



CASE REPORT

Dynamic Interventricular Septal Hematoma Following Blunt Chest Trauma Presents as ST Elevation Myocardial Infarction

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Introduction

Motor vehicle accidents are the most common cause of blunt chest trauma leading to cardiac complications.¹ These complications can result in arrhythmias to sudden death.² The left anterior descending (LAD) artery is the most common vessel involved because of its relation to the anterior chest wall.² Blunt trauma to the chest can cause acute myocardial infarction (AMI) from dissection of the vessel, intimal tear, or epicardial hematoma.³

Intramycardial hematoma has been described after septal artery perforation during percutaneous coronary intervention, but it is less common with blunt chest trauma.⁴ Diagnosis of LAD artery involvement is suggested by precordial ST changes. It usually is confirmed by invasive coronary angiography.⁵ Echocardiography is helpful in diagnosing pericardial fluid collections and in delineating regional wall motion abnormalities. Its role in delineating intramycardial hematomas is less defined.

We present a case of a 33-year-old man with blunt chest trauma, anterior ST segment elevation, and a dynamic intramycardial hematoma.

Case Report

A 33-year-old male presented with chest pain following a motor vehicle accident. A chest CT scan was unremarkable. An electrocardiogram showed anterior ST seg-

ment elevation (Figure 1). Troponin was elevated. The echocardiogram showed anterior akinesia and a dynamic intramycardial hematoma in the mid interventricular septum (Figure 2). The hematoma had a diameter of 11mm during systole and 20mm during diastole. It was largest beyond the end of the T wave (see Figure 2). Ejection fraction was 45%. He was transferred to a cardiac surgical facility where the coronary angiogram showed a dissection of LAD. He was managed with thrombectomy. He made an unremarkable recovery.

Discussion

This case highlighted the dynamism of an intramycardial hematoma due to coronary flow dynamics. Coronary blood flow is maximal in diastole.⁶ During systole the hematoma compressed and probably dissipated to the surrounding tissues to some extent. During diastole, the muscles relaxed and the pressure fell accommodating more blood from the surrounding tissues and also likely from the LAD through a perforation. The mechanism could have been similar to a pseudo-aneurism. However, several hours after the echocardiogram was done, the angiogram showed only a dissection and thrombus in the LAD with no perforation. It is likely that a small perforation may have sealed itself.

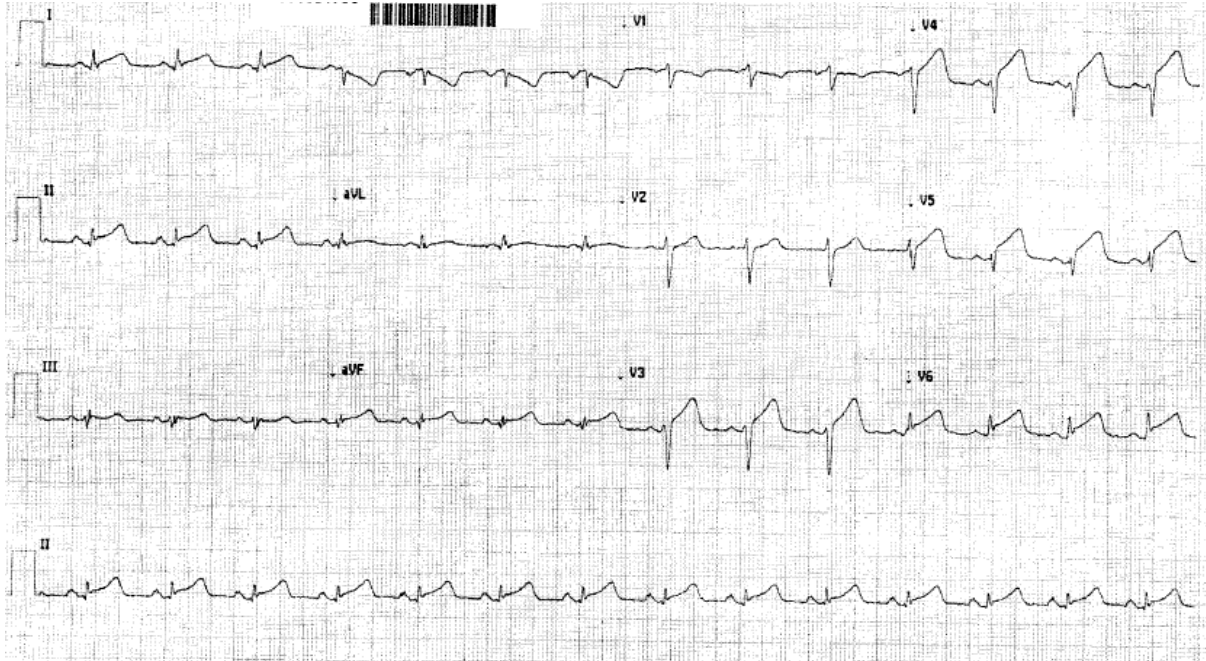


Figure 1. The electrocardiogram shows the ST segment elevation.

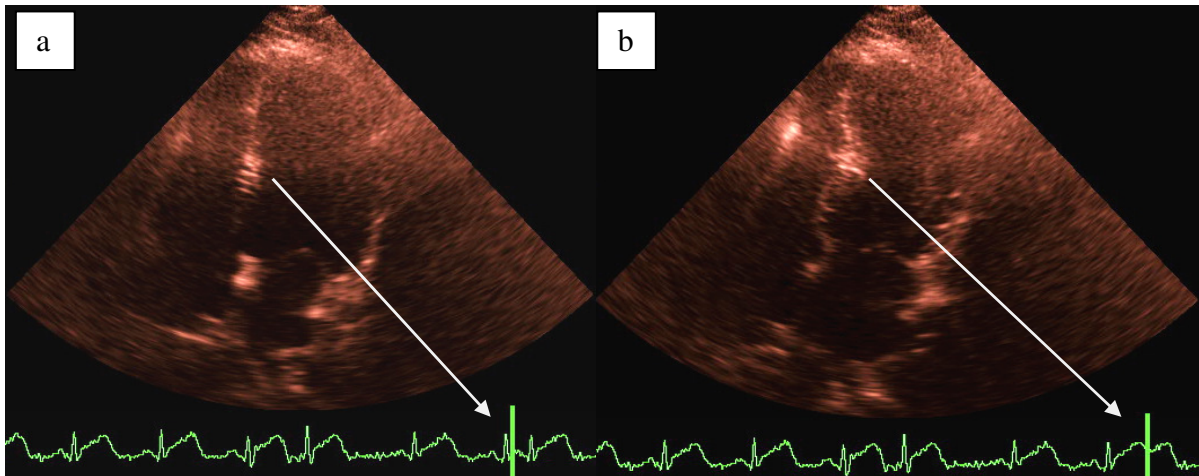


Figure 2. (a) During systole, the midseptum is unremarkable. (b) During diastole, the septum is thickest, suggesting an abnormal diastolic expansion of the region coinciding with increase in coronary blood flow during this phase of the cardiac cycle. (Arrows point toward septum size.)

References

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