^{82}Rb myocardial perfusion PET/CT after anterior/antero-septal wall myectomy

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CASE SUMMARY

A 74-year-old female patient with exertional dyspnea and typical stable angina was referred for non-invasive stress testing with rubidium-82-PET. The patient had history of biological aortic valve replacement. In addition, the patient underwent a myectomy of the anterior/antero-septal wall because of hypertrophic obstructive cardiomyopathy 6 years before. The surgery was performed to reduce wall thickness as described before.[1,2]

The electrocardiogram showed Q-waves in the inferior, repolarization changes and negative T-waves in the inferior, and antero-lateral leads with a slight but non-significant increase during adenosine stress (Figure 1).

The 2-dimensional echocardiogram (2DE) showed evidence of a septal and apical concentric hypertrophy and a mildly decreased left ventricular ejection fraction (LVEF) of 50% (Figure 2). The function of the aortic valve was normal and without any regurgitation. In the short axis view there was evidence of a hypo-echogenic defect in the mid-ventricular portion of the anterior wall. The thinned myocardium still showed preserved contractility, consistent with the myectomy (Figure 3A, B).

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Figure 1. The electrocardiogram showed Q-waves in the inferior, repolarization changes and negative T-waves in the inferior, and antero-lateral leads with a slight but non-significant increase during adenosine stress.

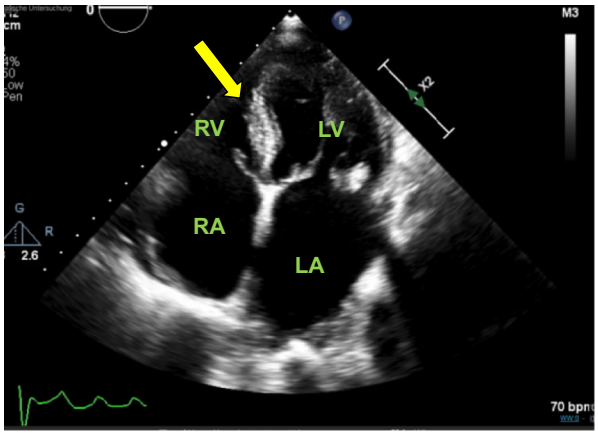

Figure 2. Echocardiographic ''4 chamber'' view showing hypertrophy of the septal wall (arrow). A less prominent hypertrophy of the apex is also evident. *RV*, right ventricle; *LV*, left ventricle; *RA*, right atrium; *LA*, left atrium.

PET images showed a reduction of counts of the mid-ventricular portion of the anterior wall, corresponding to the hypo-echogenic defect seen on echo images. Moreover, a relative increase of counts of the septal wall under stress was noticed, consistent with septal hypertrophy (Figure 4).

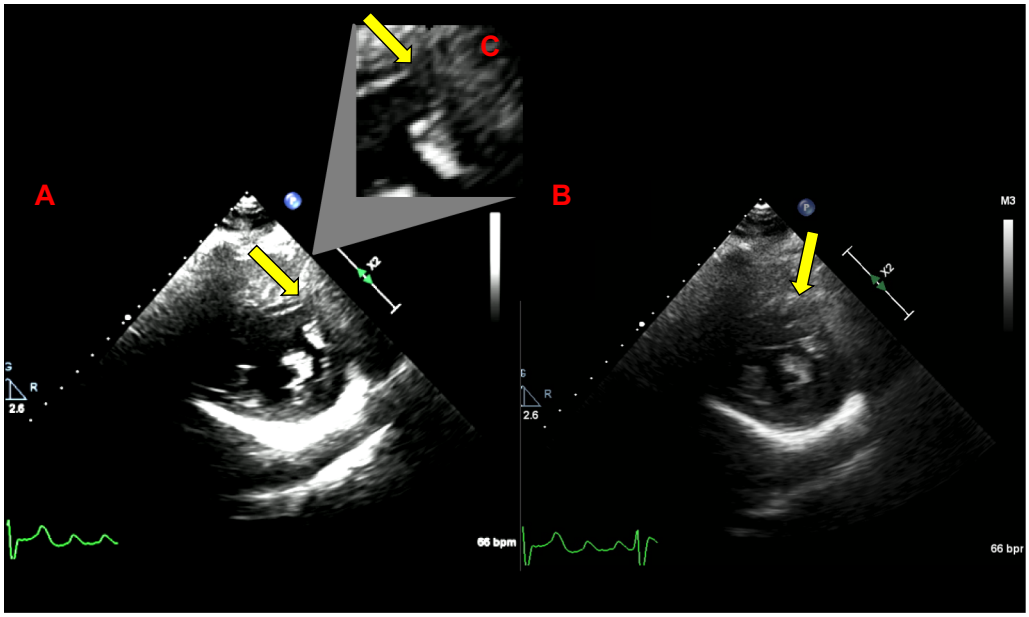

Figure 3. Short axis echocardiographic images in end-diastole (A) and end-systole (B) highlighting the presence of a hypo-echogenic defect in the mid-ventricular portion of the anterior wall (arrows). The defect is more easily seen in the enlarged detail (C, arrow). In association with preserved contractility of the subtending myocardium, the finding is consistent with status post-myectomy.

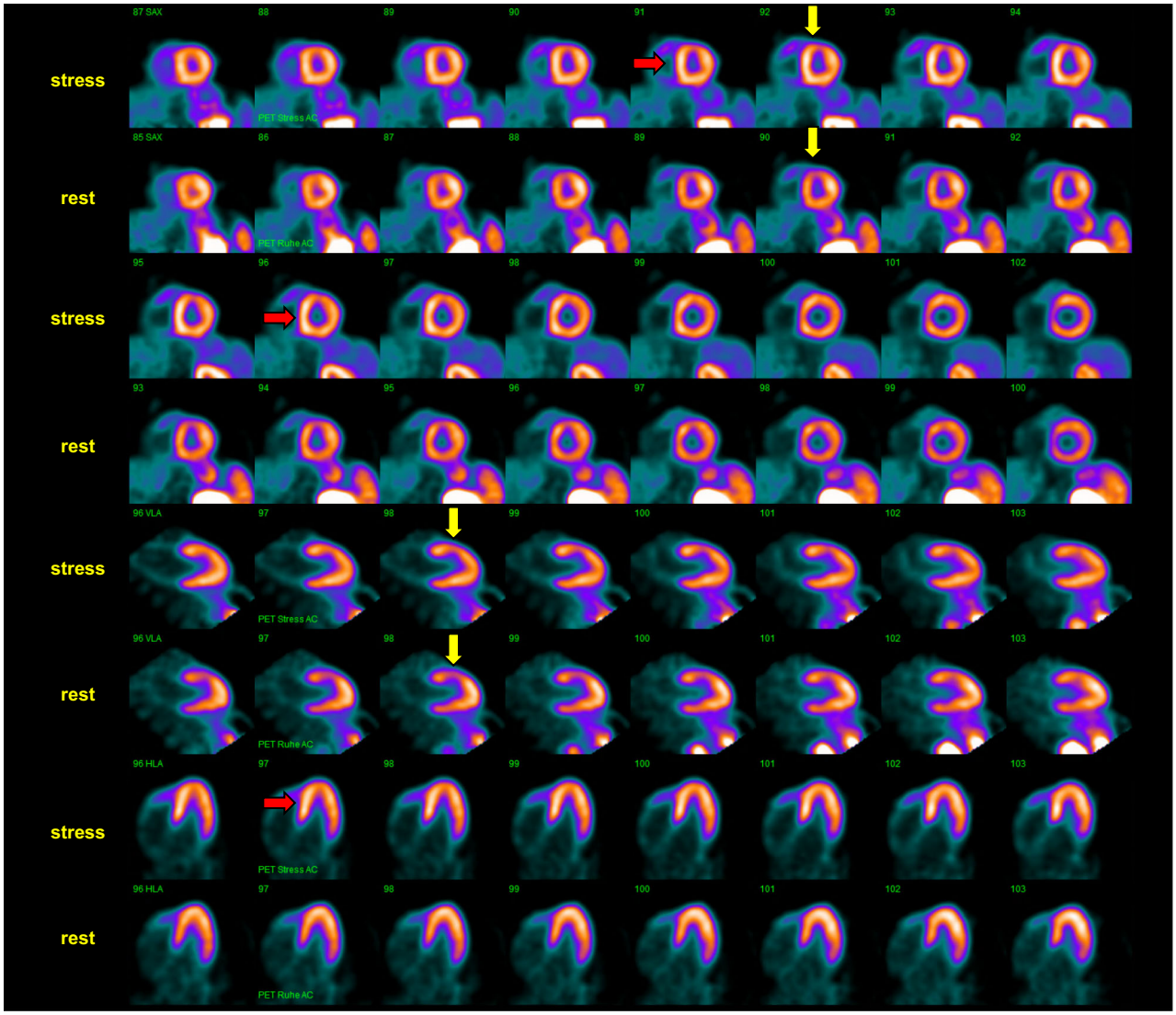

Figure 4. ^{82}Rb PET-CT splash images (short axis, vertical long axis, and horizontal long axis) showing a relatively higher uptake of the septal wall under stress compared to rest conditions (red arrows), consistent with septal hypertrophy. There was also evidence of reduction of counts in the mid-ventricular portion of the anterior wall both at rest and under stress (yellow arrows), corresponding to the echogenic alteration as seen on Figure 3. Of note, the shape of the defect seen by echo is also fully recognizable on perfusion imaging. The alteration is consistent with status post-myectomy.

Disclosures

The authors report no disclosures relevant to the manuscript. Specifically, no financial conflict of interest is present.

References

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