COVID-19 patient presenting with initial gastrointestinal symptoms

Published on 18.03.2020

DOI: 10.35100/eurorad/case.16654
ISSN: 1563-4086
Section: Chest imaging
Area of Interest: Lung
Imaging Technique: CT
Special Focus: Infection Case Type: Clinical Cases
Authors: Julia Tran, MS3; Justin Glavis-Bloom, MD; Theodore Bryan, MD; Karen Tran Harding, MD; Chantal Chahine, MD; Roozbeh Houshyar, MD
Patient: 56 years, male

Clinical History:

A 56-year-old male patient with end-stage renal disease, heart failure, and tobacco cigarette smoking (5 pack year history) presented to the emergency department with nausea, vomiting, and low-grade fever (37.9°C), and was diagnosed with gastroenteritis. He subsequently developed a dry cough and myalgia, and returned 5 days later with fever (38.1°C). Laboratory studies were remarkable for mild lymphopenia (0.8×10^3/µL, normal range 0.9×10^3/µL – 3.3×10^3/µL), elevated aspartate aminotransferase (71 IU/L, normal range 13 IU/L – 39 IU/L), elevated c-reactive protein (14.6 mg/dL, normal range 0 – 1 mg/dL), and elevated procalcitonin (2.37 ng/mL, normal < 0.1 ng/mL). He had traveled to South Korea approximately 7 weeks prior to presentation.

Imaging Findings:

AP chest X-ray at initial presentation demonstrated mild patchy increased interstitial markings at the bilateral lung bases without evidence of focal consolidation and stable mild cardiomegaly (Fig. 1).

AP Chest X-ray obtained at second presentation demonstrated diffuse patchy bilateral airspace opacities (Fig. 2).

Concurrently obtained non-contrast chest CT (Figs. 3a-f) demonstrated multifocal bilateral patchy ground-glass opacities with a predominantly peripheral distribution, mild apical-predominant centrilobular and paraseptal emphysema, and mild cardiomegaly (Fig. 3).

AP chest X-ray on day two of admission (Fig. 4) demonstrated interval intubation, increased patchy airspace opacities, and stable mild cardiomegaly.

Discussion:

Background
Coronavirus disease-19 (COVID-19) is a novel viral pandemic with increasing incidence and a wide spectrum of disease severity [1]. Many countries are currently experiencing community spread to persons without known infectious contacts.

Clinical Perspective
Common presenting findings include fever, cough, myalgia, and lymphopenia [2]. Recent cases have highlighted early gastrointestinal symptoms, including nausea, vomiting, and diarrhoea, which preceded respiratory symptoms [3, 4]. The relationship between smoking and COVID-19 prevalence and severity has not yet been conclusively evaluated in the limited scientific literature [5].

Imaging Perspective
Radiographic and computed tomography (CT) imaging early in the disease course may be normal; chest CT has been described as more sensitive than chest X-ray for the detection of characteristic bilateral, peripherally-predominant ground-glass opacities [6–10]. It has been reported that some patients who initially have negative RT-PCR at presentation may have synchronous chest CT findings of viral pneumonia [11–13].

Outcome
COVID-19 RT-PCR returned positive. The patient developed hypoxic respiratory failure and new onset haemoptysis on day two of admission and was intubated and transferred to the intensive care unit.

Teaching Points. Chest imaging findings in COVID-19 infection are not specific and may overlap with other viral pneumonias, including influenza. Chest CT is more sensitive than chest X-ray for detection of ground glass opacities; however, initial imaging may be normal. Gastrointestinal symptoms may be an early presenting feature of COVID-19 infection.

Written patient consent for this case was waived by the Editorial Board. Patient data may have been modified to ensure patient anonymity.

Differential Diagnosis List: Coronavirus disease-19 (COVID-19), Multifocal bacterial pneumonia, Pulmonary oedema, Acute respiratory distress syndrome (ARDS), Hypersensitivity pneumonitis

Final Diagnosis: Coronavirus disease-19 (COVID-19)

References:
**Description:** AP chest X-ray at initial presentation demonstrated mild patchy increased interstitial markings at the bilateral lung bases without evidence of focal consolidation and stable mild cardiomegaly

**Origin:** Department of Radiology, UC Irvine Medical Center, University of California Irvine School of Medicine, 2020
Description: AP chest X-ray obtained at second presentation demonstrated diffuse patchy bilateral airspace opacities and stable mild cardiomegaly. Origin: Department of Radiology, UC Irvine Medical Center, University of California Irvine School of Medicine, 2020
Figure 3

Description: Non-contrast chest CT obtained at second presentation demonstrated multifocal bilateral patchy ground-glass opacities with a predominantly peripheral distribution, mild apical-predominant centrilobular and paraseptal emphysema, and cardiomegaly. 

Origin: Department of Radiology, UC Irvine Medical Center, University of California Irvine School of Medicine, 2020
Description: Non-contrast chest CT obtained at second presentation demonstrated multifocal bilateral patchy ground-glass opacities with a predominantly peripheral distribution, mild apical-predominant centrilobular and paraseptal emphysema, and cardiomegaly.

Origin: Department of Radiology, UC Irvine Medical Center, University of California Irvine School of Medicine, 2020
Description: Non-contrast chest CT obtained at second presentation demonstrated multifocal bilateral patchy ground-glass opacities with a predominantly peripheral distribution, mild apical-predominant centrilobular and paraseptal emphysema, and cardiomegaly. Origin: Department of Radiology, UC Irvine Medical Center, University of California Irvine School of Medicine, 2020
Description: Non-contrast chest CT obtained at second presentation demonstrated multifocal bilateral patchy ground-glass opacities with a predominantly peripheral distribution, mild apical-predominant centrilobular and paraseptal emphysema, and cardiomegaly. Origin: Department of Radiology, UC Irvine Medical Center, University of California Irvine School of Medicine, 2020.
Figure 4

Description: AP chest X-ray obtained on day two of admission demonstrated interval intubation, increased patchy airspace opacities, and stable mild cardiomegaly. 

Origin: Department of Radiology, UC Irvine Medical Center, University of California Irvine School of Medicine, 2020