

Histological studies of lungs associated with COVID-19 Pathology

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Deka D. Histological studies of lungs associated with COVID-19 Pathology. *Int J Anat Var.* 2021;14(9):126-126.

INTRODUCTION

The Coronavirus disease 2019 spreads via the respiratory droplets of the infected person. The symptoms and the clinical presentation of the disease are similar to the viral pneumonia. The disease outbreak and the subsequent pandemic have posed great challenge to the health care communities and the front line health workers all across the globe. The spike protein of the virus binds to the receptor on the epithelial cell surface called as angiotensin converting enzyme receptor (ACE 2). This receptor has ubiquitous distribution in different organs of the human body and therefore severe form of SARS-CoV2 infection causes systematic infection that includes kidneys, heart, blood vessels, liver and pancreas. ACE2 are also distributed in small intestine, duodenum and the colon.

Nevertheless, lungs remain the most affected organ due to the COVID-19 infection. As a response to the viral infection the human body produces multiple cytokines and chemokines in a rapid manner that may lead to acute respiratory distress and multiple organ failure. The presence of comorbidities such as diabetes, hypertension and renal failure may lead to more severe form of clinical presentation. There is a greater need to understand the tissue pathology associated with COVID-19 infection for better management of the disease and prevention of further complications and alleviation of other risk factors [1].

In the lungs the pathogenesis was found to be varying even from right to left lung. On a macroscopic scale, the lungs appear with patches of haemorrhagic necrosis and alveolitis appear with atrophy, vacuolar degeneration, desquamation and squamous metaplasia of the alveolar epithelial cells along with exudative monocytes and macrophages. Presence of epithelial cells in the lumen indicates necrotizing bronchiolitis. These features represent the pathogenesis and lung tissue damage and inflammatory response to coronavirus infection [2].

In deeper clinical diagnosis, the chest computed tomography (CT) was found to be effective and important source supplementing the results of RT-PCR. There is a need for correlation of the anatomical pathological and radiological analyses. A research group from China have studied the CT scans of the chest in about 60 patients including the anatomical and pathological analyses and devised a semi-quantitative scoring system for determination of the severity of the disease. It was found that the most common imaging feature of COVID-19 was sub-pleural ground glass opacities (GGOs) and consolidation. The study revealed that the semiquantitative scores were significantly different between the early progressive and severe stages of the disease [3].

It was noted that a very high level of expression of angiotensin converting enzyme -2 expression was found in alveolar type II cells of the lungs. High resolution CT scan of the lungs is the most well established diagnostic method for detection of COVID-19 infection. Patchy GGO appearance about the size of the acinus in a centrilobular distribution indicates the bronchial infection. GGO becomes fused with each other across interlobular septa and result in partial alveolar collapse and interlobular septal thickening.

REFERENCES

1. Deshmukh V, Motwani R, Kumar A. Histopathological observations in COVID-19: a systematic review. *JCP.* 2021;74(2), 76-83.
2. Zhang H, Jiang XJ, Liu XH. Chest computed tomography (CT) findings and semi-quantitative scoring of 60 patients with coronavirus disease 2019 (COVID-19): A retrospective imaging analysis combining anatomy and pathology. *Plos one.* 2020;15(9):0238760.
3. Tsujikawa T, Umeda Y, Itoh H. Radiological perspective of COVID-19 pneumonia: The early features and progressive behaviour on high resolution CT. *J Med Imaging Radiat Oncol.* 2021;65(2), 208-212.

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Received: Sep 02, 2021, Accepted: Sep 17, 2021, Published: Sep 24, 2021



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