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**Title:** Contrast-enhanced ultrasound examination of pulmonary lesions

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**Body:** The aim of this study is to assess the clinical value of contrast-enhanced ultrasound (CEUS) for the diagnosis of peripheral pulmonary lesions (PPL). Materials and methods: We examine 30 patients using a 2<sup>nd</sup> generation transpulmonary contrast Sonovue and US system Philips XE-11 equipped with low acoustic power mode software. Results: By 15 patients (8 with pneumonia and 7 with atelectasis), the baseline US examination presents PPL with preserved bronchial and vascular structure. CEUS establishes a short time to enhancement (TE) < 6 sec ( $\bar{x} \pm SD = 4.1 \pm 1.1$  sec.) and hyperechogenic tissue enhancement during the parenchymal phase, due to preserved pulmonary artery (PA) blood supply. By 6 patients (PTE n=2; abscess in the infiltrated lung tissue n=2; pneumosclerosis n=1; metastasis n=1), CEUS does not show contrast enhancement. Peripheral lung cancer (n=8pts) as well as some types of pulmonary metastasis are characterized by delayed TE>7sec. ( $\bar{x} \pm SD = 15.1 \pm 5.7$  sec.) and sparse tissue enhancement, suggesting bronchial arterial (BA) supply. Conclusion: CEUS is a safe and effective method for differentiating PA from BA blood lesions supply. It could be a useful method for diagnosis of pneumonia/atelectasis and is particularly valuable to differentiate them from PTE. CEUS improves the US control of transthoracic needle biopsies especially in lesions among atelectasis or inflammatory infiltrate. It is reasonable to carry out further research to clarify the role of CEUS among the diagnostic procedures in patients with PPL.