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Title: Combination of light microscopy and confocal laser endomicroscopy in diagnostics of solitary and multiple lung consolidations

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Body: Probe-based confocal laser endomicroscopy (pCLE) is a new method of visualization of intraalveolar structures which possess autofluorescence. Till now the only lung pathology for which specific diagnostic signs are established at pCLE is alveolar proteinosis. Aim: to compare the visual signs of healthy and pathologically changed lung tissue received at pCLE in patients with infiltrative and local lung nodules with the diagnosis, delivered by light microscopy. Methods. An autopsy and surgical material was fixed in 10% neutral formalin solution and was analyzed by studying with a new method for visualization of structures. Histological specimens were studied at that spaces, where the pCLE was applied. We compared our results by using qualitative method. Results. Normal lung tissue structures include alveolar septum with the high light emission and light-negative spaces - the alveolar spaces. In case of pneumonia alveolar septum were saved, but the light density of alveolar spaces was higher in compare with the normal tissue. In case of alveolar proteinosis we observed unique globules, which had the highest light emission. We found out several authentic signs, which are representative for each kind of pathological feature. Moreover, we revealed some other characteristics, which can help us to distinguish ex vivo some types of lung cancer. Conclusions. pCLE can be used as an additional method of diagnostics in vivo.