



## Rapidly Progressed SARS-CoV-2 Infection: A Case Report

### Hızlı İlerleyen SARS-CoV-2 Enfeksiyonu: Olgu Sunumu

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#### ABSTRACT

In December 2019 new type of coronavirus which did causes severe acute respiratory syndrome was reported and named as SARS-CoV-2. Globally, over 31 000 000 cases were confirmed, and over 962 000 patients have died from this viral infection. A 31-year-old male patient was admitted to our clinic with fever and cough for three days. He was healthy, he did not have any specific medical history. At first admission, computed tomography showed mild pneumonia. He was discharged with treatment of hydroxychloroquine. He was admitted again to our clinics four days later with a complaint of dyspnea. Pneumonia progressed rapidly in a short period. Piperacillin-tazobactam combination, favipiravir and azithromycin were added to therapy. Although supplementary oxygen and prone positioning added to medical therapy, the patient was desaturated and died. As a conclusion; patient without known predictors of mortality for COVID-19, can result in death. Patients with COVID-19 should be followed closely for clinical course.

**Keywords:** Coronavirus infections, COVID-19, Case reports

#### ÖZ

Aralık 2019'da SARS'a neden olan yeni tip bir koronavirüs bildirildi ve SARS-CoV-2 olarak adlandırıldı. Dünya çapında 31.000.000'den fazla vaka doğrulandı ve 962.000'den fazla hasta bu viral enfeksiyondan öldü. Kliniğimize üç gündür ateş ve öksürük şikayetleri ile başvuran 31 yaşında erkek hasta başvurdu. Özgeçmişinde hastalık öyküsü yoktu. Bilgisayarlı tomografide hafif pnömoni izlendi. Hidroksi klorokin tedavisi ile taburcu edildi. Dört gün sonra nefes darlığı ile tekrar kliniğimize başvurdu. Pnömoni kısa sürede hızla ilerledi. Tedaviye Tazocin, favipiravir ve azitromisin eklendi. Medikal tedavi ve yüzüstü pozisyonlama ile destekleyici oksijene rağmen hasta desatüre oldu ve vefat etti. Sonuç olarak; COVID-19 için bilinen mortalite prediktörleri olmayan hastalar da ölümlerle sonuçlanabilmektedir. COVID-19 hastalarının klinik seyirleri yakından takip edilmelidir.

**Anahtar Sözcükler:** Koronavirüs enfeksiyonları, COVID-19, Olgu sunumları



## INTRODUCTION

The coronavirus disease of 2019 (COVID-19) outbreak caused by the SARS-CoV-2 virus, which emerged in Wuhan on December 31, 2019, quickly has spread to 6 continents and hundreds of countries and went down in history as the first pandemic caused by coronaviruses (1). The epidemic process, which started in our country with the identification of the first positive case on March 11, 2020, continues increasingly (2). Since the isolation of the new type of coronavirus, studies on COVID-19 disease and SARS-CoV-2 virus have been started in many countries. There are many issues regarding COVID-19 disease and its treatment that have not yet been clarified. Future research regarding the COVID-19 outbreak that has affected the world for ten months is necessary in our country.

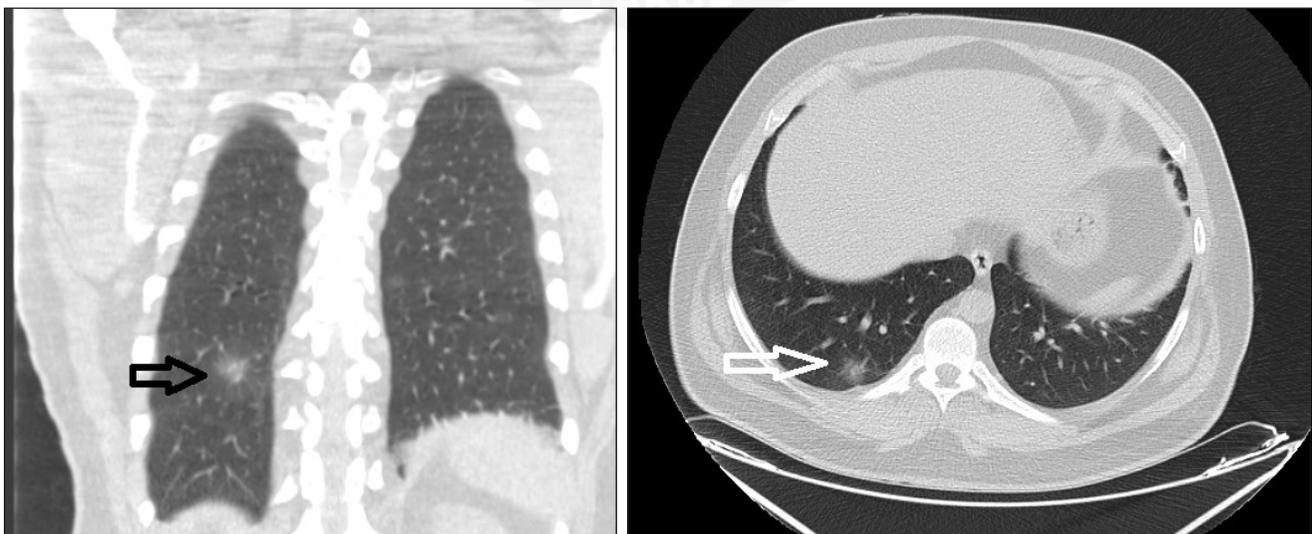
In this case report, we aimed to present a young male patient with rapidly progressing COVID-19, resulting in acute respiratory distress syndrome and death and to review the current literature.

## CASE REPORT

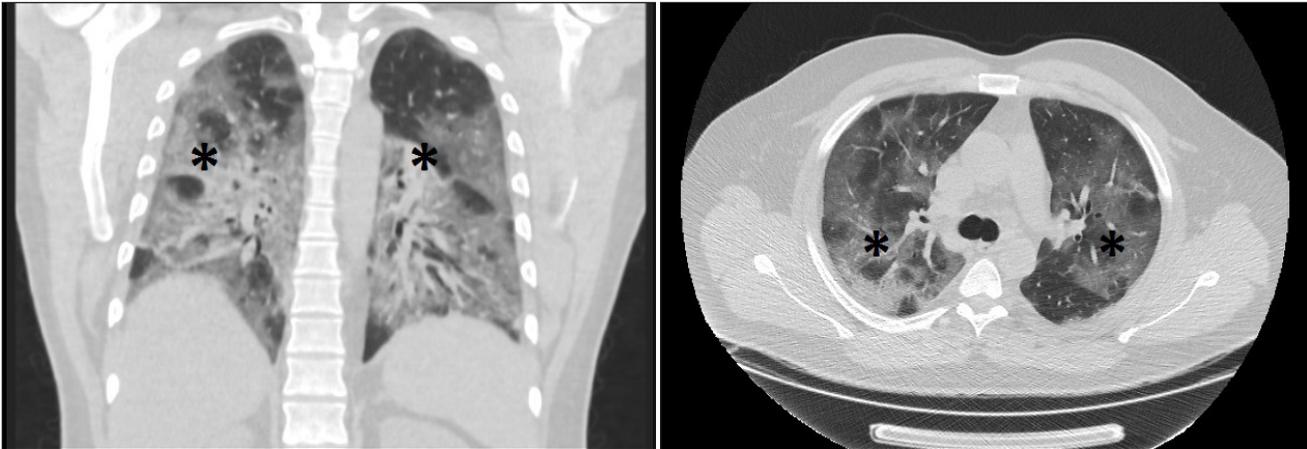
On May 09, 2020, a 31-years-old male was admitted to our clinics with fever and cough for three days. In his medical history, there were no diseases. He had known contact with a patient with COVID-19, and he had the exertional dyspnea. He had no overseas travel history. The initial physical examination revealed a body temperature of 36.4 °C, blood pressure of 123/93 mm-Hg, pulse of 95 /minute, respiratory rate of 16 breath/minute, and oxygen saturation of 98% on room air. Normal sinus rhythm was detected on electrocardiography. Blood tests revealed normal lymphocyte count ( $1.89 \times 10^3/\mu\text{L}$ , normal range:  $0.8\text{-}4 \times 10^3/\mu\text{L}$ ), and ele-

vated neutrophil count ( $9.4 \times 10^3/\mu\text{L}$ , normal range:  $2\text{-}7 \times 10^3/\mu\text{L}$ ), and elevated C-Reactive Protein level (1.15 mg/L, normal range:  $<0.5$  mg/L). Other biochemical parameters were within normal limits. Thorax computed tomography showed that multiple patched-style ground-glass opacities and consolidated areas surrounded by ground-grass opacities in both lungs (Figure 1). Patient was discharged with therapy of hydroxychloroquine with a dose of 500 mg twice daily. Oropharyngeal swab and sputum was tested positive for COVID-19 by real-time PCR assay three days after admission.

On the fourth day of treatment, patient was admitted to our clinics with dyspnea. Vital parameters revealed a body temperature of 36.6 °C, blood pressure of 144/76 mm-Hg, pulse of 95 /minute, respiratory rate of 16 breath/minute, and oxygen saturation of 74% on room air. Blood tests revealed normal lymphocyte ( $1.46 \times 10^3/\mu\text{L}$ ) and elevated neutrophil count ( $19.72 \times 10^3/\mu\text{L}$ ), and elevated C-Reactive Protein level (30.6 mg/L). Thorax computed tomography showed that diffuse ground- glass opacities in both lungs (Figure 2). Patient was hospitalized and admitted to the intensive care unit. Piperacillin-tazobactam combination 4.5 g three times a day, favipiravir loading dose 1600 mg twice a day on the first day, and then 600 mg twice a day for four days, azithromycin loading dose 500 mg on the first day 250 mg once a day for four days. High-flow nasal oxygen therapy with prone positioning were given. On the 3<sup>rd</sup> day of the admission vital parameters revealed a body temperature of 36.9 °C, blood pressure of 84/46 mm-Hg, pulse of 114 /minute, respiratory rate of 19 breath/minute, and oxygen saturation of 84% on nasal high-flow oxygen. Due to worsening dyspnea, and the patient was intubated on third day of hospitalization. Mechanical ventilation was adjusted with



**Figure 1:** Thorax computed tomography without intravenous contrast media. The coronal and axial reformatted images reveal patched-style ground-glass opacities and consolidated area (arrows).



**Figure 2:** Thorax computed tomography without intravenous contrast media. The coronal and axial reformatted images reveal diffuse ground- glass opacities in both lungs (asterisks).

high levels of positive end-expiratory pressure (PEEP), and prone positioning. Despite invasive mechanical ventilation, oxygen saturation didn't increase, and the patient was died on the fourth day of hospitalization.

## DISCUSSION

In December 2019 new type of coronavirus reported causes SARS and named as SARS-CoV-2. The disease caused by this virus named as COVID-19 (coronavirus disease 2019) (3). Until September 11, 2020, the locations with confirmed SARS-CoV-2 cases include 218 countries. Globally, over 31 000 000 cases were confirmed, and over 962 000 patients have died from this viral infection (4).

COVID-19 is particularly risky for older patients and those with pre-existing comorbidities especially respiratory diseases (4).

The patient in the present case was healthy, with no specific history, and the 31 years of age. At the time of the first admission, computerized tomography showed mild pneumonia. Pneumonia progressed rapidly in a short period. Hydroxychloroquine was used as a treatment on the beginning of the clinic. When it was worse piperacillin-tazobactam combination, favipiravir and azithromycin were added to therapy. Although this medical therapy and supplementary oxygen with prone positioning patient was desaturated and died. The treatment protocol was defined according to the COVID-19 Outbreak Management and Working Guideline created and published by the Turkish Ministry of Health (5).

Various clinical and laboratory parameters have been proposed in epidemiological studies to predict the course and prognosis of the disease (6-8). In the study conducted by Chen et al. in Wuhan in the early period of the pandem-

ic with 99 patients, 51% of the patients had at least one chronic disease (6). It has been determined that most of these diseases are cardiovascular diseases (CVD), cerebrovascular diseases (CVD) and DM. After this study, in a retrospective, multi-center cohort study conducted by Zhou et al. in China with 191 patients, comorbidities were shown in 48% of the patients similarly (7). It has been shown that these patients have HT (30%), DM (19%) and CVD (8%). As the data increase, the relationship between chronic diseases and COVID-19 has become clearer. Similar to other previous reports, HT was the most common comorbidity, followed by CVD, and DM (8). Interestingly, despite this information in the literature, our case without any comorbid illnesses resulted in death.

Same studies conducted on hematological and coagulation parameters for prediction of poor prognosis of COVID-19 (9-10). Lymphopenia is clearly associated with disease severity and mortality (9). Therewithal increased CRP levels (especially over 40 mg/L) are associated with disease severity and mortality. Interestingly again, however our patient had no lymphopenia or CRP level over 40 mg/L, resulted in mortality (10).

As a limitation our case we had no level D-dimers, ferritin, cardiac troponin and IL-6 because of we could not test the patients on period that patients admitted to our clinic for D-dimers, ferritin, cardiac troponin or IL-6.

As a conclusion; patient without known predictors of mortality for COVID-19, can result in death. Patients with COVID-19 should be followed closely for clinical course. Especially respiratory symptoms should be warning for clinician and patient.

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None

**Author Contributions**

**Serdar Özdemir, Hatice Şeyma Akça, İbrahim Altunok** reviewed the literature and wrote up the paper. Critical revisions made by; **Abdullah Algin** and **Abuzer Özkan**. All authors have read and agree to content of manuscript.

**Conflicts of Interest**

We declare no conflict of interest.

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We received no financial support for the research, authorship, or publication of this article.

**Ethical Approval**

Since it was a case report, ethics committee approval was not required. We asked the patient's parents to help us to publish the case report in an international journal for discussion, including disease symptoms, diagnosis, and image related content. They agreed us to use his medical records and signed the consent form. Legal permission has been obtained.

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