Case Report

Bilateral Pneumothorax in a case of severe COVID-19 Pneumonia with Pregnancy

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A 19-year old patient with 8th-month pregnancy was admitted in our hospital with severe COVID infection. She was put on oxygen support and managed as per COVID protocol. She had spontaneous vaginal delivery and the baby was found to be COVID-negative. She developed initially left and later right-sided Pneumothorax. She had prolonged hospitalization and was managed with intercostal drains, NIV, Remdesivir and chest physiotherapy. The pneumothoraxes resolved and she made a satisfactory recovery and could be discharged on room air.

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Introduction

COVID pandemic during the second wave in India, caused great disruption of life with high morbidity and mortality. There was greater involvement of younger age groups and more number of cases of Pneumothorax and subcutaneous emphysema noted even in patients not on oxygen support or NIV or ventilators. We present a case of severe COVID in a young woman with term pregnancy who later developed bilateral Pneumothorax, which was diagnosed and managed with satisfactory results.

Case Presentation

A 19 year old lady with term pregnancy (8th month) developed cough, cold and fever of 5 days duration. May 2021 being the peak of COVID pandemic second wave, her RT-PCR was done and she was found to be COVID positive. On examination, she was found to be afebrile. Her B.P. was 100/60 mm Hg, she was tachypnoiec with respiratory rate of 30 breaths per minute, Pulse was 120/ minute and SpO_2 was 70% on room air. Her respiratory system examination revealed bilateral crepitations with occasional rhonchi. Her cardiovascular examination was normal except for tachycardia. On abdominal examination, the fundal height was 32 weeks and foetal heart sounds were present, other systems were essentially normal.

Investigations revealed a Hb-12.4 g/dl, TLC-16670/µL. PLT-2.86 lac/µL, RBS-90 mg/dl, Creatinine-0.6 mg/dl, HbA1C-5.5 %, Albumin-3.5 g/dl , LDH- > 1000 (120-246 u/l), wCRP- 75 (< 5 mg/L), S-Ferritin-151 (6.24-137 ng/ml), D-Dimer-3729 (< 500 ng/ml), ABG: 7.38/ 65/ 80/ 32 on oxygen.

Treatment was started as per COVID-19 protocol: Inhalational oxygen via NRBM and later BIPAP , I/V, Fluid, Antibiotic- Inj Amoxycillin & Clavulanic acid 1.2 gm IV BD, Steroid- Inj Betamethasone 12 mg IM Stat then OD for COVID as well as for foetal lung maturation, Anticoagulant- Inj Heparin 5000 IU s/c eight hourly, Inj Remdesivir 200mg IV on day1 then 100 mg IV OD for next 4 day, Inj Human Immunoglobulin (IVIG) 20gm /100 ml OD, and other supportive measure.

She developed labour pains spontaneously and delivered a male baby weighing 1.7 kg on third day of admission (09/05/21). Her baby was admitted in NICU and tested negative for COVID. The patient remained on oxygen support however, she continued to desaturate further and had to be put on NIV mode of ventilation.

The supportive management continued but after about 19 day she developed acute onset of breathlessness with marked fall in oxygen saturation. On clinical evaluation a pneumothorax was suspected and chest x-ray showed- left-sided Pneumothorax. ICD Insertion

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was done. The breathlessness improved. She was taken off the NIV and active physiotherapy and incentive spirometry was started.

On the 26th day, she again developed sudden onset of breathlessness, with fall in oxygen saturation, on auscultation, there was decreased air entry in the right side chest for which a Chest x-ray was done which showed right side Pneumothorax. ICD Insertion was again done on the right side and she clinically stabilized.

Repeat investigations carried out on : HB-12.1 gm/dl TLC-12850/µL, PLT-3.30 lac/µL, Creatinine-0.6 mg/dl, Albumin-4.3 g/dl, wCRP- 256 (< 5 mg/L), LDH- 250 (120-246 u/l) S-Ferritin-151 (6.24-137 ng/ml) and D-Dimer-7705 (< 500 ng/ml).

Her left-sided Pneumothorax resolved and ICD was removed after further two weeks. Incentive spirometry and chest physiotherapy was given in the COVID ICU. She was shifted to the non-COVID facility when her COVID report was negative. Her right side Pneumothorax too resolved and ICD was removed after lung expansion and pleurodesis was done. The patient chest physiotherapy was continued and finally was weaned off the oxygen and discharged home on room air (Fig 1 and 2).

CBC- Hb-9.8, TLC-13300, PLT-5.6 lac, Markers- CRP-374, D-Dimer-3395

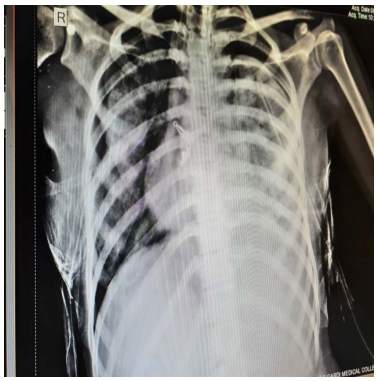

Fig 1: B/L Pneumothorax with ICD on both sides

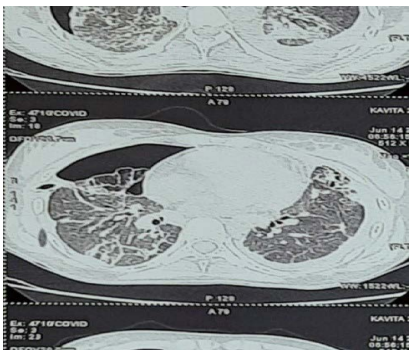

Fig 2: Her HRCT shows Rt-sided Pneumothorax with ICD in situ. Bilateral fibrotic changes

Discussion

Pneumomediastinum and Pneumothorax is usually caused by increased airway pressure due to positive pressure ventilation. It can also be caused due to raised intrathoracic pressure due to valsalva maneouvres, or due to trauma, due to damaged lung or in cases of COPD due to iatrogenic procedures etc. However in COVID patients, Pneumothorax and subcutaneous emphysema was found in patients not even on oxygen support. COVID is characterized by pneumonia and there is damage of the alveoli and air can escape into the pleural space and into mediastinum by the Maklin's phenomenon. The patients also have cough which persists for a long time. Some of the patients can have vomiting and can also be having damaged lungs.

Our patient was a young girl with no history of any previous illness and had extensive lung involvement. She made a remarkable recovery though she had bilateral pneumonia and Pneumothorax.

Conclusion

It is very important to suspect Pneumothorax if patient suddenly deteriorates and oxygen saturation falls besides many other causes like pulmonary embolism, acute myocardial infarction etc. Urgent treatment with intercostals drainage with underwater seal can save the patient especially those on positive pressure ventilation.

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