Clinical vignette

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Tricuspid valve endocarditis and septic pulmonary emboli illustrated by ECG-gated multi-slice CT of the chest

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A 27-year-old man, an intra-venous drug addict, was referred to our institution for treatment of a tricuspid valve endocarditis. Clinical examination revealed a normal cardiopulmonary auscultation and multiple sites of drug injection on both arms. A chest radiograph on admission showed bilateral multiple nodules. Blood culture revealed Staphylococcus aureus, oxacillin-resistant. Septic arthritis of the knee was discovered during clinical work-up.

A retrospective ECG-gated 16-slice computer tomography (CT) (Philips Medical systems, Cleveland, OH, USA) of the entire chest was performed with 16 x 1.5 mm collimation. The entire chest was imaged in one breath-hold during 20 s, after injection of the contrast medium. Frontal reformatted images of the entire chest (Panel A) demonstrated multiple nodules of various sizes, some with necrotic centres and feeding vessels in the peripheral areas and suggestive of septic emboli. CT images reconstructed retrospectively at systolic (Panel B) and diastolic phase (Panel C) revealed an elongated hypodense masse measuring 13 mm long axis, implanted on the tricuspid valve and confirmed by transoesophageal echocardiography (Panel D).

In the present case, ECG-gated multi-slice CT of the chest led to a combined diagnosis of tricuspid valve endocarditis and septic pulmonary embolism on the same imaging modality. The patient was treated successfully with appropriate antibiotic therapy and aspiration of the infected bone joint.

Panel A. Thin slab (10 mm), maximal intensity projection and lung window setting image of the entire chest acquired with retrospective ECG-gating demonstrating lung nodules consistent with septic emboli. Panel B. CT long axis view of the heart reconstructed at systolic phase (12.5% of the R-R interval) revealing a vegetation (straight arrow) implanted on the tricuspid valve (curved arrow). Panel C. CT long axis view of the heart reconstructed at diastolic phase (75% of the R-R interval) revealing a vegetation (straight arrow) implanted on the tricuspid valve (curved arrows). Panel D. Transoesophageal echocardiography photographed during systole confirmed the presence of a vegetation (straight arrow) attached to the tricuspid valve (curved arrows).