Takotsubo cardiomyopathy following balloon mitral valvotomy

A 61-year-old woman with severe rheumatic mitral stenosis underwent successful balloon mitral valvotomy (single inflation up to 24 mL with a 26 mL balloon; Shenzhen Shineyard Medical Device, China). One hour after the procedure, she developed severe angina. On examination, she had a varying pulse and normal blood pressure. Preprocedure ECG (figure 1A) had shown first degree atrioventricular block. During the angina attack, the ECG showed new onset atrial flutter, varying atrioventricular blocks, ST segment depression and deeply inverted T waves in leads II, III, aVF and V3–V6 (figure 1B). Transthoracic echocardiography showed a dyskinetic left ventricular apex with ballooning (white arrows in figure 1D) and a hypercontractile base (apical four chamber view: figure 1C—diastole, figure 1D–systole) (online supplementary video 1). The mitral valve orifice area was 1.71 cm^2 (short axis view, figure 1E). Coronary angiography revealed mild disease of the left anterior descending artery. Twenty-four hours after balloon mitral valvotomy, left ventriculography (right anterior oblique view, using 30 mL of iohexol, 15 mL/min, 5 F pigtail catheter) showed apical dyskinesia with ballooning (black arrows in figure 1F2) and a hypercontractile base (figure 1F1—diastole, figure 1F2—systole) (online supplementary video 2). Six hours later, serum troponin I concentration was 1.5 ng/mL (normal <0.5 ng/mL). She recovered steadily. On day 7, echocardiography (online supplementary video 3) and left ventriculography showed normal ventricular contraction (figure 1F3—diastole, figure 1F4—systole) (online supplementary video 4). She was doing well at the 6 month follow-up.

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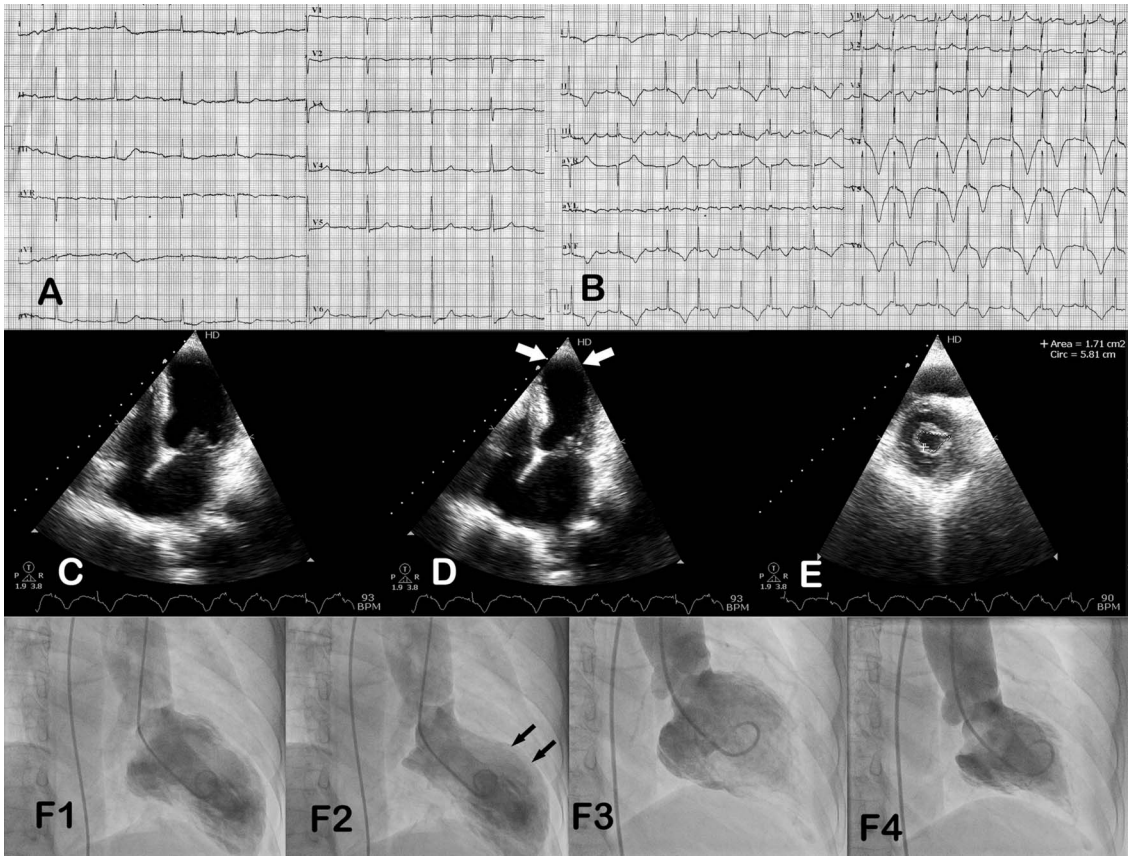

Figure 1 (A) Preprocedure ECG showing first degree atrioventricular block. (B) During angina, the ECG showed new onset atrial flutter, varying atrioventricular blocks, ST segment depression and deeply inverted T waves in leads II, III, aVF and V3–V6. (C) Transthoracic echocardiography (apical four chamber view; diastolic frame) showing a dyskinetic left ventricular apex with ballooning and hypercontractile base. (D) Transthoracic echocardiography (apical four chamber view; systolic frame) showing a dyskinetic left ventricular apex with ballooning (white arrows) and hypercontractile base. (E) Transthoracic echocardiography (short axis view). The mitral valve orifice area was 1.71 cm^2. (F1, F2) Twenty-four hours after balloon mitral valvotomy, left ventriculography (right anterior oblique view, using 30 mL of iohexol, 15 mL/min, 5 F pigtail catheter; F1—diastole, F2—systole) showed apical dyskinesia with ballooning (black arrows) and a hypercontractile base. (F3, F4) On day 7, left ventriculography showing normal ventricular contraction (F3—diastole, F4—systole).

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