

## Pneumocystis pneumonia after COVID-19 in a healthy patient

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**Introduction:** SARS-COV-2 is a newly emerging virus in coronaviruses causing severe respiratory syndrome. There are many reports that COVID-19 patients suffered various complications like fatigue, dyspnea, chest pain, and cognitive disorder. In pulmonary sequelae, post-COVID interstitial lung disease (ILD) including pulmonary fibrosis is quite common, and we should take attention if patients show diffuse ground glass opacity (GGO) in chest computed tomography (CT). Here, we reported a case of pneumocystis pneumonia instead ILD after COVID-19 in a healthy patient without any history of immune suppression.

**Case:** A 68-year-old male has visited clinic due to dyspnea and chest discomfort. There was both lung patchy opacity and GGO in CT. (Fig. 1A) He had hypertension, diabetes, and chronic kidney disease. He suffered COVID-19 2 months before visit but didn't have any history of steroid or immunosuppressant. First, we suspected ILD and performed chest CT and bronchoalveolar lavage (BAL). But he was positive to pneumocystis-polymerase chain reaction and diagnosed as pneumocystis pneumonia. After 3 weeks of Trimethoprim/Sulfamethoxazole medication, CT findings were improved. (Fig. 1B)

**Discussion:** As COVID-19 is getting worse, it's also important to discuss about post-COVID-19 syndrome. SARS-COV-2 affect lower respiratory tract and can leave severe lung destruction and ILD. There are other diseases that can show diffuse GGO and patchy opacity; notably, the most common finding in PCP pneumonia. There has been several cases of PCP pneumonia after COVID-19. Mostly, they are immunocompromised or have severe COVID-19 to be cared in intensive care unit. In our case, the patient had neither history of immunosuppression nor the need of admission for COVID-19. Many studies showed that SARS-COV-2 could cause lymphocytopenia and immunosuppression in early stage. We suggests that it modulates immune system lading to systemic complications including PCP pneumonia in healthy patient, and further study will be needed. If patient have diffuse GGO after COVID-19, PCP pneumonia also should be considerede other than post viral ILD

