Interventricular septal dissection sustained by an aneurysmal sac

A 58-year-old male presented at the emergency room with progressive exertional dyspnea and dizziness. Physical examination revealed a holosystolic murmur and pulmonary crackles. Blood pressure was 100/60 mm Hg, and oxygen saturation was 90%. Electrocardiogram (EKG) showed signs of a previous inferior and anterior myocardial infarction as well as right ventricular overload (S1Q3T3 pattern) (Fig. 1, Panel A). Troponin levels were normal, and an urgent computed tomography scan was performed to rule out acute pulmonary embolism (PE). Unexpectedly, no PE was observed, but a large interventricular septal (IVS) defect was visualized (Fig. 1, Panel B, star). Transthoracic echocardiography showed an IVS dissection with an entry defect of 25 mm sustained by an aneurysmal sac bulging into the right ventricle with multiple small perforations (maximal size of 5 mm), causing a left-to-right shunt with an estimated Qp/Qs of 2.7 (Fig. 1, Panels C and D; Supplementary material online, Video S1). Coronary angiogram displayed subacute total occlusion of the right coronary artery and severe stenosis in the left anterior descending coronary artery. The patient underwent urgent surgical IVS repair (Panel E) and coronary artery bypass grafting, and his recovery was uneventful. Postmyocardial infarction IVS dissection is a rare complication, which is considered a subacute form of cardiac rupture. Despite surgical repair, which is the definite treatment, mortality is high, and timing depends on hemodynamic status and heart failure symptoms. Our patient was fortunately protected by a large aneurysmal sac with a relatively small perforation, which prevented him from suffering from acute and catastrophic hemodynamic decompensation.

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Video 1. Transthoracic echocardiogram 5 chambers color Doppler view. We can appreciate the left-to-right shunt through the interventricular septal defect.

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