

Clinical characteristics of patients with COVID-19 in Japan: a single-center case series

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Summary:

We report a case series of six patients infected with the COVID-19 virus. The complaints and symptoms experienced by the patients varied. It would be difficult to triage patients with COVID-19 based on typical symptoms, although PCR and CT are definitive in diagnosis.

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Abstract

We report a case series of 6 patients with confirmed COVID-19 in Wakayama prefecture, Japan. All 6 of the patients tested positive in pharyngeal swab PCR tests, and 2 of the 6 were still positive at 3 weeks after onset. All of the patients exhibited bilateral ground glass opacities (GGO) on computed tomography (CT). This paper also reports narrative information on the spectrum of symptoms collected directly from the patients. It would be difficult to triage patients with COVID-19 based on the typical symptoms of fever and/or cough, although PCR and CT are definitive in diagnosis.

Key Words: COVID-19, narrative information, PCR tests

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Background

The novel coronavirus disease (COVID-19) caused by the severe acute respiratory coronavirus 2 (SARS-CoV-2) has been spreading since the outbreak of the disease in China in December of 2019. The number of COVID-19 cases in Japan has been climbing since mid-February. As of April 26, 2020, 12,388 cases confirmed cases in Japan have been recorded(1). Fifty-eight cases have been reported in Wakayama prefecture, Japan.

A new infectious disease law enacted in Japan in February 2020 to manage COVID-19 provides that patients with confirmed COVID-19 must be hospitalized at specialized hospitals for infectious diseases, and that two consecutive negative PCR results are required for discharge after a patient's symptoms improve.

While the clinical characteristics of COVID-19 have been reported from China (2), they have not been well understood outside of China.

In this report we describe a series of patients with confirmed COVID-19 who were treated in our hospital in Wakayama prefecture in February 2020.

Methods

This single-centered, retrospective observational study was conducted at the Japanese Red Cross Wakayama Medical Center (Wakayama, Japan: 873 beds) with a specialized ward for infectious diseases. This study was approved by the Ethical Committee of the Japanese Red Cross Wakayama Medical Center on February 26, 2020.

We retrospectively analyzed patients with confirmed COVID-19 who were hospitalized from February 13 to 25, 2020. Each case presentation includes narrative information describing how the patients felt or interpreted their symptoms and excludes personally identifiable information. SARS-

CoV-2 was detected by performing a polymerase chain reaction (PCR) tests on specimens of either sputum or pharyngeal swabs, or of both, according to laboratory guidance from the Ministry of Health, Labor and Welfare (3). The patients were diagnosed with COVID-19 diagnosed if two conditions were met: 1) any clinical symptoms and 2) a positive PCR result. The day when symptoms appeared is counted as the first day of illness (Day 1).

Results

Case 1

A male in his 50s with known hypertension developed fatigue and fever, followed by abdominal pain on Day 6. Upon noting blood in his stool, he suspected that his abdominal pain was caused by “ischemic colitis.” A computed tomography (CT) image taken on Day 7 to investigate his abdominal pain showed bilateral ground glass opacity (GGO) of the lungs. He was treated with antibiotics and corticosteroid for pneumonia. Rapid Influenza Diagnostic Tests (RIDTs) were negative on Day 6 and Day 9. His fever and abdominal pain persisted for 12 days and 9 days, respectively. A PCR test for SARS-CoV-2 performed on Day 13 was positive. His next two PCR tests, on Days 15 and 16, respectively, were negative.

Case 2

A male in his 60s with colon cancer developed a cough (Day 1) and was admitted to a hospital for colorectal cancer surgery on Day 8. A CT scan was performed on Day 9, because the patient exhibited a low-grade fever, chills, and a worsening cough. The CT image showed bilateral GGO of the lungs and his surgery was postponed. His cough remained mild, which led him to believe he was suffering from a “common cold,” until he was diagnosed with pneumonia. A PCR test of a pharyngeal

swab was positive, and the patient was referred to our hospital, on Day 14. The patient has been afebrile since Day 16. The consecutive PCR test results finally turned negative on Day 25.

Case 3

A male in his 50s presented to a clinic on the second day of fever. Antibiotics and antitussive were prescribed. Shortly later he visited a hospital with persistent fever and headache. He suffered a high grade fever and headache. The headache, he reported, felt like “a heated iron plate in his head.” He was suspected of COVID-19 based on CT imaging and referred to our hospital on Day 6. A PCR test on Day 6 was positive. His fever remained until Day 9. PCR tests were repeated on Day 13 and Day 14 to confirm that he could be discharged. A CT image taken on the day his fever abated (Day 10) showed peripheral ground-glass and consolidative opacities that had not been observed in the CT images taken on Day 6 (Figure 2).

Case 4

A female in her 80s who had a history of cerebral infarction and was currently under treatment for diabetes, hypertension, and dyslipidemia developed cough, sputum, and nasal discharge (Day 1). “Something is strange,” she reported. “My throat and chills don’t feel like just a common cold.” She underwent the PCR test on Day 15 because she had been in close contact with a patient with confirmed COVID-19. A CT image showed bilateral GGO of the lung and a second PCR test performed on Day 16 was positive. She was referred to our hospital on Day 17. Two PCR tests on pharyngeal swabs were confirmed to be negative, on Day 20 and Day 22, respectively.

Case 5

A male in his 60s kept in a hospital for gastric cancer surgery developed a low-grade fever (Day 1) three days after the surgery. He was tested for SARS-CoV-2 by PCR on Day 1 and Day 3 because he had been in close contact with a patient with confirmed COVID-19. A CT image showed no pneumonia on Day 3. He described his condition as, “not that terrible, even though I have a fever.” The PCR test on Day 3 came back positive. He was transferred to our hospital on Day 5 after developing pneumonia with COVID-19. His fever lasted for 15 days.

Two consecutive PCR tests on pharyngeal swabs were confirmed to be negative, on Day 21 and Day 22.

Case 6

A male in his 40s developed chill and fever (Day 1) and visited a clinic. An RIDT performed at the clinic came back negative. On Day 12 his fever finally abated, but he developed a cough and diarrhea that persisted up to Day 17. He suspected that he had contracted “some new type of infectious disease,” judging from his prolonged fever and negative RIDT result. PCR tests of sputum and throat swab were performed on Day 21 because he had been in close contact with a confirmed case of COVID-19. He was referred to our hospital on Day 22, when a second PCR test of sputum came back positive. A CT image showed bilateral GGO of the lung on Day 26. Two PCR tests on pharyngeal swabs were confirmed to be negative, on Day 24 and Day 25, respectively.

Summary of the results for the case series

Six patients (five males, one female) with confirmed COVID-19 were admitted to our hospital during the study period. The symptoms varied among the six cases. Five out of the six (83%) had fever, two (33%) had cough, and two (33%) had gastrointestinal symptoms (Figure 1). The patients with similar symptoms interpreted the symptoms differently (Figure 1). No patient developed strong fatigue or dyspnea. All six underwent CT scans, and all of the scans manifested peripheral bilateral GGO. The number of days from onset to the two consecutive negative PCR results ranged from 14 to 25. PCR tests of two of the patients was still positive on Day 21 (Figure 1). No patient with COVID-19 was administered oxygen or treated with either antibiotics or antivirals at our hospital. No ground-glass or consolidative opacities appeared in the CT images of patient 3 taken on Day 6, but both symptoms appeared in a follow-up CT images taken on Day 10 (Figure 2).

Discussions

We have described six confirmed cases with COVID-19 in Wakayama prefecture, Japan. Cough was less frequent (33% vs 82%) and gastrointestinal symptoms were more frequent (33% vs 3%) in our study than in the previous study (2). Nearly 20% of reported patients with COVID-19 in China have developed severe pneumonia (4). Empiric therapy with anti-microbial agents (antibiotics and anti-influenza agents) are recommended in the therapeutic strategy applied in Wuhan, China (5). In contrast, none of the patients in our study have been administered anti-microbial agents, and all of them have had mild symptoms and no signs of severe pneumonia.

According to Zou L et al., the higher viral loads detected in the nasal passages or throats of patients soon after symptom onset suggested that the SARS-CoV-2 infection followed a pattern resembling that of influenza. In most of the patients infected with SARS-CoV-2, the viral load was markedly reduced within two weeks after symptom onset (6). Nevertheless, SARS-CoV-2 was detected in our

patients three weeks after onset, after their symptoms had already settled down (Figure 1). This finding suggests that infection prevention and control measures are still required after patients recover.

The follow-up CT image of patient 3 suggested that consolidated opacities can be found after the symptoms improve. This finding is consistent with a previous study showing that consolidation in CT images was more frequently detected in the late stage after COVID-19 onset, compared to the early stage (7). The consolidated opacities found after symptom abatement also suggest that it can be difficult to detect pneumonia by chest X-ray in COVID-19 patients at the early stage of the clinical course.

The strength of our study is the narrative information directly taken from the patients. As the terms patients use to describe their symptoms differ from those used by health personnel (8), their complaints should be categorized and/or classified using medical terminology to summarize their clinical characteristics in a descriptive study with a large number of cases. A careful recording of the patients' own descriptions of their histories could reveal how common symptoms of COVID-19, such as fever or cough, differ from the symptoms of other acute respiratory infections. A third of our patients experienced gastrointestinal symptoms, and one of the patients with gastrointestinal symptoms was free of respiratory symptoms. We know, therefore, that grounds for suspecting pneumonia may be absent in some COVID-19 patients. A previous study reported that healthcare workers were presumed to have been infected by a single COVID-19 patient who presented with abdominal pain (9). The symptom of abdominal pain in COVID-19 should be carefully treated for infection prevention and control. Narrative information from patients is important to our effort to

understand the clinical characteristics of a novel disease with potentially unknown symptoms, such as COVID-19.

The case series reported here describes patients in Japan. The complaints exhibited and described by the COVID-19 patients in this series varied from case to case. It would be difficult to triage patients with COVID-19 based on typical symptoms of fever and/or cough, although PCR and CT are definitive in diagnosis.

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Figure 1. Clinical courses of the six cases

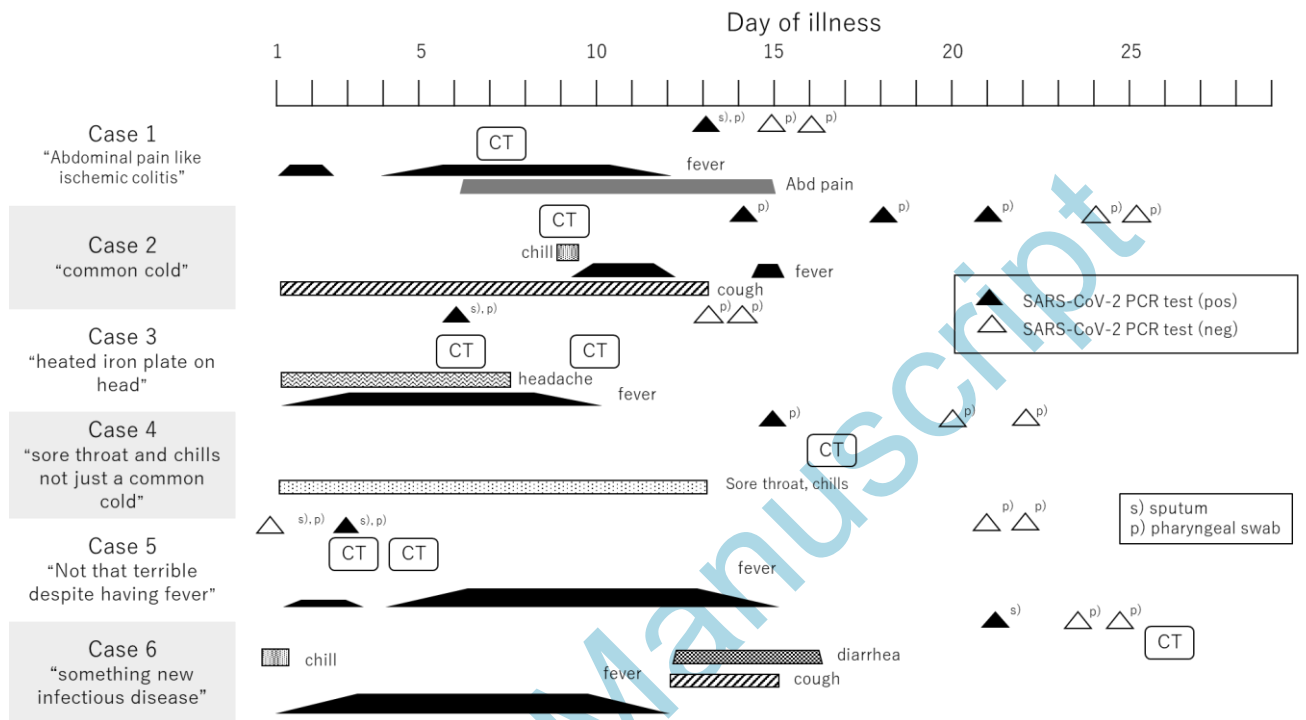


Figure 2. CT images during the clinical course in Case 3

