Visualization of the Pulmonary Valve using Cine MR Imaging


Purpose
To evaluate the capability of bright-blood cine MR to directly visualize the leaflets of the valve replacement in pulmonary position following Ross operation.

Material and Methods
Long and short axis views of the pulmonary valve were obtained in 10 normal subjects and 14 patients after Ross operation. Valve morphology and function were analyzed and signal-to-noise (SNR) and contrast-to-noise ratios (CNR) were calculated. Flow measurements were performed in the pulmonary trunk to assess pulmonary regurgitation.

Results
In all subjects, tricuspid morphology of the pulmonary valve was visualized. SNR of the leaflets in normal subjects (9.8 ± 3.0) and in patients after Ross operation (7.5 ± 2.2) differed significantly from blood (12.6 ± 3.2 and 11.3 ± 2.5, respectively, p<0.05). Valvular regurgitation was seen in 5 patients as an insufficient closure of the valve which was confirmed by flow measurements.

Conclusion
Cine MR enables in-plane visualization of the pulmonary valve and allows for functional and morphological evaluation in patients after pulmonary valve surgery.

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