ABSTRACT
This is a case report of an adult patient with severe community-acquired pneumonia secondary to Coronavirus Disease 2019 (COVID-19) infection seen in a local primary care facility. The paper reflects on the challenges faced and offers suggestions to aid future encounters.

Keywords
Coronavirus Disease 2019, COVID-19, Primary Care, Pneumonia, Adult

CASE PRESENTATION
A 36-year-old man, Chinese National work pass holder, was seen in the polyclinic in early February 2020. He presented with a temperature of 39.9°C upon triage and was attended to in the respiratory infection cluster clinics.

He reported a five days history of persistent fever, cough and sore throat. He had consultations thrice in a private clinic since the first day of symptoms and had completed a course on antibiotics in addition to the usual medications for his acute symptoms. He had started to experience slight breathlessness after his last clinic review five hours ago. He had no cardiac, gastrointestinal, urinary or skin symptoms. He was very worried if he had Coronavirus Disease 2019 (COVID-19) and came to the polyclinic for a COVID-19 test if available.

He had no significant past medical history and was an ex-smoker. He shared a rented flat with his flatmates. His residence was not situated within a dengue hotspot. He worked as a deliveryman and had no known contact with positive COVID-19 cases.

On examination, the patient was anxious and was hyperventilating (respiratory rate of 32 breaths/minute). He was able to speak in short sentences. His other vital signs were deranged – heart rate 140 beats per minute, blood pressure 108/70mmHg, oxygen saturation (SpO2) 86% on room air. Heart sounds were normal. There was reduced air entry in the right upper zone. The trachea was central. The throat was injected with no tonsillar enlargement or exudates. There were no cervical lymph nodes or palpable goitre. There was no meningism or rash. Calves were supple, and no pedal oedema was detected.

Diagnosis
Severe Community-Acquired Pneumonia, to exclude COVID-19 infection.

In the absence of travel or contact history, the patient did not fulfill the Ministry of Health Suspect Case Definition active at that time.1

MANAGEMENT OF THE CASE
Immediate resuscitation was done in the treatment room. Six litres of supplemental oxygen was administered via a face mask, which helped to improve his SpO2 to 94%. An intravenous cannula was inserted and normal saline was infused rapidly.

Electrocardiogram done showed sinus tachycardia of 147 beats per minute. There was no suggestion of right heart strain, ST elevation or heart block to suggest pulmonary embolism or cardiac infection.

The patient was conveyed via ambulance to the nearest hospital. The clinic was notified the next day that the patient was intubated and admitted into the intensive care unit. He was diagnosed to have COVID-19 infection. The patient required about one week of ICU care and was subsequently discharged well in early March 2020 after an 18 days inpatient stay.

LITERATURE REVIEW
The patient presented with symptoms of fever, cough and breathlessness similar to the first six COVID-19 positive patients requiring supplemental oxygen described in the early Singapore data.2 Unlike these earlier cases, this patient was much younger (36 years old vs mean age of 56 years old) and had no comorbidities (compared to 67 percent of the cases).

The American Association of Family Physicians (AAFP)3 and American College of Chest Physician4 supported the use of vital signs such as temperature, heart rate, respiratory rate in the diagnosis of pneumonia in outpatient care. A 2019 meta-analysis5 of 13 publications also showed that presence of respiratory rate ≥ 20 min/min (positive likelihood ratio, LR+ 3.47), temperature ≥ 38°C (LR+ 3.21), pulse rate >100/min/min (LR+ 2.79) aid in the diagnosis for pneumonia. Comparatively, symptoms do not contribute well to diagnosing pneumonia with low specificity and sensitivity values, and have LR+
On examination, the patient was anxious and was unable to answer questions related to his health history. He had no reported travel history or contact history, and he denied any symptoms suggestive of COVID-19. The patient was referred to the polyclinic for a COVID-19 test if available.

He reported a five days history of persistent fever, cough and dyspnea with a temperature of 39.9°C upon triage and was attended to by a nurse. The patient was given antibiotics in addition to the usual medications for his acute respiratory infection. He had completed a course on antibiotics beyond this current pandemic, and being ever watchful for any new symptoms.

CASE PRESENTATION

Pneumonia, Adult

The American Association of Family Physicians (AAFP) and the American College of Chest Physician supported the use of vital signs such as temperature, heart rate, respiratory rate in the diagnosis of pneumonia in outpatient care. A 2019 systematic review and critical appraisal of prediction models for diagnosis and prognosis of COVID-19 infection. BMJ. 2020 Apr 7;369. doi: 10.1136/bmj.m1328

The patient was conveyed via ambulance to the nearest hospital. In the absence of travel or contact history, the patient did not fulfill the Ministry of Health Suspect Case Definition active at the time.1

The exemplary case of three General Practitioners working together as a team (from frontline staff who had attended to patients with COVID-19) was promptly transferred to the treatment room where resuscitation equipment was available. Following this case, pulse oximetry (Oxygen saturation, SpO2 and pulse rate) was included to augment our clinic’s triaging for high-risk patients with a respiratory infection. During the consultation, assessing for high respiratory rate in patients with Acute Respiratory Illness (ARI) symptoms would also help in the diagnosis of pneumonia.

LEARNING POINTS

1. Staying vigilant
   This patient was atypical in his risk factors and severity, particularly when community spread was rare. As the disease can progress rapidly, heightened observance allows identification of new cases, triaging patients to receive timely treatment and for healthcare workers to adopt appropriate infection control measures.

   Being in my first pandemic, this case has also reinforced the notion of primary care being an essential custodian for public health. The exemplary case of three General Practitioners sounding the alarm bells to the Zika Outbreak in Aljunied back in 2016 echoes that our efforts needs to continue beyond this current pandemic, and being ever watchful for the next.

2. Improving the capture rate of pneumonia
   First impressions of this patient were misleading – observing him walk briskly into the room and being able to speak well in short sentences. A quick general inspection, however, alerted that patient was persistently tachypnoeic and disproportionately tachycardic (Liebermeister Rule describes that an increase of 1°C body temperature typically raises heart rate by about eight beats per minute). His poor oxygen saturation concurred with his severe condition, and patient was promptly transferred to the treatment room where resuscitation equipment was available. Following this case, pulse oximetry (Oxygen saturation, SpO2 and pulse rate) was included to augment our clinic’s triaging for high-risk patients with a respiratory infection. During the consultation, assessing for high respiratory rate in patients with Acute Respiratory Illness (ARI) symptoms would also help in the diagnosis of pneumonia.

3. Mental Health
   With the psychological stress generated from combating the pandemic, WHO has highlighted the importance of mental health and welfare of healthcare workers.2 Despite having seen the patient in Personal Protective Equipment (PPE), there was great trepidation and poor sleep during the overnight wait for this patient’s COVID-19 swab result, and over the two weeks for fear of contracting the disease. The debrief encounter done with clinic head on the day of the patient’s diagnosis, and the support from colleagues checking in regularly definitely helped to ensure I was coping well both mentally and physically.

CLINICAL PRACTICE POINTERS

1. A high index of suspicion
   As the situation rumbles on, we need to look for anomalies in the presentation in patients, be mindful of possible cognitive pitfalls (e.g. severe illnesses being less common in the young and premorbid healthy patients) and carefully evaluate medical information available.

2. Sharpening clinical acumen
   Utilizing pulse oximetry for heart rate and SpO2, and assessing for tachypnoea may assist in the diagnosis of pneumonia among patients with acute respiratory symptoms.

3. Staff welfare
   The COVID-19 pandemic has placed a strain on our healthcare system. Ensuring a caring and supportive working environment around us, and looking out for every member of the team (from frontline staff who had attended to suspected cases to operations and support staff ensuring our processes are running smoothly and our workplaces are sterilized) would truly be important for us to pull through this trying time together.
FIRST ENCOUNTER WITH COVID-19

SFP2020; 46(4): 80-82

REFERENCES


