**Pathologic findings of lung biopsy samples in patients who died from COVID-19**

**Abstract**

**Introduction:**

**Methods:** At present, the treatment and diagnosis of COVID-19 strongly depends on the consensus of the guidelines, which include history of contact with the suspected person, laboratory tests and CT-scan imaging examination. There is no doubt that pathological examination is very important to clarify the pathological changes, pathogenesis and cause of death of COVID-19. Considering that the studies conducted on the biopsy samples of people who died due to infection with this virus are few and due to the fact that the pathological details of the lungs of this disease are few; In this study, we decided to examine the pathological examination of lung biopsy samples of patients who died due to this disease.

**Results:** In this study, 44 patients with covid-19 were investigated, the average age of the patients was 64.77 ± 14.29 years and the average duration of symptoms was 6 ± 1.6 days. In this study, 29 patients (65.9%) were male and 15 patients (34.1%) were female. Among the patients, 15 were smokers and 14 were opium users. In terms of underlying diseases, 25 people (56.8%) had diabetes, 32 people (72.7%) had hypertension, 9 people (20.5%) had heart diseases, 3 people (6.8%) had chronic lung disease, and 6 people (13.6%) had heart failure. They had chronic kidney disease. In terms of radiological findings, 18 people (40.9%) had consolidation, 24 people (54.5%) had ground glass lesions. In all cases, the lesions were bilateral and 95.5% of the cases had diffuse involvement. The infiltration observed in the biopsied samples was lymphocytic and PMN in the majority of cases (59.1%). Infiltration was not observed in only 9.1% of cases. Pathology examination showed that in the observed samples, 38 cases (86.4%) of fibrosis, no cases of granuloma formation, and 24 cases (54.5%) of hyaline membrane formation. Other pathology findings included tissue necrosis (63.6%), Alveolar Exudate (95.5%), Micro Thrombosis (27.3%), Septal Widening (75%) and RBC Extravasation (70.5%).

**Conclusion:** The results of the present study showed the pathological patterns of lung involvement in patients with covid-19, the most important of which were tissue necrosis and severe exudative alveolar damage, and considering that microthrombosis and tissue necrosis are associated with the time of the patient's visit and prolongation. The disease had a significant relationship, so early referral and timely treatment can be effective in reducing the complications caused by the disease.

**Keywords:** Covid-19, pathologic findings, lung biopsy