

# Differential diagnosis of the complicated course of COVID-19 pneumonias and infectious lung destruction

O.K. Yakovenko<sup>1</sup>, M.I. Lynnyk<sup>2</sup>, I.V. Liskina<sup>2</sup>, V.I. Ignatieva<sup>2</sup>, G.L. Gumeniuk<sup>3</sup>, V.V. Sokolov<sup>4</sup>

1. ME “Volyn Regional Clinical Hospital” of the Volyn Regional Council, Lutsk, Ukraine

2. SI “National Institute of Phthisiology and Pulmonology named after F.G. Yanovsky of the NAMS of Ukraine”, Kyiv, Ukraine

3. National University of Healthcare of Ukraine named after P.L. Shupyk, Kyiv, Ukraine

4. Clinical Hospital “Feofania”, Kyiv, Ukraine

**Conflict of interest:** none

**BACKGROUND.** At present radiological criteria for diagnosis of viral pneumonia associated with SARS-CoV-2 have been defined. However, with the further course of the pandemic, physicians began to observe more and more often destructive processes developing in the lungs of patients with non-hospital pneumonia of viral etiology (COVID-19). Due to the development of surgical complications (pneumothorax, pneumomediastinum, vanishing lung syndrome) the question of their differential diagnostics with purulent-destructive lung diseases became actual.

**OBJECTIVE.** To show the possibilities of differential diagnostics of infectious lung destruction (ILD) with cyst-like changes in the lungs at COVID-19 using clinical examples and data of computed tomography (CT) scan of the chest and pathomorphological study.

**MATERIALS AND METHODS.** CT of the patients with ILD (lung abscess) and 90 patients with non-hospital pneumonia of viral etiology (COVID-19), who were treated in the National Institute of Phthisiology and Pulmonology named after F.G. Yanovsky of the NAMS of Ukraine were analyzed.

**RESULTS AND DISCUSSION.** There were analyzed 90 CT scans of the whole body of patients with non-hospital pneumonia of viral etiology (COVID-19); among them 27 cases (15 male and 12 female, aged from 23 to 78 years) with radiological signs of vanishing lung syndrome were revealed, which made 30 % of all patients with a complicated course of the disease. Chest CT findings and pathomorphologic findings in cyst-like changes in patients with COVID-19 were compared with those in patients treated for lung abscess.

**CONCLUSIONS.** Clinical picture, pathogenesis and pathomorphological changes of pulmonary parenchyma at ILD differ greatly from non-hospital pneumonia of viral etiology (COVID-19) and form specific changes, which are revealed by chest CT. Necessary development of indications for surgical treatment in vanishing lung syndrome which occurs in patients with complicated course of COVID-19.

**KEY WORDS:** COVID-19, computed tomography, vanishing lung syndrome, infectious lung destruction, abscess, pathomorphology.