CT-SEMIOTICS OF PULMONARY LESIONS IN CORONAVIRUS DISEASE (COVID-19)

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Abstract

On 30th of January 2020 World Health Organization declared health emergency concerning an increasing coronavirus disease (COVID-19) morbidity. On March 11 the coronavirus epidemic has been qualified as pandemic.

Considering primary involvement of respiratory system chest computed tomography (CT) is strongly advised in COVID-19 suspected cases both for preliminary assessment and follow-up of the patients.

Current report presents the results of analytical review of numerous literature data about the radiological features of COVID-19 associated pneumonia. The following specific patterns and distribution of CT lesions have been established: "ground-glass opacity" — 88,0 % of cases in average, bilateral lesions — 87,5 %, peripheral distribution — 76,0 %, multilobar (more than one lobe) localization — 78,8 %. Parenchyma consolidation is observed in 31,8 % of cases, mostly in combination with ground-glass opacity. Reticulation due to interlobar wall thickening, halo sign, cellular pattern, resembling "crazy paving pattern", are observed much less often.

CT findings have also been described in association with five stages of the disease: ultra-early, early, fast progression symptoms, consolidation and dispersion. At ultra-early stage (asymptomatic, 1–2 weeks following contagion) the CT may demonstrate solitary or multiple foci of ground-glass, patchy consolidation shadows, pulmonary nodules and air bronchograms. At early stage (early symptomatic manifestation of disease) CT picture include one or more area of ground-glass in combination with interlobar wall thickening. Fast progression stage (3–7th day of symptoms) is characterized by patchy consolidation and air bronchograms. Stage of consolidation (2nd week of symptoms) is associated with decreasing density and size of consolidating shadows. Approximately 2–3 weeks after beginning of the disease CT may demonstrate a dispersion of patchy non-transparent consolidation, reticular opacification, bronchial and interlobar wall thickening.

The article is illustrated by a description of COVID-19 clinical case with the analysis of radiological symptoms.

Key words: coronavirus disease (COVID-19), pneumonia, CT-semiotics.

Ukr. Pulmonol. J. 2020; 2: 13–18.

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