

## Cardiac Imaging

# Clinical Utility of Coronary Magnetic Resonance Angiography: Is the Important Contribution of the Method the Visualization of Significant Stenoses, or Persuasion to Undergo Invasive Evaluation?

MAGDALINI VOZAITI<sup>1</sup>, ATHANASIOS PIPILIS<sup>1</sup>, ALEXANDER LORIS<sup>1</sup>, JOHN ANDREOU<sup>1</sup>,  
PETER G. DANIAS<sup>1,2</sup>

<sup>1</sup>Cardiac MR Center, Hygeia Hospital, Maroussi, Greece, <sup>2</sup>Tufts University School of Medicine, Boston, Massachusetts, USA

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*Address:*

Peter G. Danias

*Hygeia Hospital  
4 Erythrou Stavrou St.  
& Kifissias Avenue  
15123 Marousi, Greece  
e-mail:*

[pdanias@hygeia.gr](mailto:pdanias@hygeia.gr)

[peter.danias@tufts.edu](mailto:peter.danias@tufts.edu)

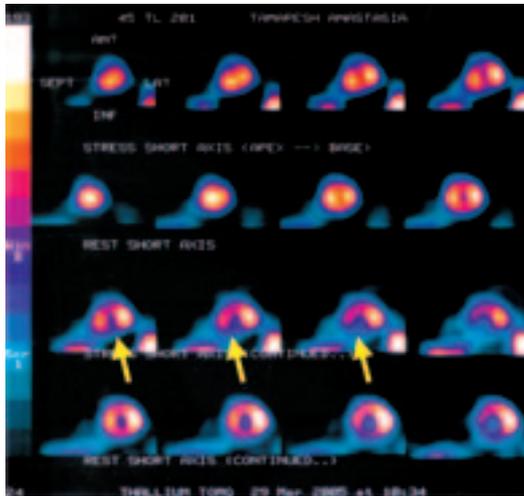
A 69-year-old obese woman with history of hypertension and atrial fibrillation presented with progressive dyspnea on exertion. A pharmacologic myocardial perfusion scan was ordered, which demonstrated a reversible inferobasal defect consistent with ischemia in the right coronary artery distribution (Figure 1). Coronary angiography was recommended, but the patient initially refused, and insisted on undergoing magnetic resonance coronary angiography, although the limitations of this technique were explicitly discussed. Despite her body habitus and arrhythmia, images of diagnostic quality were obtained and suggested an ostial right coronary artery stenosis (Figure 2). Given these additional corroborating findings, the patient was persuaded to undergo invasive evaluation. Conventional X-ray coronary angiography was performed and demonstrated normal coronary arteries (Figure 3).

This case demonstrates that coronary magnetic resonance angiography should not be used instead of conventional angiography in routine clinical practice. The technique commonly has false positive findings, which result in a decrease of the test's specificity. In fact, in a recent multicenter study

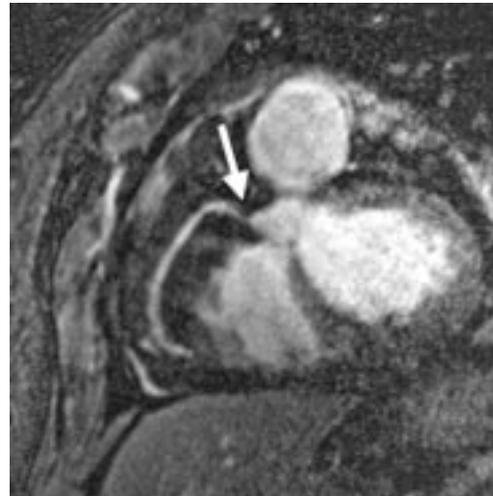
of magnetic resonance coronary angiography as well as a meta-analysis of published reports, the specificity of magnetic resonance coronary angiography for detection of significant coronary disease at the subject level was modest (42% and 56%, respectively).<sup>1,2</sup> A not uncommon scenario is to have patients who initially refuse coronary angiography, but who eventually agree to it after the results of noninvasive coronary angiography. Whether these cases justify the clinical use of magnetic resonance coronary angiography is debatable. In any case, if the suspicion of coronary disease is high, a negative magnetic resonance coronary angiography should not reassure and comfort the patient and the clinical cardiologist, but additional evaluation should be sought as appropriate.

## References

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**Figure 1.** Short axis images from the myocardial perfusion study with Tl-201, including stress (rows 1 and 3) and rest (rows 2 and 4) images. In the stress images there is an inferobasal defect (arrows) that normalizes at rest, suggesting significant coronary disease in the right coronary artery.



**Figure 2.** Reconstruction of the right coronary artery from the magnetic resonance coronary angiography. There is significant signal loss and relative decrease of the lumen diameter at the ostium of the right coronary artery (arrow), a finding consistent with significant proximal coronary artery disease.



**Figure 3.** Conventional coronary angiography of the right coronary artery demonstrating normal lumen without atherosclerosis.