

# Recovery of Myocardial Hibernation after Percutaneous Coronary Intervention

## Repetitive Assessment by Magnetic Resonance Imaging

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Herz 2009;34:240-2

DOI 10.1007/s00059-009-3229-2

Rahimtoola first proposed the pathophysiological concept of myocardial hibernation to characterize a situation of a prolonged subacute or chronic state of myocardial ischemia in which myocardial contractility, ventricular function, and metabolism are changed to match the reduced blood supply [1].

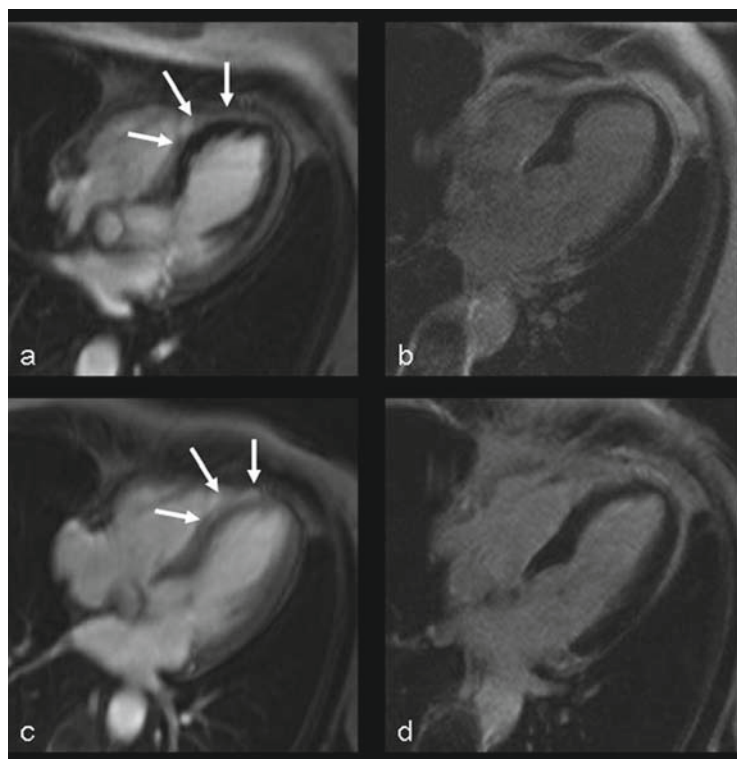
Hibernating myocardium is characterized by regional contractile dysfunction in noninfarcted myocardium in the setting of a severe coronary stenosis. Whenever critical regional wall impairment is detected in the absence of an active or former occlusion of the corresponding coronary vessel, myocardial hibernation has to be taken into account. In contrast to infarcted myocardium, hibernating myocardium has impaired contractile function and improves after revascularization [2]. Therefore, the detection of myocardial hibernation in the absence of myocardial necrosis or fibrosis is important for further therapeutic options, e.g., percutaneous coronary intervention (PCI) or coronary artery bypass graft.

Recently, using cardiovascular magnetic resonance perfusion imaging, Selvanayagam et al. demonstrated that hibernating myocardial segments have significantly lower resting myocardial blood flow than remote myocardial segments [3]. Apart from first-pass perfusion imaging, fast low angle shot (FLASH) sequences directly following infusion of contrast agent may also be used to visualize blood flow.

Our image series is considered a typical example of myocardial hibernation (Figures 1a and 1b) and its resolution after PCI (Figures 1c and 1d), underlining the impact of noninvasive imaging in the decision process of planning adequate therapy.

### Korrespondenzanschrift

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**Figures 1a to 1d.** Long axis views. Preinterventional resting subendocardial ischemia (a, white arrows) in FLASH sequences is observed in the septal and apical wall without concomitant late enhancement (LE; b). Due to the absence of LE as a sign of irreversible myocardial damage, PCI of the left main stem and the left anterior descending artery was performed. 1 week after the intervention, resting subendocardial ischemia (c, white arrows) was completely resolved without new LE formation as a sign of periinterventional microembolization (d).

### References

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