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Post Covid: A Rare Disorder Occurrence of a Right Paratracheal Mass and Management

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Abstract: ***This is a case report represented on post covid occurrence of a paratracheal mass and management. A right paratracheal mass is like a benign out-pouching of the tracheal wall around the thoracic inlet. It's a rare case disorder. In this report I have described the management of a right paratracheal mass surgical and post-operative management. As a surgical management tracheal resection with repair of trachea with serratus flap was considered as a lifesaving procedure.***

Keywords: Paratracheal mass, Post covid, Tracheal resection, Serratus flap, Post-operative management

1. Introduction

A paratracheal mass is like a benign out-pouching of the tracheal wallaround the thoracic inlet. [1]Numerous complications can occur such as shortness of breath leading to respiratory distress, long term cough and hemoptysis, lung infections, BPF (Bronchopleural fistula), Pneumothorax. In this report it is described surgical and post-operative critical care management of post-covid occurrence of a right paratracheal mass. EBUS (endobronchial ultrasound guided transbronchial needle aspiration) was performed to take biopsy which showed negative for malignancy or granuloma.

Tracheal resection procedure is commonly performed in tracheoesophageal fistula, post intubation tracheal stenosis, tracheal tumor. Complications occur in ~20% of patients like laryngeal edema, glottis dysfunction. Bronchoscopy should be considered for diagnostic workup. Though risk of death prevails if managed aggressively with proper plan then most of the patients yields good results and recovery. [3]Tracheal resection with repair of trachea with serratus flap was considered as a lifesaving procedure. In this case study report will focus on the management aspects.

2. Case Report

A 71 year old patient with history of Diabetes Mellitus and Hypertension had significant lung involvement in Covid in 2020 was on ventilator for 8 days received on December 2021 with complaints of cough, hemoptysis and fatigue. On arrival HRCT (High Resonance computed tomography) was performed showing a right suprahilar/paratracheal mass. CT guided biopsy done was inconclusive [Figure 1]. Repeat CT chest showed increase in size of the lesion with involvement of trachea with protrusion into the lumen of supracarinal trachea with involvement of right lateral wall of trachea, measuring approximately 8×7 mm in size. EBUS (endobronchial ultrasound guided transbronchial needle aspiration) was performed showed mass eroding trachea just above carina [Figure 2]. Chest X-ray was done showed early ILD (Interstitial lung disease).

Management:

Surgical management: Surgery planned for tracheal resection with repair of the trachea with serratus flap. So here the serratus flap muscle is used to cover the trachea this will be overlapped on the upper right lobe covering the trachea. Surgery was performed without any complications.

Post-operative management: Patient was intubated and ventilated; one lung ventilation was done for 5 hours. ABG (arterial blood gas) showed Respiratory acidosis with ph of 7.32 and pco2 of 53.2, patient was then shifted on ventilator to critical care unit for further management. Patient was ventilated on PRVC (Pressure regulated volume control) mode with vt-400 ml IBW, RR of 24 for correcting Respiratory Acidosis. Patient was sedated and ventilated overnight.

Chest X-ray was noted showing right upper lobe of the lung covered by the serratus flap for repair of the trachea that is an interesting chest X-ray which initially if anyone notes can misinterpret for a collapse [Figure 3].

Figure 1: Computed Tomography showing involvement of trachea with protrusion into the lumen of supracarinal trachea

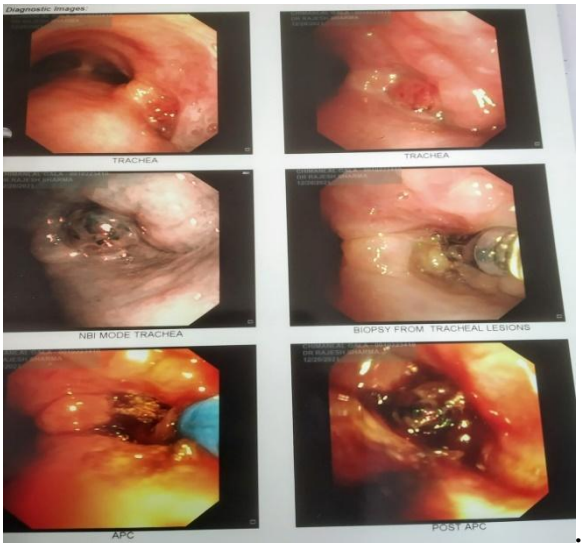

Figure 2: Bronchial biopsy of the paratracheal mass.

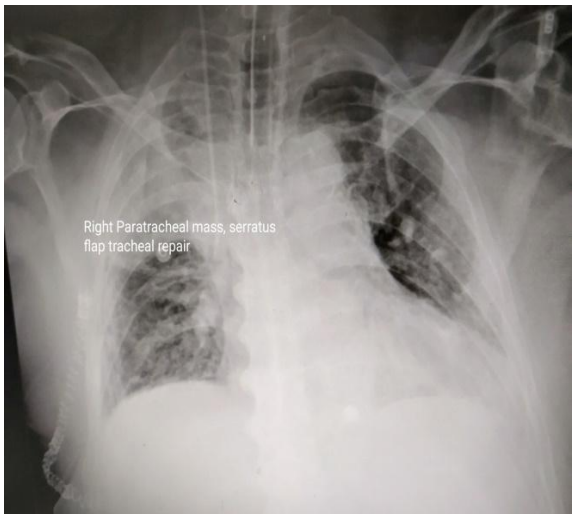

Figure 3: Chest x ray showing serratus flap muscle covering the paratracheal mass overlapping right upper lobe.

Hemodynamically patient was received to critical care unit with a heart rate of 83 BPM, blood pressure 135/70 mm Hg, Spo2 of 100% on 60% fio2 (fraction of inspired oxygen) set on the ventilator, no adverse events was recorded during the procedure. Drain management was carefully done measuring the drain and informing physicians. Airway management was taken care by the Respiratory Therapist, endotracheal tube proper placement, preventing any dislodgement of endotracheal tube, ventilator management, weaning and performing arterial blood gas to rule out acidosis. Patient was kept in propped-up position, sedation stopped in the morning. Patient was then awake and oriented. Arterial blood gas showed ph-7.39, Hco3-23mmol/L, Po2-95 mm Hg, Pco2-39 mm Hg. Weaning trial was given patient tolerated well, assessed for extubation. Pain management was taken care before extubating the patient, epidural infusion of 0.15% Ropivacaine started, patient was then successfully extubated.

Post-extubation physiorehabilitation is an important part in the management of these patients where Respiratory therapist and Physiotherapist work together in secretion management of these patients which becomes an important concern post-extubation. Chest physiotherapy, Postural drainage, expiratory breathing exercises and Incentive spirometry was taught to the patient for expectorating cough and expansion of the lungs thus preventing any atelectasis or collapse.

- Pain assessment done before initiating any physiotherapy session as pain can induce sympathetic stimulation leading to hemodynamic instability of the patient. Good analgesia was given before initiating physiotherapy.
- For clearance of bronchial secretions patient positioning is an important aspect, lateral and upright positioning given, edge of bed and then out of bed mobilization was done. The aim was to increase minute ventilation and cardiac output of these patients by giving early mobilization.
- Lung expansion maneuvers: Deep breathing exercise most often performed in erect position and with trendelburg position, improves oxygenation and ventilation, prevents basal atelectasis thus prevents lung collapse; lateral costal breathing exercises; deep diaphragmatic breathing; sustained maximal inspiration taught where patient has to hold his breath for 3 seconds after reaching maximal inspiration. These all exercises contribute in prevention of lung collapse and improving lung volumes thus improves breathing and oxygenation of the patient.
- Airway clearance techniques: PEP therapy and Huff cuff technique was taught. Aggressive chest physiotherapy with postural drainage given to the patient every day.
- Post-operative home care plan: Post-operative minimal aerobic exercise training under supervision, 15 minutes walking, breathing exercises to be continued at home also.

3. Discussion

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has infected millions of people worldwide. COVID-19 virus is composed of multi systemic manifestations, predominantly affects the pulmonary system. As time passingwe are dealing with more wide variety of symptoms, complications and clinical outcomes in different patients. [2]Post covid survivors presenting with rare complications is becoming concern and challenging for diagnosing and treating it effectively. One of the rare disorder occurrences of a right paratracheal mass was found in this patient described in the case study. Diagnosing the mass is important which was done by repeating HRCT (High Resonance computed tomography) and then EBUS-TBNA (endobronchial ultrasound guided transbronchial needle aspiration) was performed to investigate the exact etiology and confirm a lack of malignancy which stated negative. The main management was surgical point of view which was done by taking the serratus flap muscle and stretching it to the affected tracheal ring and joining it.

The most interesting part was the Chest X ray which seeing for the first time can be misinterpreted with a collapse but it is actually the muscle overlapping the right upper lobe of the lung. In these patients post-operative management is an important part which includes involvement of a multidisciplinary team of the critical care unit. Taking care of the drains, pain management, airway management, weaning from the ventilator and extubation, post-extubation

physiorehabilitation. This includes a team of critical care Doctors, Nurses and Respiratory Therapist.

To the best of my knowledge this is an interesting case of a rare disorder which has occurred post-covid. Chest X-ray is an interesting part of this case study. Involvement of a multidisciplinary team management was an important part of this case study.

4. Conclusion

Paratracheal mass occurrence post covid is rarely seen and thereby surgical and post-operative management including a multidisciplinary team approach is an important part of the management as one can apply this knowledge for further occurrence and management of this uncommon and life-threatening disorder.

Declaration of patient consent
The patient understand that their name and initial will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil

Conflicts of Interest
There are no conflicts of interest.

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