Early detection of myocardial and pulmonary oedema with MRI in an asymptomatic systemic sclerosis patient: successful recovery with pulse steroid

Sir, Cardiac involvement is frequent in SSc, accounting for a substantial proportion of the mortality of the disease [1]. In these patients, cardiac involvement is usually asymptomatic, but when it becomes clinically evident, extensive damage to the myocardium is already established and the treatment is rarely effective. These patients are exposed to the risk of sudden death due to malignant arrhythmias [2], therefore an early diagnosis is of paramount importance. MRI has been demonstrated to be useful in the detection of subclinical heart involvement [3–5].

A 29-year-old woman was diagnosed in 2009 with SSc and referred to our centre. She presented with a modified Rodnan skin score of 22, positive to ANAs and anti-topoisomerase antibodies, forced vital capacity 83.8%, carbon monoxide diffusion capacity (DL CO) 54% and DL CO corrected for alveolar volume (DL CO/VA) 64.2%. Chest high-resolution CT showed ground glass areas in the inferior lobes and in the basal portion of the middle lobe. An echocardiogram showed normal global and regional systolic function and normal diastolic function of both right and left ventricle, without any valvular abnormality. As a participant in the SCLAIRE study, the patient underwent a cardiac MRI. The study was approved by the local ethics committee of Pisa (Comitato Etico Locale della Azienda Ospedaliera Universitaria Pisana, Italy, protocol no. 2849). The patient’s written informed consent was obtained according to the Declaration of Helsinki.

At cardiac MRI, ECG-gated 1.5 T cine (steady-state free precession) images confirmed normal left ventricular (LV) volumes and global and regional systolic function (indexed end-diastolic LV and end-systolic LV volumes were 80 and 26 ml/m², respectively; the LV ejection fraction was 67%). T2-weighted fast spin-echo images (fat suppression using the inversion-recovery technique) revealed marked and diffuse myocardial enhancement at basal and middle myocardial segments, in particular in the inferior septum and inferior wall (Fig. 1a). MRI thorax axial fat suppression T2-weighted images showed an enhanced area of the middle and basal posterior lung regions. These MRI findings were consistent with active inflammation, involving both the myocardium and the lungs. The T2-weighted sequence with fat suppression, which in this case appeared significantly enhanced, is sensitive and specific for detecting tissue oedema [6, 7]. Contrast medium was not administered because a peripheral venous access could not be obtained.

The patient did not show any conventional clinical signs or symptoms of cardiopulmonary involvement. Brain natriuretic peptide, troponin I and biohumoral markers of systemic acute inflammation were within normal range. Due to the acute cardiopulmonary inflammatory involvement, the patient was treated with methylprednisolone pulses (1 g/m² i.v. for 3 consecutive days, followed by 20 mg i.m. for 30 days then maintained at 4 mg/day). The patient was carefully monitored during the administration of the therapy and immediately after, since the use of steroids, especially in the early stages of diffuse SSc, can significantly contribute to renal crisis occurrence.

**Fig. 1** T2-weighted fast spin-echo images with fat suppression of the basal, middle and distal myocardial segments before (a) and after (b) corticosteroid therapy.

AW: anterior wall; ALW: anterolateral wall; ILW: inferolateral wall; IW: inferior wall; IS: inferior septum; AS: anterior septum.
After 3 and 6 months, cardiac and lung MRI showed unchanged LV volume and global and regional systolic function, while the intensity signal of the T2-weighted images was drastically reduced both at the myocardium and lung levels in comparison with images acquired before this treatment (Fig. 1b). Peripheral venous access was obtained at 3 and 6 months, and no delayed contrast enhancement was detectable at either examination. This demonstrated the complete absence of myocardial and pulmonary oedema or fibrosis.

Cardiopulmonary involvement in SSc is initially characterized by acute inflammation, progressively evolving to fibrosis [8]. This case shows that cardiopulmonary involvement can be present very early in the course of the disease and that MRI may provide information on heart and lung disease activity in the early oedematous phase of SSc in a non-invasive and non-ionizing fashion [9]. MRI can also be helpful during patient follow-up to evaluate therapeutic efficacy. However, the usefulness of widespread employment of cardiac MRI in SSc has yet to be determined.

Rheumatology key message

- MRI provides information on heart and lung disease activity in the early phase of SSc.

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Leucocytoclastic vasculitis associated with golimumab

Sir, TNF-α antagonist therapies have proved their efficacy in several rheumatic diseases in recent years, although various related adverse events have been described. Golimumab is a TNF-α antagonist recently approved for the treatment of RA, PsA and AS. We describe a case of leucocytoclastic vasculitis (LCV) in the lower extremities after the administration of golimumab. To our knowledge this is the first reported case of LCV induced by golimumab.

A 37-year-old woman was diagnosed with HLA-B27-positive AS in 2007, with involvement of sacroiliac and hip joints confirmed by imaging (sacroiliac X-ray and hips MRI). Initially treatment was with NSAIDs and DMARDs (MTX at a dose of 15 mg/week and salazopyrin 3 g/day). Because of the persistence of disease activity, in 2008 biologic treatment was begun. She was treated with adalimumab 40 mg/14 days for 5 months. The treatment was suspended due to lack of response and thereafter the patient was treated with etanercept 50 mg/week for 18 months, which was stopped because of the loss of effectiveness.

Ten months later treatment was begun with golimumab 50 mg/month. After the second dose the patient showed