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Focus on pulmonary embolism imaging: where are we?

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Abstract

Purpose: This paper aims to realize an analysis of available radio-imaging methods for outlining various forms of pulmonary embolism (acute or chronic) with highlights on the semiology and adequate medical indications.

Methods: There are several types of radiological examinations used in the evaluation of pulmonary embolism such as perfusion scintigraphy V/Q, digital subtraction angiography, computer tomography angiography, magnetic resonance angiography and cardio-pulmonary radiography.

Results: Based on existing studies to date and the informations accumulated in our Department of Radiology and Medical Imaging, we have outlined an imaging pathway in pulmonary embolism assessment.

Conclusions: Computer tomography angiography is actually considered the gold standard of diagnosis in suspected acute pulmonary embolism. Digital substraction angiography plays a primary adjuvant therapeutic role or a diagnostic role in case of inconclusive computer tomography angiography examinations. In case of chronic thrombembolic pulmonary hyper-tension, computer tomography angiography serves as a confirmation tool for the thrombo-embolic etiology and in conjunction with digital subtraction angiography is mapping the emboli vital for curative thrombendarterectomy. Computer tomography angiography proves its role in the diagnosis of unsuspected pulmonary embolism in oncological patients, discovery that has a negative impact on patient prognosis. In cases where computer tomography angiography refute the diagnosis of pulmonary, the examination may reveal other causes that may explain the patient's symptoms with medical impact. Digital subtraction angiography maintains especially a therapeutic role. Magnetic resonance angiography starts to become of interest in the evaluation and follow-up of subacute or chronic pulmonary embolism. Chest X-ray has not changed over time its place in pulmonary embolism assessment and continues to be of secondary importance.

Key words: pulmonary embolism (PE), computer tomography angiography (CTA), angiography with digital substraction, magnetic resonance angiography (MRA), cardio-pulmonary radiography (chest X-ray)

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