Reviewer's report

Title: Reduced global longitudinal strain in association to increased left ventricular mass in patients with aortic valve stenosis and normal ejection fraction: A hybrid study combining echocardiography and magnetic resonance imaging

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Reviewer: Rosa Sicari

Reviewer's report:

This is an interesting study demonstrating that in patients with increased LV mass, assessed at MRI, longitudinal function is reduced when measured by 2D speckle a non-Doppler quantitative technique. The results are interesting and the methodology appropriate. There are a few issues that authors should address:

1. LV mass was appropriately measured by MRI, the gold standard and not subject to inter and intra-observer variability as for echo assessment. However, the categorization that authors used is semi-quantitative whereas they could use quantitative cut-offs.

2. In line with the previous comment, authors use LVM and not LVMI, which should be preferred.

3. Subtle forms of dysfunction are important in patients with aortic stenosis. There are several studies that have demonstrated impaired coronary flow reserve and its normalization after aortic replacement. Please discuss and cite them.

4. Authors do use a control group that is not strictly necessary since they are evaluating GLS before and after valve replacement.

5. Patient selection should be detailed. How many patients had concomitant coronary artery disease; how many patients had moderate aortic stenosis.

6. Authors should put their results into clinical context

7. It should be reported not only the change of GLS before and after surgery but also the change in LVmass (modify figure 3)

8. There is no mention to the potential role of 3D echocardiography for LV mass assessment. Please address it.

9. You may be interested in citing the following article: Myocardial dysfunction in the periinfarct and remote regions following anterior infarction in rats quantified by 2D radial strain echocardiography: An observational cohort study. Raymond Q Migrino, Xiaoguang Zhu, Mineshkumar Morker, Tejas Brahmbhatt, Megan Bright, Ming Zhao. Cardiovascular Ultrasound 2008, 6:17

10. Please proof read the manuscript because there are a few typos
Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
'I declare that I have no competing interests'