normokinesis, hypokinesis and akinesis or dyskinesis is still common practice. Visual analysis of regional function based on cMRI is subjective but considered reliable due to an excellent image quality in most cases and was associated with a high interobserver agreement in this study.

Conclusion

The present study showed the ability of radial and circumferential strain and strain rate derived by tracking of acoustic markers within two dimensional echocardiographic images to describe regional LV function. Radial and circumferential strain appear more accurate than strain-rate parameters to delineate contraction states. The rapid mode of application, high success rate and lack of angle dependency support the use of the obtained parameters for quantitative analysis of regional myocardial function in clinical practice.

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IMAGES IN CARDIOLOGY

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Perforated aortic valve leaflets

A 59-year-old woman with intractable left heart failure caused by severe aortic regurgitation underwent emergency aortic valve replacement. She had originally presented four months earlier with dyspnoea, pyrexia (38.8°C) and signs of pneumonia. Blood cultures were not taken and she was treated with intravenous antibiotics. After four weeks her dyspnoea improved but four weeks later she deteriorated and signs of aortic regurgitation were noticed. Echocardiography confirmed moderate aortic regurgitation and a suspected vegetation on the aortic valve. Blood cultures were negative but despite intravenous antibiotics the aortic regurgitation worsened rapidly. She deteriorated clinically with the development of pulmonary oedema and subsequently signs of congestive cardiac failure despite high doses of diuretics. She was then referred for surgery. Cardiac catheterisation was impossible because of her desperate clinical state and she underwent emergency aortic valve replacement. The illustration shows large perforations in two aortic valve cusps without evidence of vegetations. The valve was successfully replaced by a 21 mm porcine Mosaic valve (Medtronic) and although she required a prolonged period of postoperative care, the signs of congestive cardiac failure resolved.

Culture-negative endocarditis, as in this case, is frequently caused by prior treatment with antibiotics. The presentation with severe pneumonia suggests that the responsible organism may have been *Streptococcus pneumoniae* which may cause aortic valve endocarditis and subsequently cusp perforation, progressively severe aortic regurgitation, and intractable

cardiac failure. Congestive cardiac failure may result from severe aortic regurgitation caused by endocarditis and treatment necessitates urgent surgical intervention. Prompt diagnosis and referral to a tertiary centre is essential before this serious late complication develops.

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