

# Regional Pericarditis Mimicking as ST-segment Elevation Myocardial Infarction

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**Abstract** Acute pericarditis is common and often mimics acute coronary syndrome (ACS) in clinical as well as electrographic presentation. It is essential to differentiate between these two conditions, as treatment is different. A rare form of acute pericarditis, regional pericarditis, can be elusive, especially when it presents on EKG as an acute ST-segment elevation MI of a particular wall. We present a case of localized (regional) pericarditis in a 66-year-old female with a history of rheumatoid arthritis who presented to the emergency department with localized left-sided chest pain. Her arrival EKG showed acute anterolateral wall ST-segment elevation. The patient received diagnostic cardiac catheterization, treatment with colchicine and steroid, which produced resolution of symptoms and EKG changes.

**Keywords:** pericarditis, ST-segment elevation, colchicine

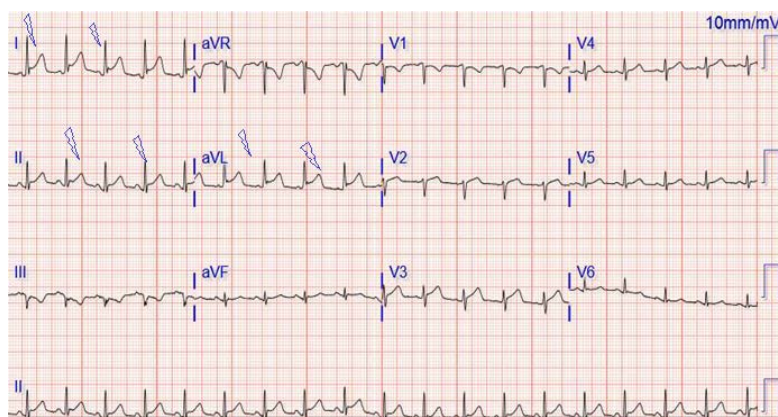
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## 1. Case Description

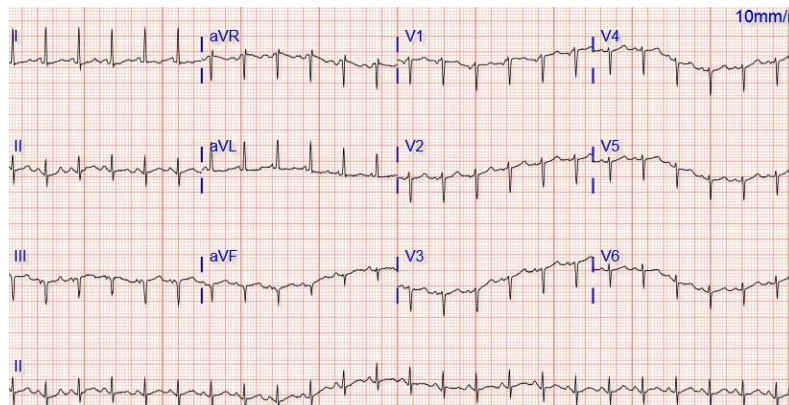
A 66-year-old female patient with a past medical history of rheumatoid arthritis, hypertension, and gout presented to the emergency department with a complaint of left-sided, localized non-exertional sharp chest pain. The pain intensity was 5/10, worse with breathing; she denied both shortness of breath and recent history of cold symptoms. An EKG was suggestive of acute anterolateral wall myocardial infarction, [Figure 1](#). The patient had although a chest CT was negative for pulmonary embolism, it showed mild pericardial effusion. Given the chest pain and EKG changes, the patient received a cardiac catheterization that was diagnostic without any significant coronary artery disease; therefore, no stent was placed.

After cardiac catheterization, the patient became hypotensive (BP 66/44) with dizziness. Given her history of rheumatoid arthritis and steroid use, adrenal insufficiency was a concern. The patient received intravenous fluid and hydrocortisone. Her serum cortisol was 9.6 mg/dL.

The patient's blood pressure improved and her chest pain resolved refer to [Figure 2](#) - repeat EKG. The patient was discharged on a tapering dose of steroids. After completing prednisone, the patient started to have recurrent pleuritic chest pain. The patient had a repeat chest CT that was negative for pulmonary embolism but showed moderate pericardial effusion. The patient had an elevated C-reactive protein of 26 and an elevated ESR of 110 mm/hr. The patient was diagnosed with focal pericarditis and started on colchicine, ibuprofen, and a tapering dose of prednisone. Her chest pain completely resolved.



**Figure 1.** Admission EKG, arrows pointing towards STEMI



**Figure 2.** Follow-up EKG showing resolution of ST-segment elevation

## 2. Discussion

Acute pericarditis is an inflammation of the pericardium characterized by chest pain, pericardial friction rub, and EKG changes. A patient must have 2 of the following four criteria to warrant a clinical diagnosis of acute pericarditis: (1) typical pericardial chest pain, (2) pericardial friction rub, (3) EKG changes like widespread ST-segment elevation or PR segment depression, (4) new or worsening pericardial effusion. [1] EKG changes in acute pericarditis occur in four stages. Stage 1 lasts for several days to weeks and is characterized by concave ST-segment elevation less than 5 mm with reciprocal depression in leads aVR and V1. Stage 2 shows normalization of ST-segment elevation and PR segment depression towards isoelectric status and lasts for several days. Stage 3 starts in the third week lasting for several days characterized by T-wave inversion(s). Stage 4 is marked by resolution of T-wave inversion(s). [2] The most frequent cause of acute pericarditis is an idiopathic or viral infection in developed countries and tuberculosis in developing countries [3].

Differentiation between acute ST-segment elevation myocardial infarction and acute pericarditis can be challenging, particularly in the context of localized ST-segment elevation as a presentation of regional pericarditis. [4] However, acute ST-segment elevation associated with myocardial infarction is convex upward but concave downward in case of pericarditis. Simultaneous T-wave inversion and pathological Q-wave are associated with acute ST-segment elevation myocardial infarction but not localized pericarditis. [5] Echocardiography can be helpful in observing any regional wall motion abnormalities and pericardial effusion in the case of atypical localized pericarditis. However, echocardiography is of paramount importance in differentiating between acute pericarditis

and myocardial infarction in an acute setting to prevent delay in reperfusion. [6]

In our case, the lack of elevated troponins, the diagnostic cardiac catheterization, the elevation of the inflammatory markers (ESR, CRP), resolution of chest pain, and EKG changes were highly suggestive of localized pericarditis.

## 3. Conclusion

Localized pericarditis is a clinical condition that can mimic acute ST-segment elevation myocardial infarction on EKG as well as presentation. It is essential to differentiate between these two situations to avoid unnecessary delay in reperfusion, particularly in case of acute ST-segment elevation myocardial infarction.

## References

- [1] Masek, K. P., & Levis, J. T. (2013). ECG Diagnosis: Acute Pericarditis. *The Permanente Journal*, 17(4), e146.
- [2] Orme, J., Eddin, M., & Loli, A. (2014). Regional pericarditis status post cardiac ablation: A case report. *North American Journal of Medical Sciences*, 6(9), 481-483.
- [3] Imazio, M., Spodick, D. H., Brucato, A., Trincherio, R., Markel, G., & Adler, Y. (2010). Diagnostic issues in the clinical management of pericarditis. *International Journal of Clinical Practice*, 64(10), 1384-1392.
- [4] Youssef, G., M. D., Khouzam, S., M. D., Sprung, J., M. D., Ph. D., & Bourke, D. L., M. D. (2001). Regional Pericarditis Mimicking Myocardial Infarction. *Anesthesiology: The Journal of the American Society of Anesthesiologists*, 95(1), 261-264.
- [5] Alexander RW, Schlant RC, Fuster V: *The Heart*. New York, McGraw-Hill, 1998, pp 2169-74.
- [6] Acibuca, A., Gerege, D. M., Baris, V. O., & Kilickap, M. (2016). Localised pericardial effusion mimicking anterior myocardial infarction following coronary angiography. *Cardiovascular Journal of Africa*, 27(1), e1-e3.

