Author's response to reviews

Title: Percutaneous septal ablation for left mid-ventricular obstructive hypertrophic cardiomyopathy: a case report

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Author's response to reviews: see over
Reviewer's report
No follow-up data are given that cover >5 days. CK rise in the case described was rather high. ST elevation is not a routine ECG finding in our practice. To exclude unnecessary LV damage, and due to the fact that the success of an ablation procedure (gradient elimination without deterioration of global LV function) usually is judged after a 3-6 months remodeling process, the authors should add follow-up results covering this time period.

The term "telecardiography" is unknown to the reviewer and possibly to the readers. The use of echovist in septal ablation should be commented upon - total AV block and VF have been reported with its use. Levovist appears to be the appropriate echo contrast agent for septal ablation. The authors also should add an additional figure that precisely shows that the papillary muscles were not at risk for alcohol necrosis - this is a well-known problem in treating midcavity cases. The description of technique should be revised: what is meant by appropriate balloon position? Was the balloon advanced, withdrawn, or otherwise replaced?

At 6 months' follow-up data has been given and excluded post-procedural LV damaged. The term "telecardiography" means chest X-ray. It has been changed the other in the manuscript. The technique of procedure has been revised.

Reviewer's report
1. Pre- and post-procedural 2-DE echocardiograms (full sized images) illustrating post infarct LV remodelling should be presented. Please, mention the duration of post-procedural follow up.
2. Pre- and post-procedural values of ejection fraction are necessary.
3. Please, provide complete invasive pressure measurements at rest conditions after ablation (similar to data before intervention i.e. LV apex, LV outflow tract and aortic pressures).
4. The area of echocontrast deposit is not clearly visualised in figure 2A. Please, provide a more illustrative example.
5. The Authors stated that “there is only single report of therapeutic effect of DDD pacing in MVO”, however Begley D et al. (“Dual chamber pacemaker therapy for mid-cavity obstructive hypertrophic cardiomyopathy” Pacing Clin Electrophysiol. 2001 ;24:1639-44) reported follow-up in 14 patients.
6. In the cited paper by Seggewiss et al. (ref. 10) the fourth septal branch was occluded in contrast to occlusion of the first perforator in the presented patient. This technical difference should be stressed in the discussion. In the described patient, occlusion of the first perforator (which probably originates distantly from LAD ostium) allows to reduce obstruction at both mid-cavity and LV outflow tract levels. Please, measure the distance between the LAD coronary artery ostium and the origin of the first perforator and discuss the measured value in comparison with findings presented by Singh M. et al. (“Anatomy of the first septal perforating artery: a study with implications for ablation therapy for hypertrophic cardiomyopathy.”) Mayo Clin Proc. 2001;76:799-802.
7. Septal ablation does not provide completely comparable results to myoectomy. Firoozi S, et al. (“Septal myotomy-myectomy and transcoronary septal alcohol ablation in hypertrophic obstructive cardiomyopathy. A comparison of clinical, haemodynamic and exercise outcomes. Eur Heart J. 2002;23:1617-24”) concluded that the superior effect of surgical myoectomy on exercise test parameters suggests that surgery remains the gold standard against which new treatment modalities should be compared.

At 6 months’ follow-up data and control chocardiographic images have been given. Pre- and post-procedural values of ejection fraction have been clarified. Reviewer's suggestions have been considered and discussion section of the manuscript has been revised. Myectomy has been employed primarily in patients with obstruction at the mitral valve level. Mitral valve replacement has been recommended for patients with direct insertion of the papillary muscle into the anterior mitral leaflet and associated MVO, although this strategy is undesirable for young patients as in our case. Non-surgical treatment options for the obstructive cardiomyopathies are performed to increasing number of patients to reduce hospitalization duration and cost. Nonrandomized reports comparing
septal ablation with myectomy describe similar degrees of LV outflow tract gradient reduction with follow-up between 3 months and 1 year.

**Reviewer's report:**
1-What is the early systolic sound described in the physical exam. section
2-What is telecardiography
3-At which level (ie basal or mid septum) was the septal thickness measured
4-What is meant by "largest echo contrast view was seen in hypertrophic muscle segment"
5-At what time after the procedure were the echocardiographic measurements obtained
6-It is very unusual to have both basal and mid septum infarcts with occlusion of only the proximal septal artery. Additional details are warranted here primarily describing the actual septal distribution of the cannulated artery which was eventually occluded with ethanol.
7-The authors should present the 4 chamber view at baseline and after injection of the echocardiographic contrast agent so the extent of septal opacification could be determined.

The early systolic sound is S4 (increased diastolic blood flow into thick and stiff myocardium). The term "telecardiography" means chest X-ray. It has been changed the other in the manuscript. Septal thickness values have been clarified. The first post-procedural echocardiographic evaluation was performed before the discharge. Variability in the size and distribution of the first septal branch in patients with HC is substantial. A detailed evaluation of the distribution of the first septal branch may be necessary in all patients with HC who are undergoing alcohol septal ablation as in our case.