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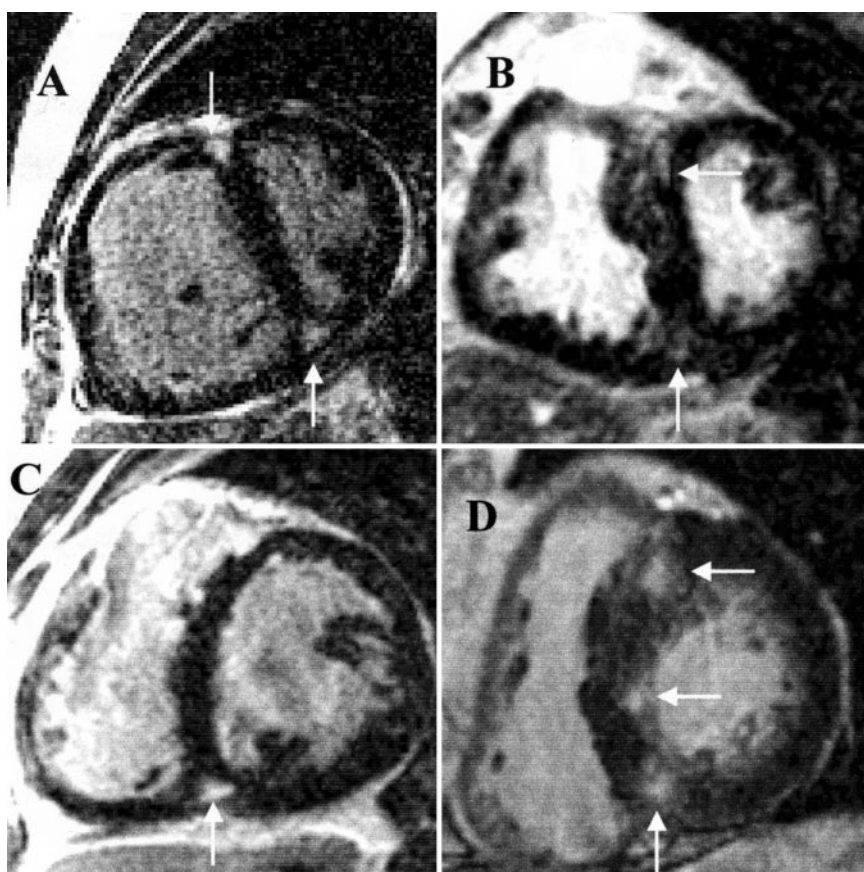
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Delayed Contrast-Enhanced Magnetic Resonance Imaging in Pulmonary Arterial Hypertension

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Pulmonary arterial hypertension (PAH) causes pressure overload on the right ventricle and when untreated leads to progressive right ventricular dysfunction. Delayed contrast MRI can identify areas of myocardial infarction and myocardial fibrosis related to various cardiomyopathies. Delayed contrast magnetic resonance images in the short axis plane in 3 patients with PAH (Figure, A, idiopathic; B, secondary to systemic sclerosis; C, secondary to late surgical correction of tetralogy of Fallot) and 1 patient with hypertrophic cardiomyopathy (Figure, D) are shown below. The diagnosis of PAH was confirmed invasively and all 3 patients had evidence of right ventricular dilatation,

tricuspid regurgitation, right ventricular systolic dysfunction and interventricular septal bowing in early diastole. Delayed contrast imaging demonstrated hyperenhancement at the insertion points of the right ventricle to the left (A, C) and diffusely in the interventricular septum (C). Hyperenhancement in the interventricular septum and the right ventricular insertion points has been particularly associated with fibrosis occurring in hypertrophic cardiomyopathy (D). The predilection for delayed enhancement of the interventricular septum in various causes of PAH and cardiomyopathy indicates that the mechanism is not specific to the underlying disease.



A–D, Inversion recovery gradient echo sequences acquired 10–20 min after injection of 0.2 mmol/kg gadolinium-DTPA in short axis plane. A–C, Mid-ventricular level; D, base. Normal myocardium is black; arrows indicate areas of hyperenhancement.

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