

Beyond the Infarct: Case Series of Free Wall Rupture After Acute Myocardial Infarction

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Introduction

Acute myocardial infarction (AMI) causes the loss of functioning ventricular wall. Free wall rupture (FWR) is a catastrophic mechanical complication of AMI, typically occurring within the first week. Studies have reported an incidence rate of 1 – 3% in AMI patients.¹

Case Description

We present three cases of AMI complicated by suspected FWR. All three cases were complicated by cardiac arrest. Patient Y & Z collapsed shortly after arrival in emergency department (ED) and were unable to be revived.

Patient	Age/Sex	Diagnosis	Focused Cardiac Ultrasound (FoCUS)	Management	Outcome
X	64 Female	Inferior STEMI Killip IV on double inotropes	PLAX: heterogenous collection at RV free wall ~2.9cm.	Emergency sternotomy	Survived
Y	79 Male	Anteroseptal STEMI Killip 4	Large pericardial effusion, cardiac standstill	Pericardiocentesis	Deceased
Z	58 Male	Anterior STEMI Killip I	Large pericardial effusion, cardiac standstill	Pericardiocentesis	Deceased

Discussion

FWR should be considered in post AMI patients with sudden cardiac arrest. FoCUS is crucial for rapid diagnosis by detecting pericardial tamponade or direct visualization of the myocardial rupture. Management of FWR is emergent and mainly surgical.^{2,3} Pericardiocentesis may provide temporary hemodynamic relief, but definitive therapy requires surgical repair. The outcomes of FWR are poor without surgical repair, especially in unwitnessed PEA¹. 2 of the cases (Patient Y & Z) had cardiac arrest events and did not survive despite emergency pericardiocentesis done. Patient X managed to undergo emergency sternotomy surgical repair with pericardial patch. These cases underscore the importance of early ultrasound and swift surgical escalation.

Figure 1: Subcostal view revealed heterogeneous collection (white arrow) at RV free wall with RV collapse

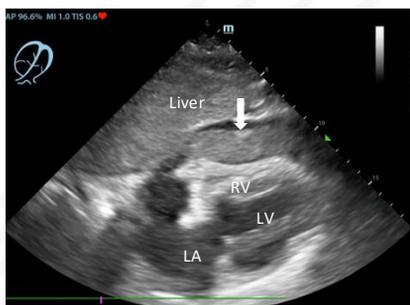
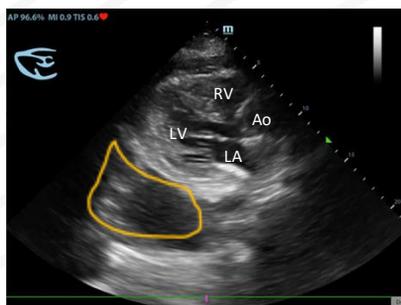


Figure 2: PLAX view revealed anechoic structure (yellow label) below the heart which is the pericardial effusion



Conclusion

FWR, though rare, remains a catastrophic complication of AMI. Survival is critically dependent on prompt recognition and immediate surgical intervention. These cases underscore the vital role of early FoCUS in patients presenting with hemodynamic instability or cardiac arrest following AMI.