

IMAGE FOCUS

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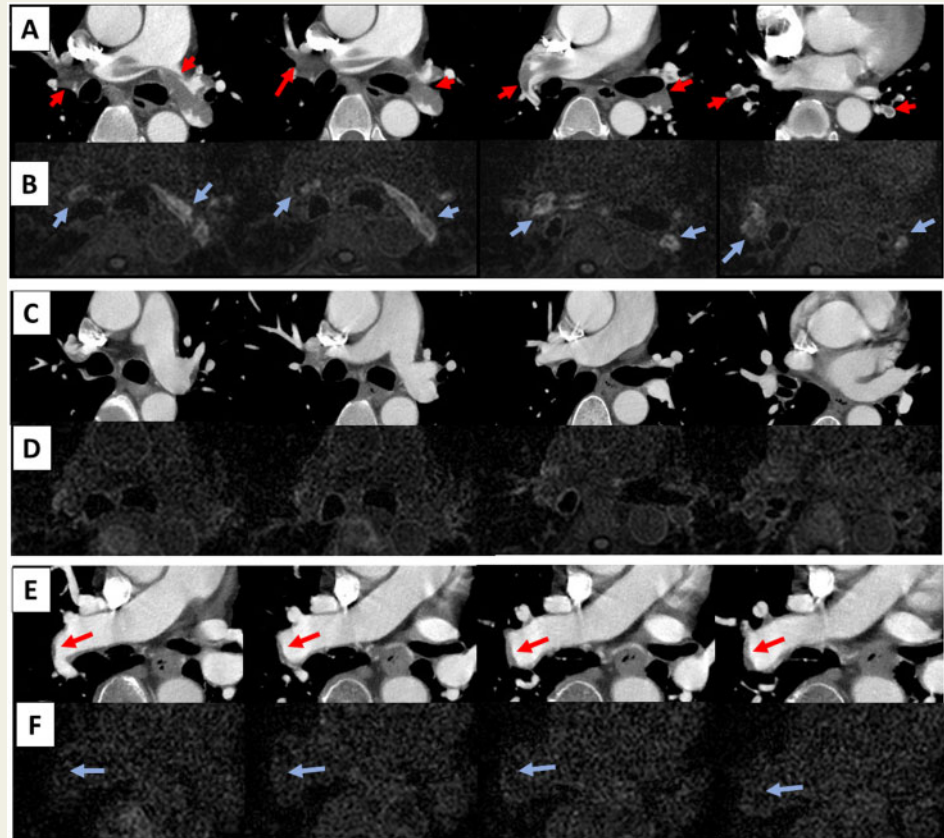
Acute pulmonary embolism with high-intensity signals on magnetic resonance direct thrombus imaging

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Patient 1: A 45-year-old man with sudden chest pain was diagnosed with acute pulmonary embolism (PE). Oxygen saturation was 96% at room air. A transthoracic echocardiogram showed right ventricular dysfunction. A blood test showed a remarkably elevated D-dimer level of 9.2 µg/mL. Computed tomographic pulmonary angiography showed bilateral massive thrombi in the main to segmental pulmonary arteries (Panel A). T1-weighted magnetic resonance direct thrombus imaging (MRDTI) showed high-intensity signals in the area corresponding to thrombi present in the pulmonary arteries (Panel B). We treated the patient using rivaroxaban. Five months later, follow-up computed tomographic pulmonary angiography showed that thrombi in the pulmonary arteries had dissolved, and high-intensity signals on MRDTI had also disappeared (Panels C and D).



Patient 2: The thrombus detected by computed tomographic pulmonary angiography in a patient diagnosed as chronic thrombo-embolic pulmonary hypertension did not have high-intensity signals in MRDTI (Panels E and F).

Stratification of the efficacy of anticoagulant therapies and differential diagnosis of acute or chronic PE are important concerns in managing patients with PE. However, little is known about the imaging techniques for estimating the age of thrombus. Application of MRDTI for estimating the thrombolytic potential and differentiating between acute and chronic thrombi in patients with PE has not been reported. Our findings suggest that MRDTI is effective for stratifying the dissolving potential of pulmonary thrombi and differentiating between acute and chronic thrombi, which are clinically important concerns.