Dear Sir,

The clinical data about COVID-19 and its complications are constantly emerging and becoming more available. Physicians should be aware of both typical and atypical symptoms and signs of COVID-19 as well as rare recorded complications of long-COVID-19, such as in this case presenting with sudden hoarseness of voice and dyspnea due to spontaneous pneumomediastinum (SPM) and spontaneous pneumothorax.

A 54-year-old male, married with offspring, accountant, passive smoker complaining from shortness of breath, dry cough, and low grade fever on September 6, 2020 with no history of asthma, diabetes, or hypertension. He was diagnosed with COVID-19 on clinical, radiologic, and laboratory bases and advised to follow the treatment protocol with home isolation.

Two weeks later, he developed high grade fever (40°C), rapidly progressive dyspnea (Grade III). A nasopharyngeal swab was done, and the polymerase chain reaction result was positive for COVID-19. Moreover, the patient was transferred to an isolation hospital. His computed tomography (CT) of the chest showed right soft-tissue infiltrate with air bronchogram. Laboratory findings were white blood cells $13 \times 10^3$, lymphocytes $2.7 \times 10^3$, CRP 22, and serum ferritin 1137. Treatment was started immediately, meronem 1 g/8 h, tavanic 750 mg/24 h, solumedrol 1 cm/8 h, clexan 60 IU/12 h, Vitamin C/12 h, zinc/24 h, and lactoferin/24 h. His general condition and laboratory investigations improved.

Later, on 6/10/2020, the patient developed sudden hoarseness of voice, dyspnea (Grade IV), and cyanosis, and the patient was transferred to ER. ER examination showed that he was conscious, blood pressure (BP): 120/80 mmHg, pulse: 90/ bpm, temperature: 37.5°C, and respiratory rate (RR) 30 cycle/ min. He had central and peripheral cyanosis, subcutaneous neck and chest emphysema. Local chest examination: Bulge and restricted mobility, decrease mobility, increase Tactile vocal fremitus (TVF), and surgical emphysema on the left side. Normal position of the trachea. Hyperresonance and vesicular breathing with decrease air entry on the left side.

On room air, his oxygen saturation was 66% and on Venturi 50% and his arterial blood gas improved: pH: 7.50, $\text{PaCO}_2$: 27, $\text{PaO}_2$: 68, $\text{HCO}_3$: 23, $\text{SaO}_2$: 95. Chest CT showed Spontaneous pneumomediastinum (SPM) with minimal left pneumothorax [Figure 1]. He was advised to be kept for 24 h observational period. After 24 h, the patient did not show any improvement, and left intercostal tube (ICT) was inserted [Figure 2]. One week later, hoarseness of voice disappeared, BP 130/80, temp 37°C, $\text{SaO}_2$ was 97%, RR 22/min, and the ICT was removed, and the patient was discharged [Figure 3].

Several case reports highlighted the occurrence of SPM in COVID-19.\[1\] The pathophysiology causing SPM

Figure 1: Chest computed tomography of the COVID-19 patient after 2 weeks of the diagnosis and presenting with hoarseness of voice, cyanosis, and increased dyspnea. There is free air around the trachea and mediastinum

Case Letter

Sudden hoarseness of voice in COVID-19 patient

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is referred to as “Macklin effect” and is described in three steps: alveolar rupture occurring as a result of increase intrathoracic pressure, release of alveolar air centripetally, dissection, and along bronchovascular sheaths. Finally, the occurrence of pulmonary interstitial emphysema tracking toward the hilum into the mediastinum.

It is an uncommon condition, usually self-limiting, and its complications are rare, except in Boerhaave syndrome. The most common presenting symptoms include acute central chest pain, dyspnea, neck pain and swelling, and hoarse voice. Dysphagia, cough, odynophagia, and dysphonia are less frequent findings. The prevalence of subcutaneous emphysema on the neck ranges from 40% to 100%. Hamman’s sign is a distinctive crunching or bubbling sound that is synchronous with the heartbeat, and recently reported prevalence was 12%.

The hoarseness of voice is a rare presenting symptom. One case series showed two patients mainly complaining of odynophagia and did not have any clinical sign of subcutaneous emphysema of the neck, Hamman’s sign, and known predisposing factors such as asthma. They suggested that lateral neck X-ray should be considered as appropriate screening test for disclose an SPM in patients with SPM. Another case report of a 20-year-old male patient presented with hoarseness, odynophagia, and neck pain from 1 day, after weightlifting was recorded. His chest CT showed free air present around the trachea and in the mediastinum in sagittal and axial sections,
Case Letter

subcutaneous emphysema, but no pneumothorax. The patient went under conservative therapy with analgesic, rest, and oxygen. The SPM was resolved within a week, and the patient was discharged without any complication.[6,7]

In summary, pneumomediastinum is a rare condition in young adults with unusual presenting symptoms and rarely presents with hoarseness of voice. In young adults who apply to ED with COVID-19 or any upper or lower respiratory complaint which could trigger SPM, chest CT should be considered.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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Submitted: 29-Oct-2020
Accepted: 25-Nov-2020 Published: 06-Mar-2021

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How to cite this article: Mohamed-Hussein AA, Wafy SM, Makhlouf HA, Taghyan AM, Eldin AB. Sudden hoarseness of voice in COVID-19 patient. Lung India 2021;38:S116-8.

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