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2086 Delayed enhancement of pericardium in suspected constrictive pericarditis

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Introduction

Enhancement of the thickened pericardium after the administration of gadolinium-based contrast material suggests inflammation. However the prevalence and characteristics of pericardial enhancement related to other findings are not clear in constrictive pericarditis.

Purpose

We aimed to determine prevalence and characteristics of pericardial enhancement in constrictive pericarditis with delayed enhancement CMR

Methods

A total of 18 patients, who were suspected to have constrictive pericarditis by clinical manifestation and echocardiographic examination, were enrolled in this study. All patients underwent CMR. CMR protocol included T1-weighted short-axis imaging at mid-ventricle, T2-weighted short-axis imaging at mid-ventricle, cine imaging with SSFP sequence (2-chamber view, 4-chamber view, short axis view encompassing entire heart with 10 mm thickness without gap), delayed enhancement CMR with same planes as the cine planes 10 minutes after administration of 0.2 mmol/kg gadolinium-based contrast agent. Look-locker sequence was used to determine the inversion time for nulling myocardial signal. To diagnose constrictive pericarditis, considered positive was pericardial thickeness ≥ 4 mm, septal bouncing motion, small ventricle, pericardial adhesion to ventricle in cine imaging, atrial enlargement, systemic venous dilatation. We analyzed pericardial enhancement related to other findings.

Results

There were 11 men and 7 women patients. Age ranged from 14 to 72 years (mean ± SD: 54.8 ± 15.2 years). Fourteen patients (78%) had diagnosis of constrictive pericarditis in CMR. Pericardial thickening ≥ 4 mm were in 8 patients of them (57%). Pericardial enhancement was detected in 6 patients with pericardial thickening (6/8, 75%). There was no enhancement in the pericardium without thickening. Seven patients had pericardial effusion but only 3 of them (43%) showed pericardial enhancement. Enhancement of parietal and visceral pericardium could be distinguished only when pericardial effusion existed. Enhancement or high-signal intensity due to inhomogenous fat suppression in pericaridial or epicardial fat layer was frequent and should be carefully interpreted.

Conclusion

Pericardial enhancement was a frequent finding with pericardial thickening in constrictive pericarditis. Delayed enhancement CMR is useful to detect pericardial enhancement.