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Reporte de caso sobre COVID-19

Spontaneous Pneumomediastinum in nCOVID-19 infection: a case report

Pneumomediastino espontáneo en la infección por nCOVID-19: un reporte de caso

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Abstract: Spontaneous pneumomediastinum (SP) is a clinical entity characterized by the presence of interstitial air in the mediastinum. The purpose of this study was to further examine a rare SP case in a 60-year-old male, with COVID-19. In conclusion, SP is an uncommon complication in COVID-19, and the recognition of clinical characteristics is crucial since early identification plays a significant role in the maintenance or recovery of the disease.

Keywords: pneumomediastinum, dyspnea, coronavirus.

Resumen: El neumomediastino espontáneo (NE) es una entidad clínica caracterizada por la presencia de aire intersticial en el mediastino. El propósito de este estudio fue examinar más a fondo un caso raro de NE en un hombre de 60 años con COVID-19. En conclusión, el NE es una complicación poco común de COVID-19 y el reconocimiento de las características clínicas es crucial, ya que su identificación temprana juega un papel importante en el mantenimiento y recuperación de la enfermedad.

Palabras clave: neumomediastino, disnea, coronavirus.

Introduction

Coronavirus disease 2019 (COVID-19), caused by the virus SARS-CoV-2, is defined as a pandemic respiratory infection that causes fever, cough, dyspnea, and pulmonary interstitial damage [1]. Unfortunately, SARS-CoV-2 is fastly transmissible between humans and affected approximately 4.81 million people worldwide. As of May 2020, the World Health Organization (WHO) reported 54,346 confirmed cases in Mexico. In Tabasco, a state located in the southeast of Mexico reported 2,716 cases for COVID-19 from 01 March to 30 April.

It is noteworthy to emphasize the clinical presentation in patients infected with SARS-CoV-2: symptoms might range from asymptomatic to critical [2]. Radiological findings on undergoing Chest Computed Tomography (CCT) are bilateral peripheral ground-glass opacities with or without consolidations predominantly affecting lower lobes. Less common findings include fine reticular opacities, vascular thickening, reverse halo sign, air bronchogram, interlobular septal thickening, pleural thickening, lymphadeno- pathy, cystic changes, and pleural effusion [1].

On the other hand, a review study about Spontaneous Pneumomediastinum (SP) defines it as a rare entity due to the presence of air into the mediastinum in healthy subjects [3]. Heretofore, as mentioned in some studies,SP has been considered an unusual complication in COVID-19 infection [4,5,6]. Given the infrequency of this complication, we decided to report a case observed in our institution.

Case presentation

A 60-year-old male patient attended the emergency department with fever, dry cough, asthenia, dyspnea, and adynamia of 4 days of evolution. He was not in contact with COVID-19 patients, and he had not recently traveled.

Physical examination. His vital signs were: temperature 36°C, cardiac frequency 89 beats/ min, blood pressure 123/87 mmHg, respiratory frequency 20 breaths/min, SaO2 92%. The patient lied in a supine position, chest with increased work of breathing, and use of accessory muscles. Heart sounds were unable to aus- cultate due to personal protective equipment. During palpation, the right subclavicular region produces subcutaneous crepitation.

Laboratory studies showed leukocytes 17.5x103/µl (leukocytosis); the white blood cell differential count showed: neutrophils 92.5%, lymphocyte 3%, and monocytes 4%. The red blood cell count was 4.74x106/µl, hemoglobin concentration 14.6 g/dL, hematocrit 43.3%, and platelets count was 334x103/µ. As for coagulation functions, prothrombin time was 13.9 seconds, activated partial thromboplastin time (APTT)was 20.50 seconds, INR 1.13, D-dimer testing was 26.28 mg/L and fibrinogen 430.9 mg/dl.

Hematological parameters of C-reactive protein showed an increase (29.6 mg/L), ferritin 1045 ng/ml, lactic dehydrogenase 657 UI/L, and procalcitonin 0.125ug/L.

Arterial blood gases: pH 7.43, pO2 78.3 mmHg, pCO2 23.0 mmHg, HCO3 14.8 mmol/L, EB -8.1mmol/L, oxygen saturation 96%, and lactate 2.9 mmol/L. RT-PCR analysis confirmed the infection of the SARS-CoV-2 virus.

Imaging: an urgent chest computed tomogra- phy was requested and showed subcutaneous emphysema (Figure 1), bilateral ground-glass opacities with peripheral distribution, also air into the hilum and pericardic pleura (Figure 2).

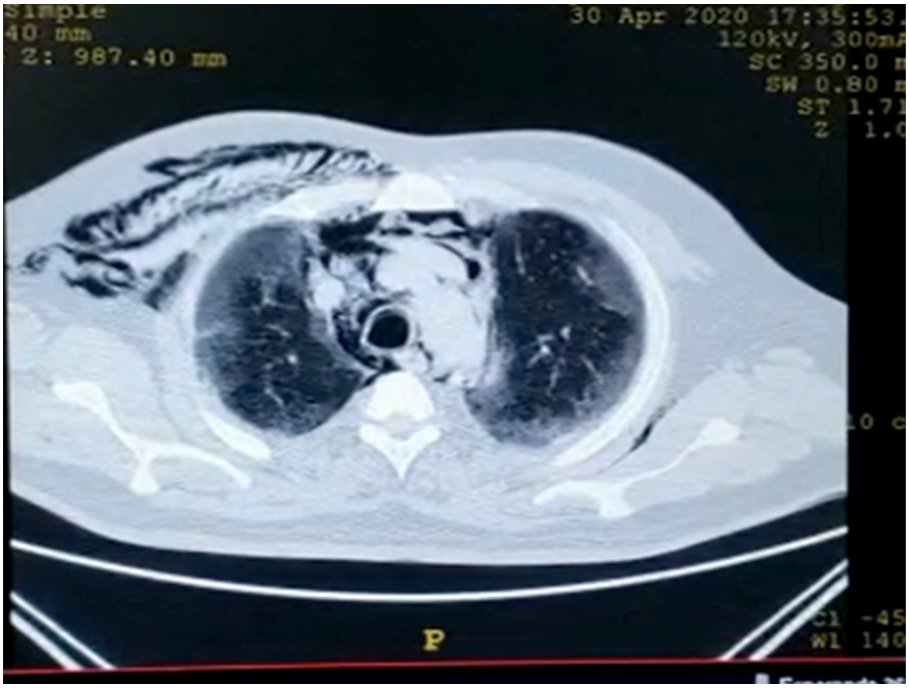

Figure 1
Axial image in standard mediastinal window showing air at the subclavicular and right axillary region. Mediastinum with air in the retrosternal space, aortopulmonary, subcarinal window, and around the trachea
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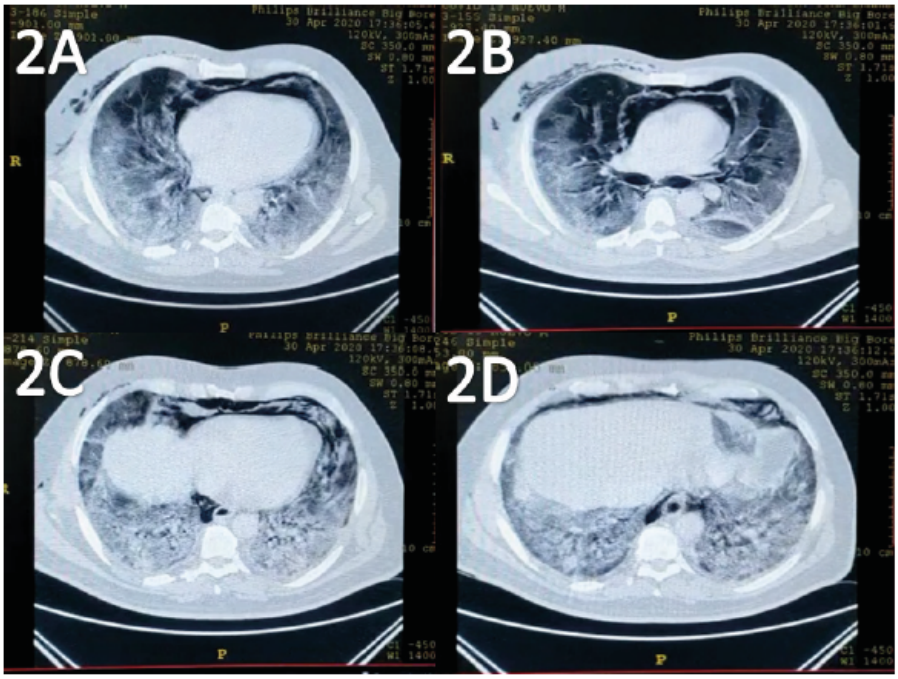

Figure 2.
Chest CT features. Axial pulmonary window obtained without intravenous contrast. Panel 2A,2B showed air dissect from the hilum, and the pericardical pleura Panel 2C, 2D showed bilateral pulmonary parenchyma with ground-glass opacities.
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The patient was admitted and closely monitoring. He received oxygen therapy, darunavir/ cobicistat, as well as azithromycin, and hydroxychloroquine.

Clinical course: after 24 hours, the subject needed advanced airway management despite medical management, and the patient developed Acute Respiratory Distress Syndrome (ARDS), and refractory hypoxemia. The patientdied 48 hrs after admission.

Discussion

Spontaneous pneumomediastinum is an un- common medical condition with an incidence of 0.001-0.01%; defined as free air in the mediastinum caused by non-traumatic and non-iatrogenic mechanisms in the absence of pre-existing pa- renchymal or obstructive lung disease [3]. The main differential diagnoses include esophageal perforation, acute coronary syndrome, pericarditis, pneumothorax, musculoskeletal disorders, pulmonary embolism, and recently, COVID-19.

A study finds out that SP was diagnosed in adults between the ages of 18-33 years. In this regard, the main symptoms were: thoracic pain, dyspnea, cough, nasal voice, cervical pain, dysphagia, anxiety, and fever [7]. Our patient was an older adult, and he showed early symp- toms of COVID-19.

SP is generally considered a benign disease of clinical importance, with a good prognosis that improves without invasive management [3].

As for the hospital stay, the length of it reported a range of 1-9 days [8]. The diagnosis of SP was confirmed by computed tomography once clinical suspicion was established with the examination. The management was conservative. Notwithstanding the medical care, our patient died after 48 hours of admission. Similar cases where the patients presented an unsatisfactory clinical evolution have been reported [9]. A possible explanation for this outcome was pathophysiology COVID-19, as it has reported by Kolani, and coworkers [6].

Until now, there are some international reports concerning the occurrence of SP in CO- VID-19, and its data are also in line with the fact that the precise mechanism is unknown [6,9,10,11,12], in this regard, a few groups of researchers suggest that the possible mechanism is related to the increase of alveolar pressure [6,9]. Circulation, infection, or respiratory pathology may be involved [10].

In conclusion, SP is an uncommon complication in COVID-19, and the recognition of clinical characteristics is crucial since early identification plays a significant role in the maintenance or recovery of the disease.

Conflicts of interest: authors have no conflict of interest.

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