Case Report

Delayed Spontaneous Pneumothorax a Rare Post COVID-19 Complication: Case Report

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Abstract

Unusual presentations post COVID-19 are increasingly becoming evident. Spontaneous pneumothorax is a rare presentation in patients post COVID-19. In this case we document a 58 year old male, non-smoker and without any pre-existing medical condition who recovered from COVID-19 about three years ago, he presented with spontaneous pneumothorax three years later after being treated for COVID 19 infection. An initial conservative management with chest tube drain was unsuccessful and surgically was successfully treated. Thus; it is imperative to follow up all cases of COVID-19 after recovery so that, early detection of complications is made that would reduce associated morbidity and mortality.

Keywords: SP, spontaneous pneumothorax, Corona Virus Disease 2019, COVID-19

Introduction

Over the past 3 years the world suffered from unprecedented Coronavirus Disease 2019 (COVID 19) which took about 669 M lives until early January 2023. The virus primary affects the lungs and thus the spectrum of post COVID 19 complications pneumonia, empyema, pneumo-mediastinum, and spontaneous pneumothorax has been documented [1]. Spontaneous pneumothorax is unusual presentation post COVID 19, it has the median time of presentation from onset of the infection to development of 8 days [2]. The mechanism for development of this complication is not well known with some sources citing the virus as the cause while others are implicating pneumonia, poor intubation technique, or barotrauma [2], however COVID 19 can't be ruled out as a course in these cases. In this report, we document a case of a 58 year old man who developed spontaneous pneumothorax three years after recovered from COVID 19 without known trigger of lung disease or trauma.

Case Presentation

A 58 year-old male patient was referred to surgical clinic after developing slow progressive difficult breathing, sharp right side chest pain and shortness of breath on exertion that he couldn't climb stairs without resting.

He suffered and recovered from right sided stroke about a year before admitted for 9 days in 2020 due to COVID 19 and was treated with oxygen facemask and was discharged home thereafter and resumed normal life.

Has no history of chest trauma, exposure to a known PTB patient, no excessive night sweats, no evening fevers, no coughing blood, and no loss of appetite and in fact was a health looking man.

On examination; He was conscious GCS 15, looked calm, and mostly wanted to sit to rest, not pale, not cyanosed, BP 152/83 mmHg, PR 79 beats per minute, SpO_2 93% RA, RS 21 breaths per minute, no distended neck veins, asymmetric chest, budged and no movement on the right side, no subcutaneous emphysema or tenderness on the chest wall; hyper-resonant note on percussion on the right and the whole right side was silent without breath sounds, otherwise the left side had normal air entry with fine crackles. The rest of the systems were essentially normal.

On arrival, he had a Chest X ray done already (Figure 1). Needle decompression was done urgently and significant air escaped

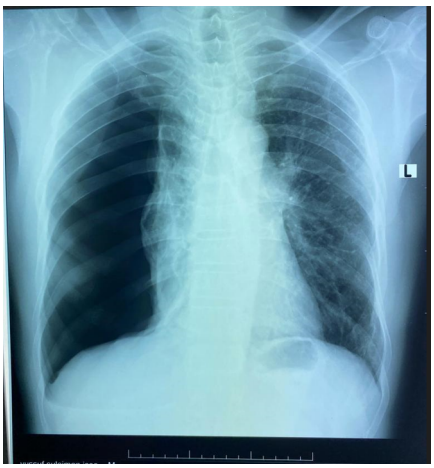

Figure 1: The right hemithorax appears hyperlucent and shows a medial deviation of the visceral pleural edge, with no lung markings peripherally indicating collapsed right lung

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from the chest cavity, patient got relieved. Chest radiography following emergency needle decompression revealed remnant air within the thorax (Figure 2), and later on CT scan of the chest was done showed massive re-accumulation of air, nevertheless it wasn't able to pick the fistula (Figure 3). A decision to place a chest tube with an underwater drainage set was made and air drained off the pleural cavity (Figure 4). Post chest tube insertion, the lung was fully expanded, the tube was clamped for 12 hours before it was removed, patient neither develop shortness of breath during the time when the tube was clamped nor air bubbles was seen after clamp released; auscultation of the chest revealed audible air entry on the right side and control CXR showed fully expanded lung without air remained (Figure 5), patient was discharged home after removing the tube. However; two weeks later the symptoms relapsed with significant air in the pleura cavity, the decision for operation was made, thoracotomy followed by fistula closure which was found on the lower right lobe was done successfully, and later chemical pleurodesis with povidone iodine was done. Patient was discharged home in good condition. He was followed two month later after operation and was doing fine, can climb stairs without developing shortness of breath or chest pain and clinically had normal respiratory system examination.

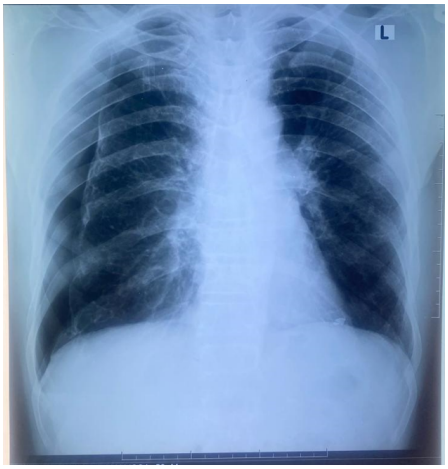

Figure 2: Right pleural based remnant lucency with no lung markings noted.

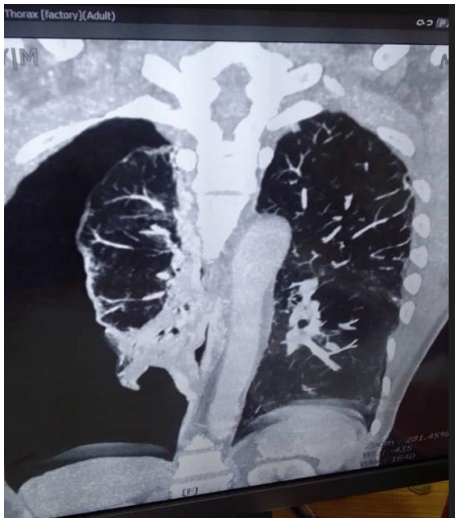

Figure 3: CT chest lung window demonstrates right sided lucency with collapsed lung.

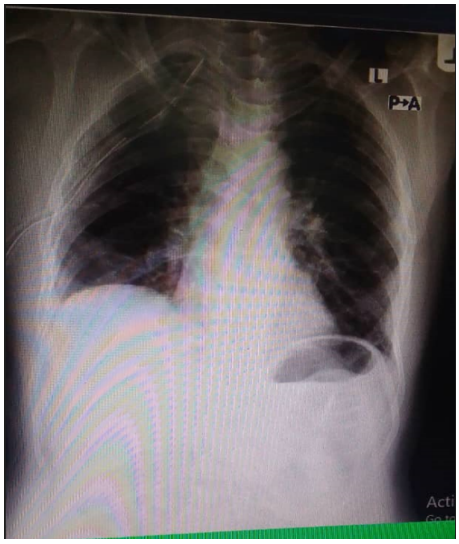

Figure 4: Right chest tube is placed however has extended to the apex but with regressed pneumothorax and re-inflation of the right lung is obtained.

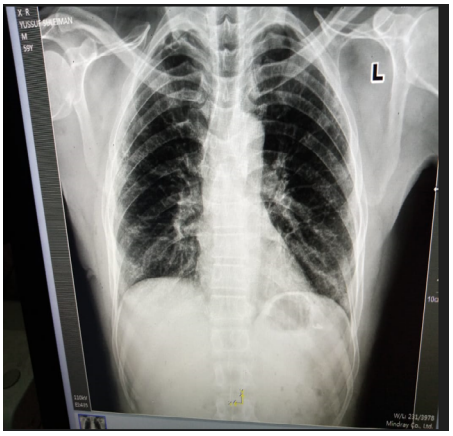

Figure 5: Chest x ray shows resorption of right side pneumothorax. However there are reticular opacities in both lower zones which may indicate fibrotic changes post COVID.

Discussion

Corona Virus Disease 2019 (COVID 19) cause cystic features in the lung parenchyma, which can resolve or may progress to bullae, cavities and pneumothorax [3-5]. Primary spontaneous pneumothorax has no clear cause while secondary spontaneous pneumothorax may develop in the presence of an underlying lung disease. Spontaneous Pneumothorax (SP) has been reported as a complication of COVID-19 with published incidences of 1% in hospitalized patients [6], 3% in patients hospitalized with pneumonia [7] , 6% in mechanically ventilated patients [8]and 1% in deceased patients [9].

Patients with COVID-19 may experience spontaneous pneumothorax during diagnosis, treatment process [10] or recently reported cases of unusual delayed presentation of SP and significantly increases morbidity. The time of onset to diagnosis varies with an average of 8 days [2]. Both mechanical ventilation and barotrauma can explain development of both pneumothorax and pneumo-mediastenum and rarely with COVID-19 [11]. The pathogenesis behind SP in patient with

COVID-19 has not been clearly elucidated, literature suggests structural changes within the lung parenchyma that involves cystic and subsequent bullae formation and rupture as culprit to SP. In this case report the patient had no pre-existing lung disease nor history of intubation for mechanically ventilation during COVID-19 active disease and eventually developed SP 3 years later. An initial conservative treatment with chest tube drain was unsuccessful after re-accumulation of air when the tube was removed, surgical intervention was done and successfully treated by closing the fistula which failed to close on conservative management. This indicates that there is still a need to follow up post COVID 19 patient as complications are developing early or delayed, long term surveillance is paramount.

Conclusion

Post COVID-19 recovery unusual complications are now evident, spontaneous pneumothorax is a possible complication, conservative treatment with chest tube drain should be attempted, and cases which have failed to resolve with conservative approach, a surgical intervention should be instituted. It is also imperative to follow up patients post COVID 19 recovery and detects complications early, furthermore local, regional and international guidelines regarding post COVID 19 recovery should be developed.

References

1. Sahagun J, Chopra A, David AG, et al. Secondary spontaneous pneumothorax in a COVID-19 recovered patient. Cureus J. Med. Sci. 2021;13(7).
2. Gaytan DA, Andrade YP, Valenzo YE. Pneumothorax due to COVID-19: analysis of case reports. Respir. Med. Case Rep. 202;34:101490.
3. Abdullah H, Wong YS, Ibrahim MA, et al. Development of bullous lung disease with pneumothorax following SARS-CoV-2 infection. Respirol. Case Rep. 2022; 10(9):e01013.
4. Liu K, Zeng Y, Xie P, et al. COVID-19 with cystic features on computed tomography: a case report. Medicine. 2020;99(18).
5. Pednekar P, Amoah K, Homer R, et al. Case report: bullous lung disease following COVID-19. Front. Med. 2021;8:770778.
6. Ulutas H, Celik MR, Gulcek I, et al. Management of spontaneous pneumothorax in patients with COVID-19. Interact. cardiovasc. thorac. surg.. 2022 Jun;34(6):1002-10.
7. Jamous F, Meyer N, Buus D, et al. Critical Illness Due to Covid-19: A Description of the Surge in a Single Center in Sioux Falls. S. D. Med. 2020;73(7).
8. Yao W, Wang T, Jiang B, et al. Emergency tracheal intubation in 202 patients with COVID-19 in Wuhan, China: lessons learnt and international expert recommendations. Br. J. Anaesth. 2020;125(1):e28-37.
9. Yang F, Shi S, Zhu J, et al. Analysis of 92 deceased patients with COVID-19. J. med. virol. 2020;92(11):2511-5.
10. Sayan M, Turk MS, Ozkan D, et al. Hemopneumothorax as an Unusual and Delayed Complication of Coronavirus Disease 2019 Pneumonia: A Case Report. J. Chest Surg. 2021;54(6):521.
11. Jacobi A, Chung M, Bernheim A, et al. Portable chest X-ray in coronavirus disease-19 (COVID-19): A pictorial review. Clin. Imaging. 2020;64:35-42.