Immunology, Pathology and Laboratory Medicine

Case Report

COVID-19 Complicated with Acute Parotitis in an Elderly Patient: A Case Report

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Background

COVID-19 is caused by severe acute respiratory syndrome (SARS-CoV-2) infection. The clinical manifestations of COVID-19 vary from asymptomatic to symptomatic. Its most common symptoms are respiratory symptoms but also a variety of atypical presentations. Many physicians have observed an increase in the number of patients with acute parotitis, which could be related to COVID-19 [1-2].

Objective

To report that acute parotitis is an important complication of COVID-19 infection in elderly men and is associated with a poor prognosis.

Case Report

On May 8, 2023, a 90-year-old man developed cough and fever (38.8°C), with a small amount of white sputum coughed up, as well as general fatigue and muscle soreness. Laboratory testing was notable for a positive COVID-19 real-time polymerase chain reaction (RT–PCR) test result (buccal swab). PCT was normal. No obvious signs of infection were found via pulmonary computed tomography. He had a history of coronary stent implantation due to myocardial infarction, heart failure, or renal failure. The patient had been exposed to COVID-19 recently. Moxifloxacin tablets (0.4 g qd(po)) and oseltamivir 75 mg bid (po) were added to the regimen at home. On May 12, the patient developed swelling and pain in the right parotid gland region, as well as local skin redness and elevated skin temperature. The cough became more severe than it had been previously, and yellow sticky phlegm was coughed out laborious, accompanied by chest tightness and palpitations. His temperature was 38.2°C, and he returned for consultation once more. Pulmonary CT showed inflammation in the lungs (Figure 1). Antibiotic, expectorant, antiasthmatic and symptomatic therapy was given promptly following admission. Two days after admission, the patient began using Paxlovid(nirmatrelvir/ritonavir) to combat the

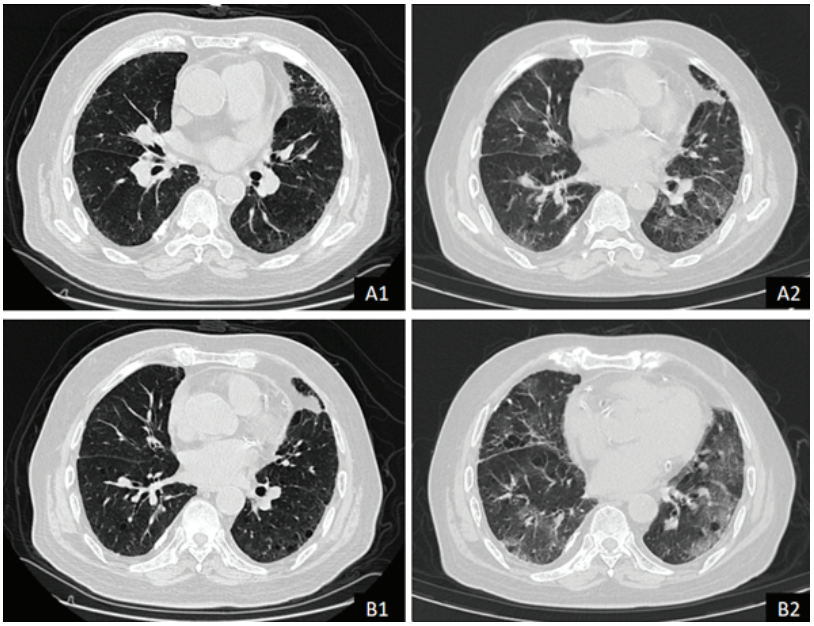

Figure 1. *Pulmonary CT on May 8 (A1 and A2) and pulmonary CT on May 13 (B1 and B2)*

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Table 1. *Ct value of SARS-CoV-2*

Date	May 8	May 13	May 18
ct value of ORF1ab	18.3	17.77	36.28
ct value of N	15.26	17.23	33.34

Table 2. *Serum amylase levels*

Date	May 14	May 16	May 18
serum amylase (U/L)	656.5	445.8	252.5

virus. On the third day, the patient coughed up a large amount of sputum, the parotid pain disappeared, the swelling significantly subsided, the panic and chest distress significantly improved, and his body temperature returned to normal. The Ct value of the COVID-19 nucleic acid test increased steadily (Table 1), while the blood amylase level decreased gradually (Table 2). On the evening of May 18th, the patient had chest tightness, wheezing and suffocation; his temperature climbed to 38°C; he coughed pink foam-like sputum; and he died of heart failure.

Discussion

Our patient had pronounced swelling in the right parotid gland accompanied by local skin temperature and pain 4 days after being diagnosed with COVID-19 infection. Our findings support the notion that acute parotitis is a significant complication of COVID-19. In the present case, the swelling of the parotid gland tissue disappeared significantly following Paxlovid treatment, the Ct value of SARS-CoV-2 increased gradually, and the blood amylase level decreased gradually. It is inferred that COVID-19 attacks parotid gland tissue, and the mechanism of action may be related to the expression of the ACE2 receptor. The ACE2 receptor expressed on the surface of glandular cells is the main receptor for COVID-19. COVID-19 directly affects parotid gland cells through the ACE2 receptor. On the other hand, immunosuppressive conditions may easily lead to parotitis [3]. However, whether there is such a mechanism between the occurrence of parotitis and COVID-19 infection remains to be further studied.

After a literature search, 3 articles of COVID-19 is associated with acute parotitis in elderly individuals have been published[3-5]. Two of the four patients included in the Russian dentist`s study experienced acute parotitis on the second and fourth days of COVID-19[5]. Our patient suffered acute parotitis on the fourth day of COVID-19. Despite the fact that the parotitis situation had improved after antiviral therapy, all three patients, including our patient, died in the near future. Therefore, we believe that acute parotitis is an important complication of COVID-19 infection in elderly patients and is associated with a poor prognosis. Although acute parotitis is an unusual infection, its incidence may increase in the future owing to the aging population.

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