Severe tricuspid regurgitation due to papillary muscle rupture: A rare complication of anterior myocardial infarction and ventricular septal perforation

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INTRODUCTION

Papillary muscle rupture (PMR) of the mitral valve is a fatal complication of acute myocardial infarction (MI). As a complication of anterior MI, PMR of the tricuspid valve is extremely rare. We experienced a case of acute anterior MI complicated with tricuspid PMR and ventricular septal perforation (VSP).

REPORT

An 85-year-old woman was admitted with general fatigue and appetite loss. Her consciousness was alert, but she was pale, and had cold extremities. Her blood pressure was 74/62 mmHg, and pulse was 99/min. There was no leg edema. Pan systolic regurgitant murmur (Levine III/VI) was audible at the lower left sternal border. Her oxygen saturation was 86% under room air. Electrocardiogram revealed ST segment elevation and QS pattern in V1 to V3. Transthoracic echocardiography revealed dyskinesis of the apical anterior septum, VSP with bidirectional shunt, and severe pulmonary hypertension. Left ventricular ejection fraction was preserved (58%). The anterior tricuspid leaflet was flail due to PMR, resulting in severe tricuspid regurgitation and right ventricular dilatation. Coronary angiography revealed a single vessel disease of the left anterior descending artery (LAD). We recommended surgical treatment, and transferred her to another hospital.

DISCUSSION

Common causes of tricuspid PMR are infective endocarditis and chest trauma. Right ventricular infarction, usually caused by right coronary artery (RCA) occlusion, may cause tricuspid PMR. In our case, however, tricuspid PMR was complicated with anterior MI. The tricuspid anterior, posterior, and septal leaflets are attached to anterolateral RV wall, inferior septum, and infundibular septum, respectively, via papillary muscles. Right ventricular branches and septal branches of the RCA usually supply these papillary muscles. Anterior leaflet PMR in this case was possibly due to anomalous blood supply of anterolateral RV wall by the right ventricular branches of the LAD. Right ventricular overload due to large VSP shunt elevated RV diastolic pressure and right atrial pressure, and might worsen ischemia of the RV wall.
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