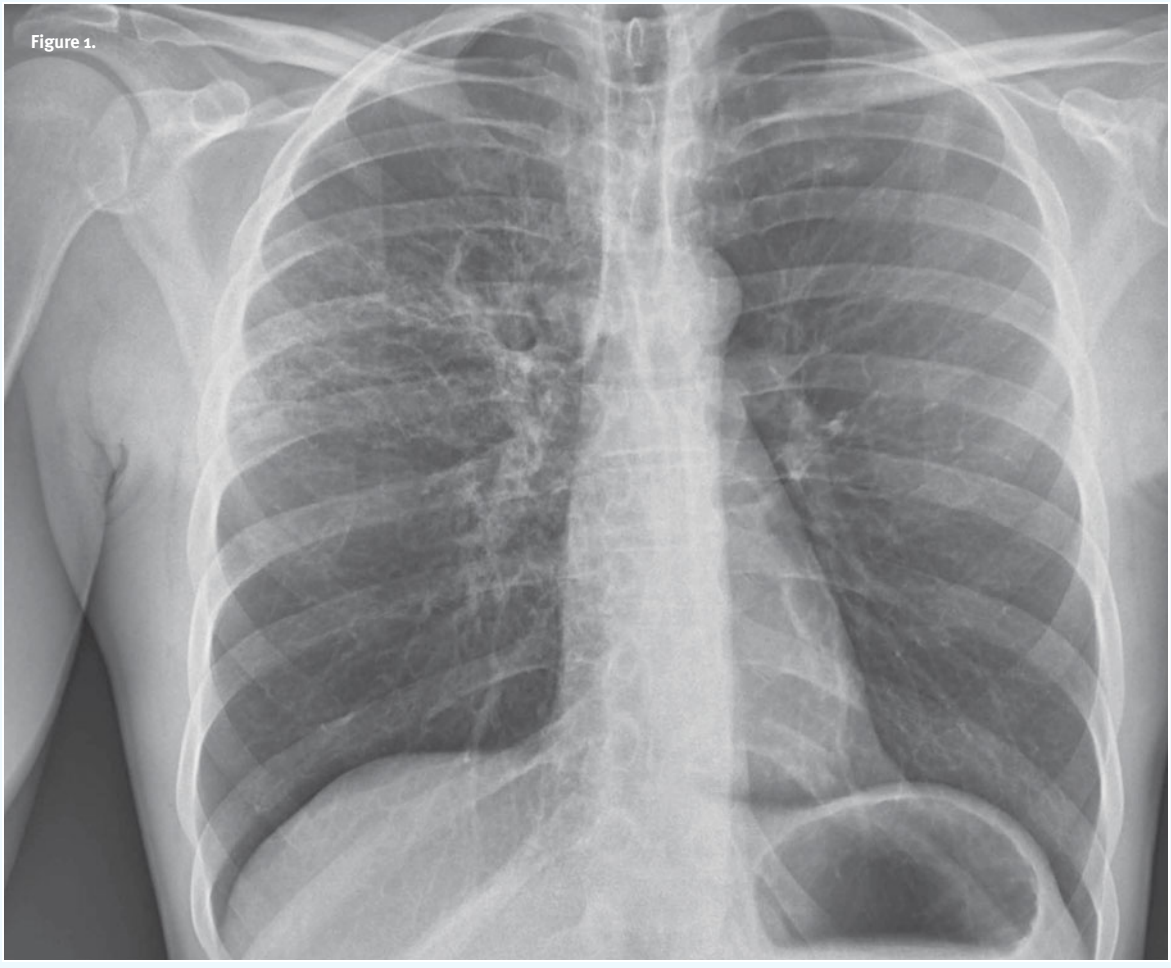


Figure 1.

A 51-year-old man presents to urgent care complaining of night sweats and a productive cough with visible blood for the past 2 weeks. He says he's been feeling rather tired lately. A chest x-ray is ordered.

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

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

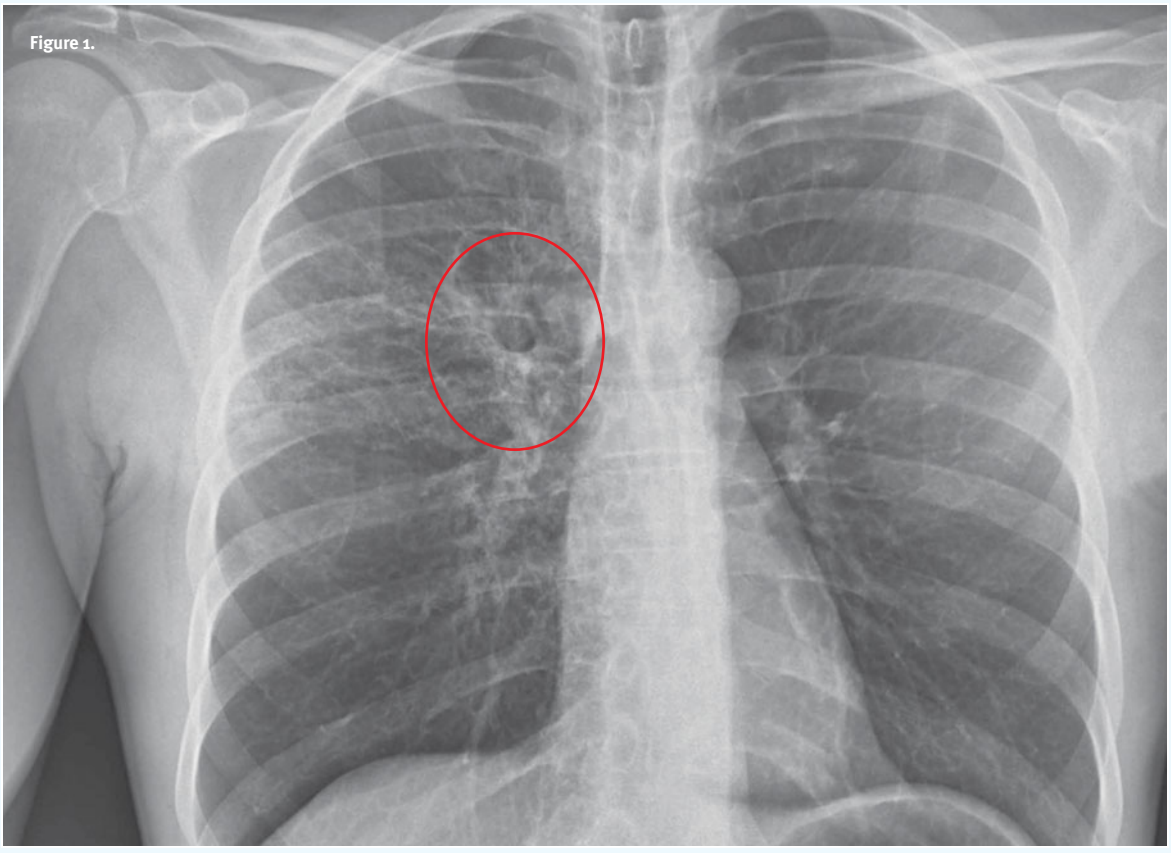


Figure 1.

Differential Diagnosis
- Community acquired pneumonia
- Aspergillus pulmonary infection
- Post-primary tuberculosis

Diagnosis

The correct diagnosis in this case is post-primary tuberculosis (TB). This radiograph demonstrates the typical appearance with patchy consolidation and poorly defined linear and nodular opacities. Cavitation is also present. Pleural effusions are also possible but not present in this radiograph.

Post-primary TB is a pattern of disease that arises in a patient who has previously been exposed to TB. This occurs when the disease reactivates in dormant primary lesions, usually several decades after infection when the patient experiences a weakened immune system.

What to Look For
- X-ray findings include interstitial infiltrates, nodular/linear opacities, and/or cavitary lesions commonly in the upper lobes
- Patients with post-primary TB are often asymptomatic or have only minor symptoms, such as a chronic dry cough
- Symptomatic patients experience constitutional symptoms such as fever, malaise, weight loss, or blood-stained productive cough
- Occasionally, patients may present with massive hemoptysis due to an erosion of a bronchial artery

Pearls for Urgent Care Management
- Place the patient in a surgical mask to avoid the spread of TB
- Airborne precautions should be implemented including N95 mask use by healthcare professionals
- If the patient is stable, contact the local public health department to coordinate confirmative testing and a treatment plan
- If the patient is severely ill, transfer to the emergency department for further evaluation and treatment

55-Year-Old With Hand Rash

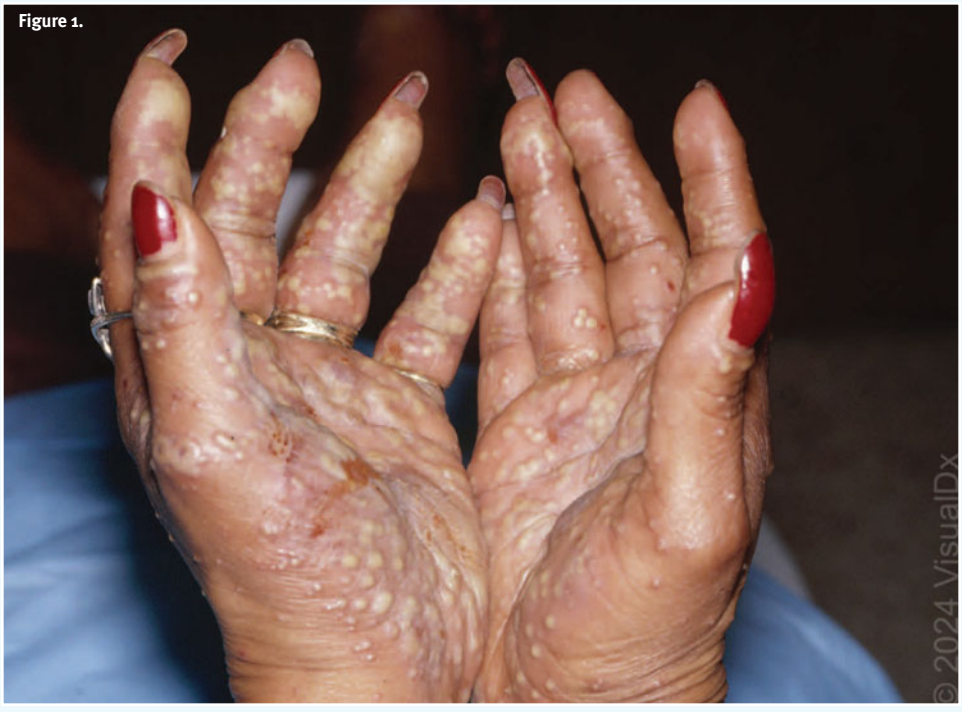


Figure 1.

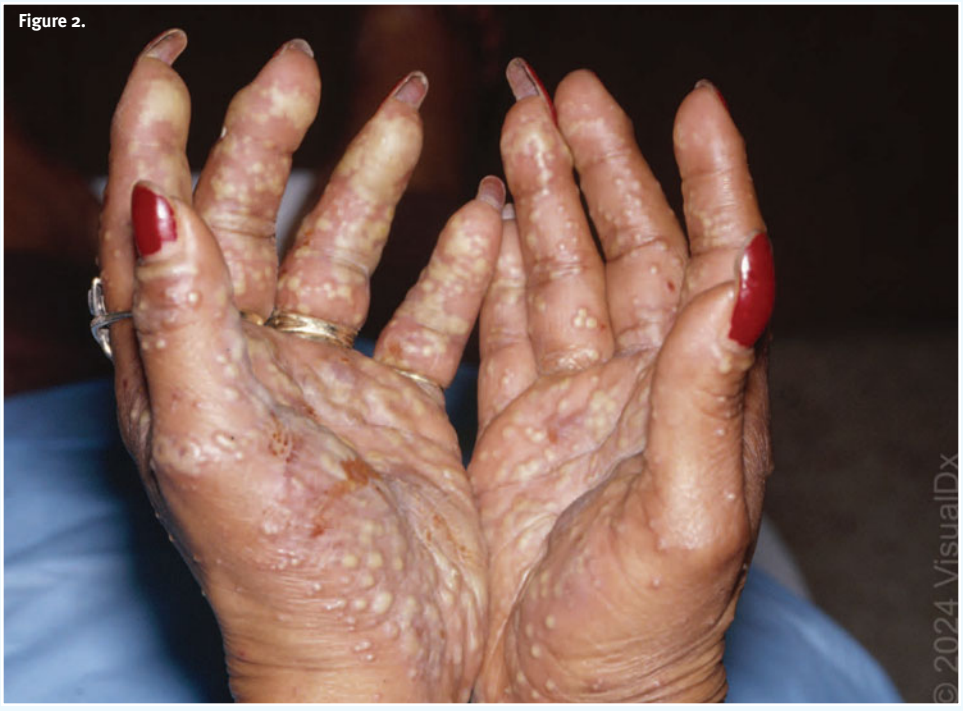
A 55-year-old woman presents to urgent care with complaints of arthralgia and a pustular rash on her hands. She has a past medical history of Crohn disease and has taken infliximab as treatment for the past year. The patient has no recent history of travel or infections and no history of any skin conditions. On dermatological examination, multiple pustules, some becoming confluent to form "lakes of pus," were seen on the palms and fingers. Bacterial and fungal cultures were negative.

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).

THE RESOLUTION

Figure 2.



Differential Diagnosis

- Dyshidrotic dermatitis
- Erythema multiforme
- Palmoplantar pustulosis
- Vasculitis

Diagnosis

The correct diagnosis in this case is palmoplantar pustulosis, a chronic eruption of the palms and soles, composed of sterile vesicles and pustules, often accompanied by painful fissuring. It is mostly seen in middle-aged women. Palmoplantar pustulosis may occur alongside or follow a systemic infection, including group A streptococcal infection. It may also be triggered by tumor necrosis factor-alpha inhibitor medication or metal allergy.

What to Look For

- Systemic symptoms are usually absent
- Besides the pustules/vesicles/fissures, there may be pain, pruritus, or a burning sensation
- Importantly, symptoms are limited to the palms and soles

Pearls for Urgent Care Management

- Palmoplantar pustulosis may resolve spontaneously; however, periods of exacerbation and remission may occur
- First-line treatment includes the use of a medium potency topical corticosteroid for 4 weeks
- Follow-up with dermatology should be recommended

17-Year-Old With Syncope

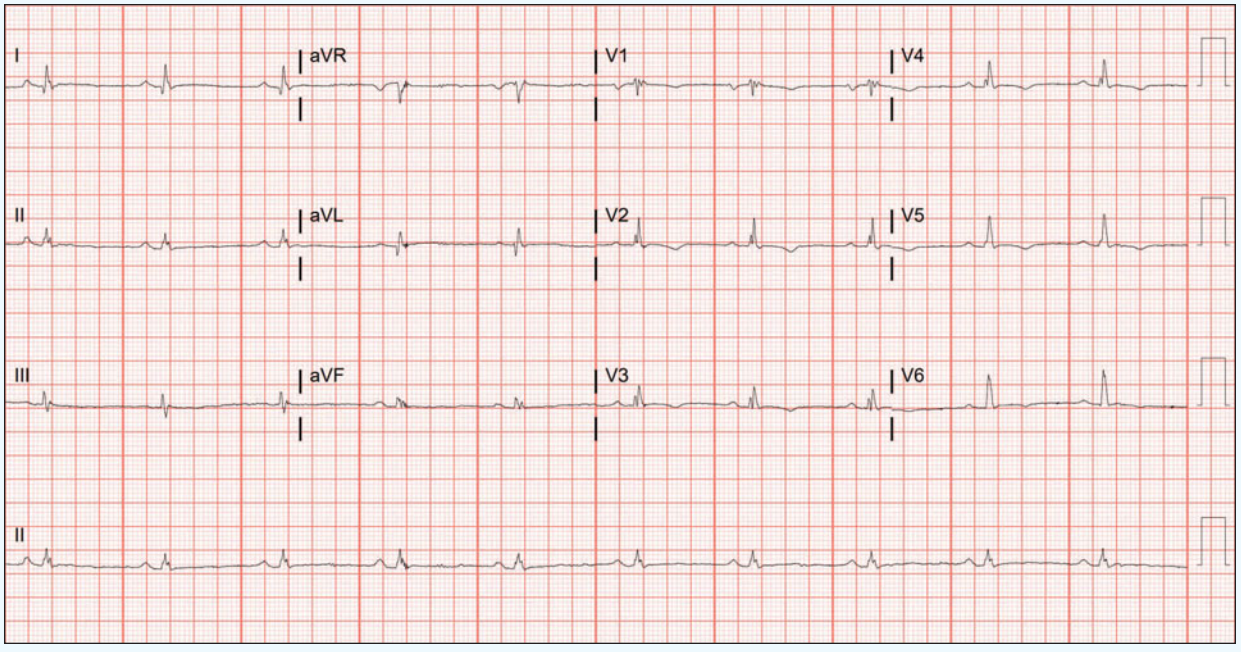


Figure 1: Initial ECG

A 17-year-old male presents to urgent care with syncope. He has a family history of sudden cardiac death. He is well appearing and with normal vital signs. 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, MEd, FACEP, McGovern Medical School at the University of Texas Health Science Center at Houston

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

ECG STAMPEDE

Differential Diagnosis

- Arrhythmogenic right ventricular cardiomyopathy (ARVC)
- Brugada syndrome
- Wellens syndrome
- Third degree heart block
- Wolf-Parkinson-White (WPW) syndrome

Diagnosis

The diagnosis in this case is arrhythmogenic right ventricular cardiomyopathy. There is a normal sinus rhythm with a ventricular rate of 60 beats per minute, and there is an incomplete right bundle branch block pattern (iRBBB) in the right precordial leads (ie, V1 through V3) with associated T-wave inversions (typical for iRBBB). There is terminal notching of the QRS complex seen in V1, which is consistent with Epsilon waves, confirming the diagnosis of ARVC.

Discussion

ARVC is an inherited and progressive condition characterized by structural abnormalities in the right ventricle that predispose it to ventricular arrhythmias and sudden cardiac death. The condition is more common in males, most prevalent in the Italian population, and usually discovered during adolescence.[1,2] About 30% of patients will have Epsilon waves, which are terminal notches near the end of the QRS complex and are the most specific finding of ARVC.[3] While Epsilon waves are a hallmark finding, they are a late finding of fatty and fibrous infiltration of ventricular myocardium and represent fragmented conduction through islands of surviving myocardium in the right ventricular outflow tract (**Figure 2**).

T wave inversions are the most sensitive finding, present in up to 85% of patients, and are generally found in the right precordial leads, as with our case.[4] Other electrocardiographic findings include incomplete and complete right bundle branch block. Diagnosis is confirmed via magnetic resonance imaging, and treatment includes antiarrhythmics and implantable defibrillators.[1] Patients with suspected ARVC should be referred to a center with electrophysiologic capabilities. The urgent care clinician should consider defibrillator pad placement prior to, and during, transfer.

Brugada syndrome is a sodium channel disorder and cause of sudden cardiac death; it is characterized electrocardiographically by a right bundle branch block appearance in V1 and/or V2 with coved-type ST-segment elevations.[5] Wellens syndrome represents an ECG pattern seen in patients with critical stenosis of the proximal left anterior descending artery; it is characterized by biphasic T waves or deeply inverted, symmetric T waves in the anterior precordial leads.[6] WPW is a ventricular pre-excitation syndrome that predisposes to arrhythmias.[7] Electrocardiographic findings of WPW include a short PR segment, delta waves, and a slightly widened QRS—none of which are seen in this ECG. Additional electrocardiographic considerations for patients presenting with syncope include ischemia, heart blocks, hypertrophic cardiomyopathy, and prolonged QT.

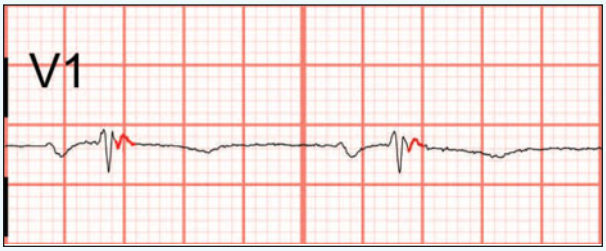


Figure 2: Epsilon waves in V1 highlighted in red.

What To Look For

- ARVC is a cause of sudden cardiac death, predominantly in young men
- It is characterized electrocardiographically by T wave inversions in the right precordial leads, and 30% may have Epsilon waves, terminal notches near the end of the QRS complex

Pearls For Initial Management, Considerations For Transfer

- Patients with suspected ARVC should be referred to an electrophysiologic center
- Place defibrillator pads while waiting for and during transfer

References

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