

Cardiac Imaging

Magnetic Resonance Imaging in the Evaluation of Kawasaki Disease

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Kawasaki disease is an acute, self-limiting vasculitis that affects children of all ages. The diagnosis is difficult because there is no specific diagnostic test. There is, however, a highly effective treatment, involving intravenous administration of immunoglobulin during the first ten days following the onset of fever, which reduces the risk of cardiovascular complications. The disease is associated with cardiovascular lesions in 25% of cases if treatment is not given immediately after its first manifestations appear. Cardiac involvement is usually in the form of aneurysms, which are clinically unapparent in the majority of cases and may be diagnosed later because of sudden death or myocardial infarction.¹

Around half the children who have coronary aneurysms during the acute phase of the disease show coronary vessels of normal morphology on angiography 1-2 years later. The aneurysms may break, or become thrombotic, or show stenotic lesions. Consequently, their evaluation plays an important role in the monitoring of these patients. The non-invasive follow up usually employs cardiac ultrasound, but this becomes inadequate as the children grow up.²

Non-invasive coronary magnetic resonance angiography (CMRA) allows the

easy and reliable evaluation of these patients, as often as needed and without any invasive procedure or use of radiation. The method has been found to have an excellent correlation with classical coronary angiography, as concerns the width of ectasia or aneurysm.^{3,4} Combined with gadolinium administration it also has the ability to diagnose the existence of myocardial infarction.⁵

The images show the presence of aneurysms in the anterior descending coronary artery branch as visualised by CMRA and classical coronary angiography. Myocardial infarction can also be seen (white region) on the delayed image following gadolinium administration. The addition of pharmacological stress with adenosine will soon allow the complete evaluation of the coronary arteries, perfusion and viability with just one examination.

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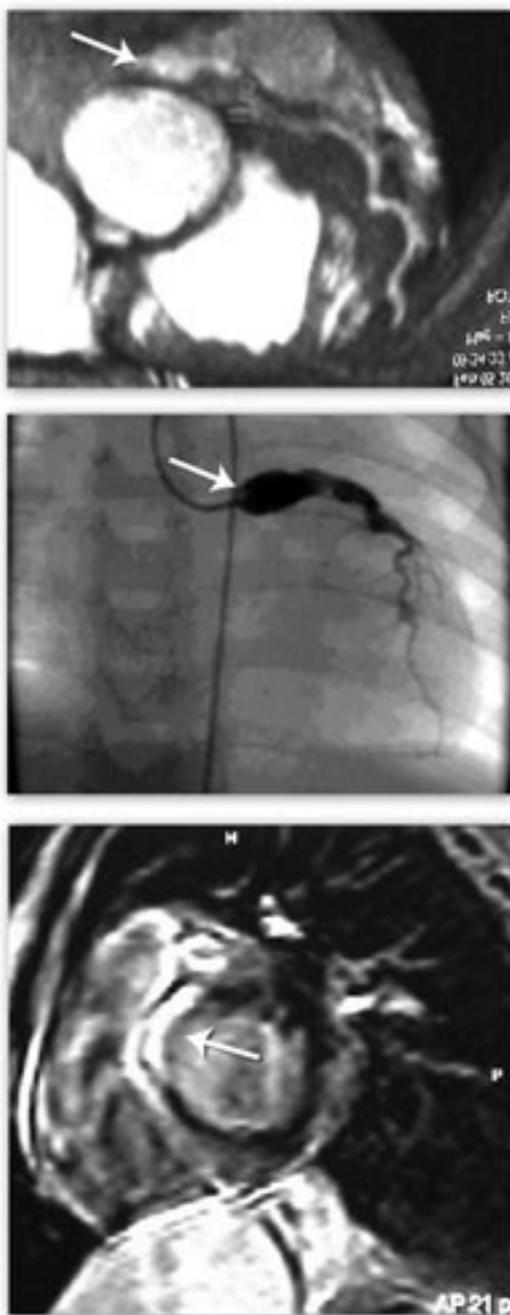


Figure 1. Coronary magnetic resonance image (top), classical coronary angiogram (middle) and visualisation of infarction (bottom) in a patient with Kawasaki disease. The arrow in the first two images points to an aneurysm in the anterior descending branch, while in the left ventricular short axis view it shows the infarcted area.

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