Left-Ventricular Reduction Surgery: Pre- and Postoperative Evaluation by Cine Magnetic Resonance Imaging


Aim: To evaluate the role of cine magnetic resonance imaging (MRI) in the preoperative assessment and postoperative follow-up of patients undergoing left ventricular (LV) reduction surgery.

Patients and Methods: 6 patients with cardiomegaly were examined on a 1.5T MR imager before and after LV reduction surgery. The heart was imaged along the short and long axes using a breath-hold ECG-triggered cine gradient-echo sequence for assessing ventricular and valvular morphology and function and performing volumetry (end-diastolic and end-systolic volumes, ejection fraction).

Results: Postoperatively, the mean ejection fraction increased from 21.7 % to 33.4 % and the end-diastolic and end-systolic left ventricular volumes decreased in all patients (304.0 and 252.5 ml before to 205.0 and 141.9 ml after surgery). Mean myocardial mass decreased slightly from 283.8 g to 242.7 g. Differences were significant for all parameters (p < 0.05). MRI allowed for the reliable assessment of postoperative valve morphology and yielded additional findings such as the presence of mitral valve insufficiency or ventricular thrombus.

Conclusions: Cine MRI provides relevant information prior left ventricular reduction surgery and reliably depicts functional and morphological changes in the early post-operative follow-up.

Key words: Magnetic resonance imaging - Cine MRI - Heart - Partial left ventriculectomy

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