



## Problematic issues of pathology of a new coronavirus infection COVID-19

Vsevolod A Zinserling

Saint-Petersburg University, Russia

### Abstract

Relevance of the problem of a new covid-19 coronavirus infection is obvious. Among its most important aspects that require special study, are pathogenesis and morphological changes in severe forms of the disease.

**Material and methods.** The analysis of 18 autopsy observations was carried out. Along with routine assessment of macro - and microscopic changes (hematoxylin-eosin, azur, PAS), immunohistochemical studies of lungs and other organs were performed using sera against antigens CD2,3,4,5,7, 20,31,34, 56,57,69

**Results and discussion:** In typical cases macroscopic changes were most typically found in the lower lobes of the both lungs, they appeared reddish, slightly firm without any specific hallmarks. In different cases the degree of manifestation varied. Microscopically the lesions included several components. We considered that proliferation of ciliary epithelium and alveolocytes developed due to direct effect of the virus. We also consider to associate with viral propagation appearance of macrophages and alveolocytes of irregular form, frequently binucleated. Intranuclear inclusions were observed as well. Inflammatory infiltration was predominantly mononuclear presented mostly by CD3+ , CD8+, CD2+, CD5+, CD7+ lymphocytes and numerous CD68+ macrophages , only with focal neutrophilic admixture due to bacterial superinfection. Hyaline membranes were presented in the most of the cases, but their number differed critically. Very typical, especially in certain cases, were blood vessel thrombosis and hemorrhages, probably due to virus lesion of endothelium. In two cases we succeeded to detect intra and extracellular inclusions similar with typical for Chlamydia. Thus, we can suppose reactivation of this infection. Many organs (lymph nodes, spleen, intestines, brain, adrenal glands) show changes that may indicate generalization of viral infection, and infiltration of CD8+ lymphocytes in the kidneys, liver, adrenal glands, pericardium and intestines indicates a probable autoimmune component of pathogenesis. The conclusion is made about the necessity for further complex study of the pathogenesis and pathology of COVID-19.



### Biography:

Vsevolod A Zinserling is pathologist working in the field of infectology in Saint-Petersburg, Russia. His research is devoted to viral, bacterial, fungal and mycoplasma lesions of brain, lung, liver, intestine, placenta on autopsy, clinical and experimental material. Investigations of pathomorphology of Influenza, HIV and its complications, infections due to herpes viruses, viral hepatitis, mixed infections of different localisation are of special interest. He is collaborating at Saint-Petersburg University, Center of infectious pathology at S.P. Botkin hospital for infectious diseases and department of pathomorphology in the Institute of Experimental medicine at National Medical Research Center named after V.A. Almazov. He is active member of European Society of Pathology (working groups infectious diseases, autopsy pathology and history of pathology). Author of more than 400 publications.



### Speaker Publications:

1. Prokopeva, Elena & Zinserling, Vsevolod & Bae, You-Chan & Kwon, Yongkuk & Kurskaya, Olga & Sobolev, Ivan & Kozhin, Peter & Komissarov, Andrey & Fadeev, Artem & Petrov, Vladimir & Shestopalov, Alexander & Sharshov, Kirill. (2019). Pathology of A(H5N8) (Clade 2.3.4.4) Virus in Experimentally Infected Chickens and Mice. Interdisciplinary Perspectives on Infectious Diseases. 2019. 1-8. 10.1155/2019/4124865.
2. Zinserling, Vsevolod. (2016). Measles. 10.1007/978-3-319-30009-2\_1048.

12<sup>th</sup> International Virology Summit; Webinar- June 24-25, 2020.

### Abstract Citation:

Vsevolod A Zinserling, Problematic issues of pathology of a new coronavirus infection COVID-19, Euro Virology 2020, 12<sup>th</sup> International Virology Summit; Webinar - June 24-25, 2020

(<https://virology.conferenceseries.com/europe/abstract/2020/problematic-issues-of-pathology-of-a-new-coronavirus-infection-covid-19> )