

# Rapid progression of inflammatory pulmonary infiltrates in severe acute respiratory syndrome coronavirus 2 infection in a young man

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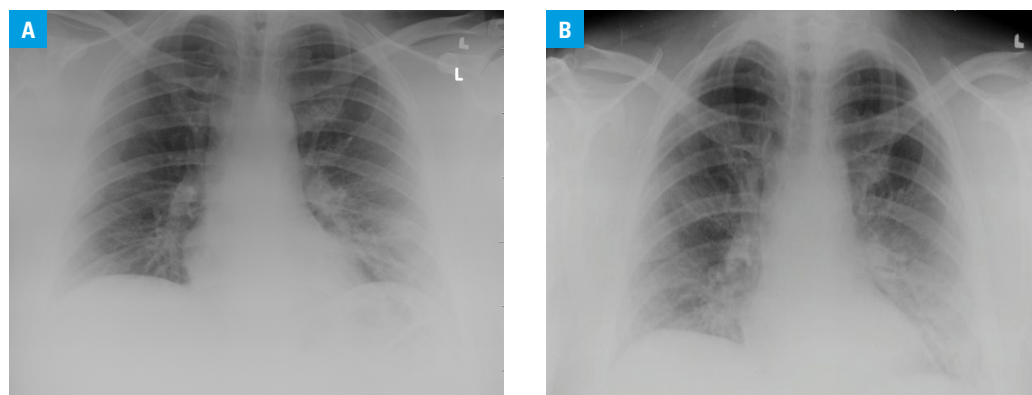
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A 37-year-old, nonsmoking, obese man with body mass index of 36.8 kg/m<sup>2</sup> (reference range, 18.5–25 kg/m<sup>2</sup>), no concomitant diseases, a 6-day history of fever up to 38.5 °C, cough, rhinitis, and dyspnea and fatigue on exertion was admitted to our department. He reported close contact with a person infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) 10 days before admission.

At admission to hospital on March 15, 2020, the patient was in good general condition. His heart rate was 80 bpm, oxygen saturation (SO<sub>2</sub>) 97% (reference range, 96%–99%), body temperature 36.7 °C and he had no signs of dyspnea. The lungs were clear on auscultation, and chest X-ray revealed no abnormalities (FIGURE 1A). Laboratory tests showed a white blood cell count (WBC) of 8×10<sup>3</sup>/μl (reference range, 4–10×10<sup>3</sup>/μl), a C-reactive protein (CRP) level of 44 mg/l (reference range, 0–6 mg/l), and a procalcitonin level

of 0.062 ng/ml (reference range, 0–0.06 ng/ml). Influenza was excluded. The real-time polymerase chain reaction test performed on a nasopharyngeal swab specimen confirmed SARS-CoV-2 infection.

On the second day of hospitalization, the patient's dyspnea worsened, heart rate was 102 bpm, and oxygen saturation (SO<sub>2</sub>) 94%. Oxygen therapy was started, but the patient still reported dyspnea. Laboratory tests showed an increased CRP level of up to 66 mg/l, a WBC of 7.04×10<sup>3</sup>/μl, a lactate dehydrogenase level of 360 U/l (reference range, 120–246 U/l), and partial oxygen pressure (PaO<sub>2</sub>) of 58 mm Hg (reference range, 65–100 mm Hg) in the arterial blood gas test. Repeated chest X-ray showed bilateral consolidations in the lower parts of the lungs, recognized as pneumonia (FIGURE 1B). The patient started to receive lopinavir / ritonavir (400 mg/100 mg daily), ribavirin (1200 mg/d), and ceftriaxone (2000 mg/d).<sup>1</sup>



**FIGURE 1** Chest X-ray of a young man with coronavirus disease 2019: **A** – a scan showing no abnormalities in the lungs (March 16, 2020); **B** – patchy and streaky consolidations in both lungs, suggestive of inflammatory lesions (March 18, 2020)

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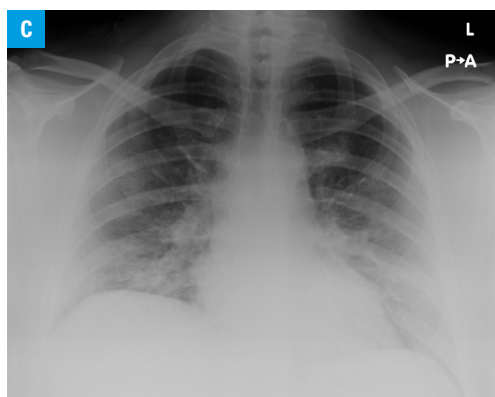
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**FIGURE 1** Chest X-ray of a young man with coronavirus disease 2019: **C** – inflammatory infiltrates in the central (present peripherally) and lower parts of the right lung; potential consolidations in the lower part of the left lung (March 21, 2020)



On days 5 to 7, diarrhea was reported (6 loose stools/d). On day 6, dyspnea was still present despite treatment. The CRP level was 133 mg/l, WBC  $11.5 \times 10^3/\mu\text{l}$ , and  $\text{PaO}_2$  58 mm Hg. The blood culture was negative. Next chest X-ray showed progression of abnormalities (**FIGURE 1C**). Consolidations were observed in the central part of the right lung and in the lower parts of both lungs. Due to oxygen saturation ( $\text{SO}_2$ ) of 89%, oxygen therapy was intensified. Azithromycin (500 mg/d) was added.

After next 2 days, fever, cough, and dyspnea resolved and oxygen therapy was discontinued on day 10. The CRP level decreased to 27 mg/l and  $\text{PaO}_2$  improved to 64 mm Hg. On March 31, 2020, a nasopharyngeal swab specimen was collected to test for SARS-CoV-2. The test was negative and the patient was discharged from the hospital.

Recent reports demonstrated that an increased risk of severe course of coronavirus disease 2019 (COVID-19) is observed mainly in the elderly with concomitant diseases. However, we presented a case of a young man with COVID-19, who had no concomitant diseases other than obesity. Obesity is a factor worsening the course of viral respiratory tract infections, but a direct association between obesity and a negative outcome of COVID-19 has not been proven so far.<sup>2</sup>

No inflammatory infiltrates seen on chest X-ray in the early phase of the disease course and limited symptoms, as also pointed out by other authors, do not rule out rapid progression to severe condition. Normal chest X-ray might be the consequence of a lower sensitivity of X-ray in detecting early interstitial inflammatory infiltrates compared with that of computed tomography. Rapid progression of pneumonia accompanied by increased concentrations of lactate dehydrogenase and CRP might be also observed in otherwise healthy young patients.<sup>3,4</sup>

Diarrhea might be a symptom of SARS-CoV-2 infection, but it also may be caused by some drugs used in the experimental treatment of COVID-19, such as lopinavir.<sup>5</sup>

## ARTICLE INFORMATION

**CONFLICT OF INTEREST** None declared.

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