



Atypical Chest Pain in a Fibromyalgia Patient Presenting to Urgent Care

Urgent message: Underlying medical and psychiatric conditions can cloud judgment and lead to cognitive errors, which may result in potentially serious medical errors.

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Case Presentation

A 31-year-old woman with a medical history significant for fibromyalgia, migraines, bipolar disorder, and anxiety presents with 2 hours of severe bilateral neck spasms, left shoulder and arm pain, and chest pain which began soon after taking a new prescription for olanzapine. She also has worsening in her chronic anxiety and relates similar symptoms related to her fibromyalgia in the past. She requests ketorolac as this has worked for her in the past.

In addition:

- PMH: Negative
- PSH: Negative
- FH: Negative
- SH: She denies drug use

The nurse states the patient is a “frequent flyer” and suggests you look through previous visits before making a decision on the management and disposition. Review of the EMR indicates that the patient has had multiple visits for neck pain, back pain, shoulder pain, and joint pain, always with an overlay of anxiety and relieved with ketorolac.

Physical

Vital signs:

- Pulse: 65 bpm
- BP: 125/72RR: 18
- Oxygen saturation 99% on room air

General: Agitated and anxious; trouble sitting still; difficulty focusing on the history and physical

Neck: Tender with muscular palpation over the neck,



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upper back and shoulders

Chest: Chest wall tender, patient complains that the ECG leads are hurting her and reproducing her pain

Lungs: Clear to auscultation

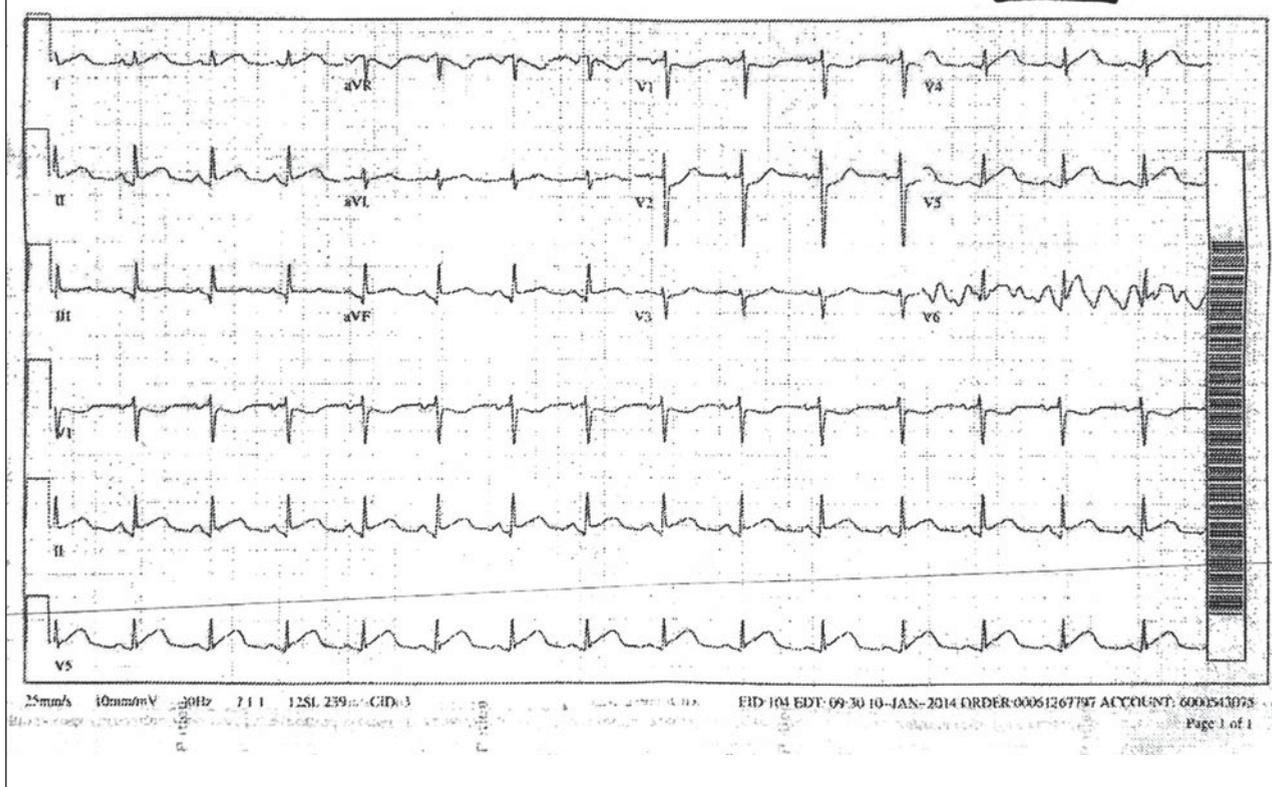
Heart: Regular rate and rhythm; no murmurs or gallops heard

Abdomen: Soft, non-tender

Extremities: Symmetric, normal tone, normal range of motion

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Figure 1.



Neurologic: Awake alert and oriented; non-focal motor exam

ECG: See **Figure 1**. The ECG is interpreted as normal sinus rhythm with inferior Q waves and ST changes (leads II, III, aVF) concerning for inferolateral ischemia.

“Clinical features of myocarditis may include chest pain, palpitations, shortness of breath, and fatigue...but these findings may be subtle. Patients may exhibit tachycardia, hypotension, signs of overt heart failure, cardiomegaly, heart block, arrhythmia, and sudden cardiac death.”

Discussion

Differential diagnosis includes myocardial ischemia,

cocaine effects, normal variant, past history of infarction, myocarditis, and takotsubo cardiomyopathy. The HEART score (H=history, E=ECG, A=age, R=risk factors, T=troponin) is a quick and simple way to risk-stratify patients with chest pain for acute coronary syndrome, with a low score (0–3) making the risk of a major adverse cardiac event (MACE) very unlikely.²

While tempting to use, we do not have a troponin result; of note, the score should not be used with ECG findings of acute ischemia.

The patient denies drug use, but even if cocaine is present that may still indicate ischemia due to vasoconstriction and increased platelet aggregation. Without a previous ECG, we cannot assume a normal variant and will need to assume there is acute ischemia.

The Q waves may indicate a previous infarction.

Myocarditis is a difficult diagnosis, as initial symptoms may be subtle, sometimes with isolated chest pain and tachycardia. Takotsubo cardiomyopathy (broken-heart syndrome or stress cardiomyopathy) is a cardiomyopathy that occurs in the absence of atherosclerotic heart disease.³ Onset frequently occurs in periods of extreme

emotional stress, such as the death of a close relative, financial crisis, or broken bone. The illness mimics MI, but the coronary arteries are found to have no occlusions. Catecholamine surge is the suspected cause of this disorder. Patients are subject to the same complications as any other myocardial infarction patient.

Outcome

Despite the patient's past history of fibromyalgia and symptoms of anxiety, the ECG was very concerning for ischemia; however, the patient was not willing to stay and signed out against medical advice (after appropriate discussion and documentation).

Two days later, she went to her primary care doctor with the similar complaints, with a focus on the neck and shoulder pain. Curiously, she did not mention the chest pain. The primary care provider apparently did not look at the previous visit or the ECG, and reassured the patient that she would be fine with rest and her usual medications.

She was found dead in her home later that day.

The patient had an autopsy, which revealed a ruptured left ventricle with a hemorrhagic pericardial effusion. The microscopy on the myocardium was consistent with inflammatory changes due to a myocarditis. The coronary arteries were clean. It was later discovered that the patient had an upper respiratory infection a couple of weeks prior, which the pathologist felt may have been the cause of the myocarditis.

Myocarditis

Clinical features of myocarditis may include chest pain, palpitations, shortness of breath, and fatigue, but this is a difficult diagnosis as these findings may be subtle. Patients may exhibit tachycardia, hypotension, signs of overt heart failure, cardiomegaly, heart block, arrhythmia, and sudden cardiac death.⁴

The most common causes of myocarditis include viral infection, bacterial infection, Lyme disease, cardiotoxins, cocaine, hypersensitivity reactions, and systemic inflammatory diseases.⁵

Markers of inflammation such as ESR and CRP are usually elevated, as is troponin. Echocardiogram will reveal focal or global myocardial dysfunction and a reduced ejection fraction. Pericardial effusion may be present.

Although not *always* required, an endomyocardial biopsy *may* be required to establish the diagnosis. Prognosis depends on severity of illness and underlying cause. Transplantation may be lifesaving.

Debrief

This patient was a frequent visitor to urgent care. She had presented multiple times with similar symptoms, leading both the provider and the patient to believe that her symptoms were related to a flare of fibromyalgia. The overlying symptoms of bipolar disorder and anxiety, and the history of the recent initiation of olanzapine, further complicated the diagnostic process.

“The astute clinician needs to evaluate each visit as a separate entity so serious underlying pathology is not missed. Past medical history should be used as a tool to assist decision-making, but not guide it.”

It would have been very easy to dismiss her symptoms based on her previous visits, fibromyalgia, the olanzapine, or her anxiety. This type of cognitive error constitutes posterior probability error, or the “history repeats itself” bias.¹ In this error, the urgent care or emergency department staff (as well as the patient) may estimate the likelihood of disease, in this case fibromyalgia flare, based on the previous visits and diagnosis.

The astute clinician needs to evaluate each visit as a separate entity so serious underlying pathology is not missed. Past medical history should be used as a tool to assist decision-making, but not guide it. As an example, patients with migraines still may be susceptible to subarachnoid hemorrhage and need to be carefully assessed for other potentially more serious causes of headache at each visit.

In this case, had this provider diagnosed the patient with fibromyalgia or anxiety symptoms and not ordered an ECG, he or she would have missed a serious life-threatening condition. Sadly, identifying the abnormal ECG did not improve the outcome in this case. ■

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