

Mechanical complications of myocardial infarction: a retrospective analysis of five-year experience at the Slavonski Brod General Hospital

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Introduction: Mechanical complications of myocardial infarction (MI) represent rare but potentially fatal sequelae of acute MI that, despite advanced reperfusion therapies, maintain extremely high mortality rates^{1,2}. These complications include left ventricular free wall rupture, interventricular septal rupture, papillary muscle rupture, and cardiac tamponade. Quick diagnosis is of utmost importance and echocardiography is the most available method for establishing it^{3,4}. **Aim:** To analyze demographic characteristics, types of complications, management approaches, and short-term outcomes of patients with mechanical complications of MI treated at General Hospital Slavonski Brod during a five-year period.

Patients and Methods: All patients with mechanical complications of MI hospitalized between January 2020 and October 2025 were retrospectively analyzed. Data were collected from the hospital information system and cardiology department database. Demographic characteristics, types of complications, infarct localization, culprit coronary vessels, management approaches, and short-term outcomes were analyzed. All diagnoses were confirmed by echocardiography.

Results: A total of 11 patients were identified with a mean age of 73.8 years (range 61-88 years) and female predominance (54.5%). The most common complication was left ventricular free wall rupture (54.5%), followed by interventricular septal rupture (27.3%) and cardiac tamponade (18.2%). The right coronary artery was the most common culprit vessel (45.5%), while inferoposterior localization predominated in 36.4% of cases. Surgical management was applied in 54.5% of patients. Two cases had spontaneous cessation of bleeding without the need for surgical management: one case of cardiac tamponade where spontaneous cessation occurred after pericardiocentesis without a clear site of extravasation, and one case of free wall rupture with pseudoaneurysm formation. In one patient, percutaneous occlusion of the extravasation site with coils was successfully performed. Overall mortality was 30.0% (**Table 1, Figures 1 and 2**).

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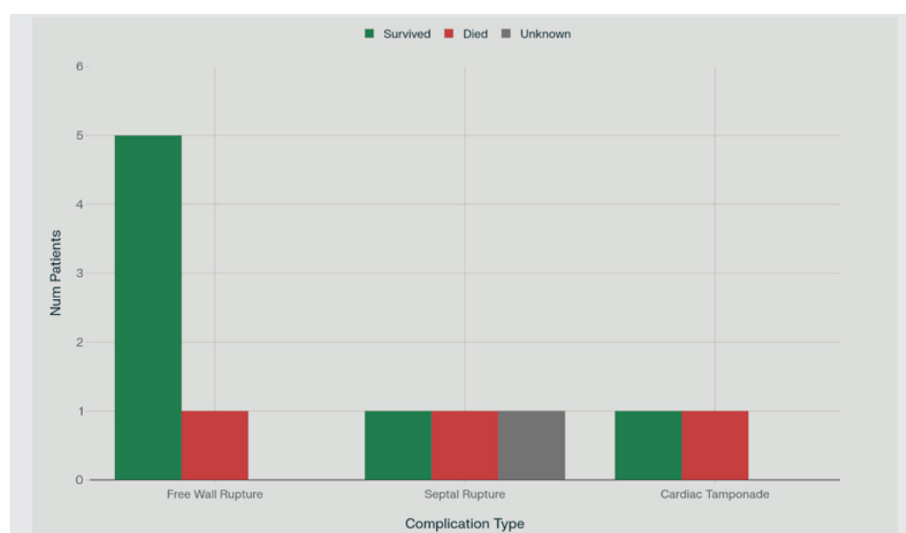


FIGURE 1. Survival outcomes by complication type.

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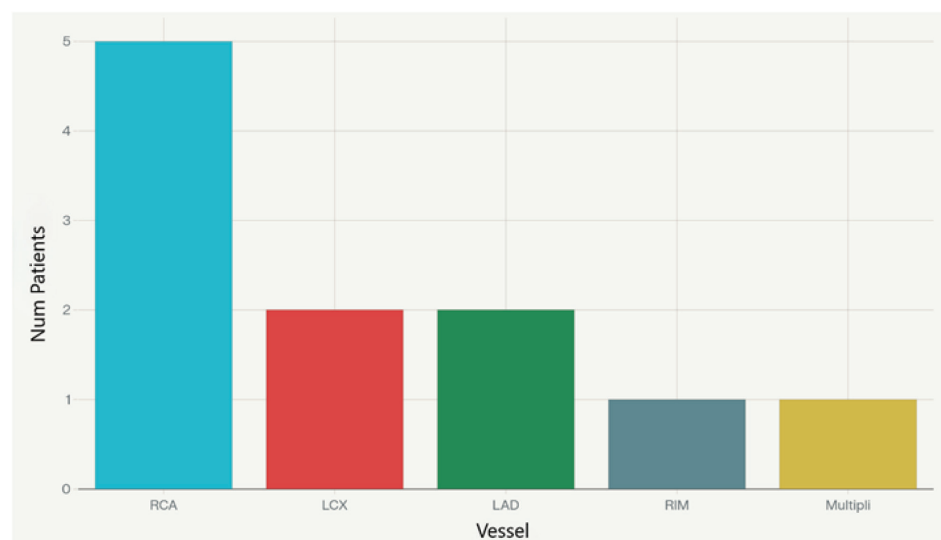


FIGURE 2. Number of patients by culprit vessel.

RCA – right coronary artery; LCx – left circumflex artery; LAD – left anterior descending artery; RIM – ramus intermedius.

TABLE 1. Characteristics of patients with mechanical complications of myocardial infarction (General Hospital Slavonski Brod, 2020-2025).

Patient	Age (years)	Sex	Complication Type	Culprit Vessel	Infarct Location	Management	Outcome
1	71	F	Free wall rupture	RCA	Inferoposterior	Surgical	Survived
2	72	F	Free wall rupture	RCA	Unspecified	Pericardiocentesis + coil occlusion	Survived
3	67	M	Free wall rupture	RCA	Inferoposterior	Surgical (Patch repair)	Survived
4	64	F	Cardiac tamponade	LCX	Lateral	Conservative	Deceased
5	74	M	Free wall rupture	LAD	Anteroseptal	Conservative (pseudoaneurysm formation)	Survived
6	72	M	Free wall rupture	LCX	Inferoposterior	Surgical	Survived
7	84	F	Cardiac tamponade	Multiple culprits	Inferolateral	PCI + pericardiocentesis	Survived
8	68	F	Free wall rupture	RIM	Inferolateral	Surgical	Deceased
9	60	M	Septal rupture	RCA	Inferoposterior	Surgical (VSD patch)	Survived
10	87	F	Septal rupture	LAD	Anteroseptal	Surgical	Deceased
11	68	M	Septal rupture	RCA	Inferior	PCI + surgical	Unknown

F – female; M – male; RCA – right coronary artery; LCx – left circumflex artery; LAD – Left anterior descending artery; PCI – percutaneous coronary intervention

Conclusion: Mechanical complications of MI occur more frequently in elderly women. Free wall rupture was the most common complication in our series. Mortality of 30.0% is significantly lower than published data, likely due to rapid echocardiographic diagnosis, 24/7 interventional cardiology availability, and established protocols for multidisciplinary management. Cases with spontaneous cessation of bleeding were identified where surgical management was not required, emphasizing the importance of individualized assessment of each patient. Surgical intervention remains the method of choice for definitive treatment whenever feasible, while percutaneous techniques are used selectively.

LITERATURE

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