



ORIGINAL RESEARCH PAPER

General Surgery

RESECTION OF INFLAMMATORY PSEUDOTUMOR OF TRACHEA USING CARDIOPULMONARY BYPASS

KEY WORDS: Inflammatory Pseudotumor Of Trachea, Myofibroblastic Tumor, Cardiopulmonary Bypass,

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ABSTRACT

Primary tracheal tumors are exceptionally uncommon, and the majority of them are cancerous. An inflammatory pseudotumor is a noncancerous, tumor-like growth that is most likely caused by a reactive response. The primary morphological feature is the proliferation of spindle-shaped cells, specifically myoblasts and fibroblasts, accompanied by varying numbers and types of inflammatory cells. Cardiopulmonary bypass (CPB) creates a field without blood for heart surgery. The system utilizes an extracorporeal circuit to deliver physiological support by draining venous blood into a reservoir, oxygenating it, and returning it to the body through a pump. The collaboration between the surgeon, perfusionist, and anaesthesiologist is crucial for the effective utilization of CPB.

INTRODUCTION

Inflammatory pseudotumor is a comprehensive term used to describe a specific area where there is an accumulation of inflammatory and fibroblastic cells. It is a rare abnormal growth that can imitate a tumor. The cause of the condition is currently unknown and subject to debate due to the presence of a large number of plasma cells.¹ These rare abnormalities typically occur in the lung, liver, kidney, thyroid, and adrenal gland. Tracheal inflammatory pseudotumors are exceptionally uncommon.² We present a case study of a 16-year-old female patient who was diagnosed with inflammatory pseudotumor and had surgical treatment for it.

Case Details

A 16-year-old girl presented with increasing cough and dyspnoea of 3 months duration. She presented to the ER with dyspnoea and stridor. She was unable to lie down and was only comfortable in the upright position and required oxygen supplementation. She had been diagnosed as a case of asthma earlier and was treated accordingly. but, symptoms did not subside and worsened rapidly.

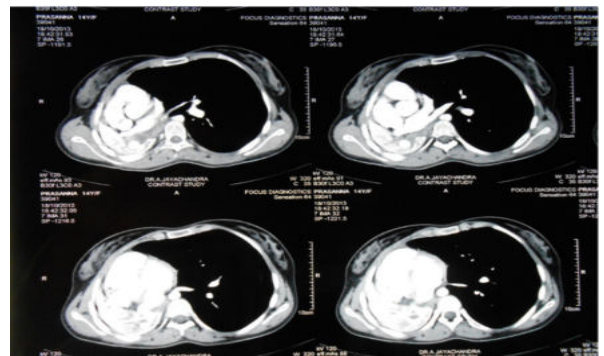
She was investigated thoroughly. Chest X-ray showed a mediastinal shift to the right and collapse of the right lung. Bronchoscopy showed near total occlusion of the trachea. CT scan revealed an intraluminal tracheal mass near the carina which was extending into the right main bronchus. Bronchoscopic biopsy showed an inflammatory pseudotumor. As airway management was difficult, surgical resection using cardiopulmonary bypass (CPB) was planned.

She was placed on cardiopulmonary bypass using the standard approach with an aortobicaval cannulation. Resection of the mass alone was difficult as the tumor mass near the carina which was causing near total occlusion of the trachea was also extending into the right main bronchus. Hence, tracheal resection and right pneumonectomy were done and removed en bloc. Tracheal reconstruction was done with the intercostal muscle flap and thymic flap. The patient was weaned off CPB and chin-to-chest fixation sutures were placed to prevent tension on the anastomosis.

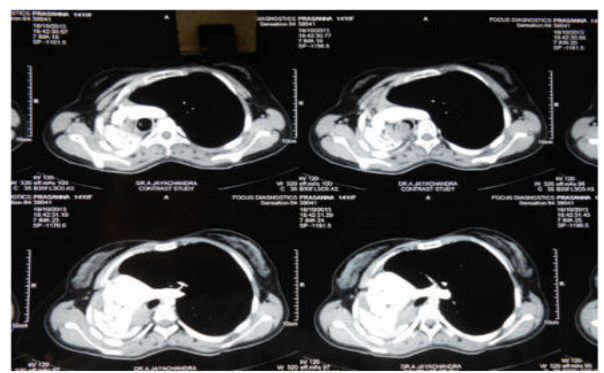
The patient's endotracheal tube was withdrawn on the 1st day after the surgery, and the sutures used to secure the wound were taken out on the 7th day after the surgery. The patient was discharged on the 8th day after the surgery.

The histopathological investigation showed an inflammatory pseudotumor in the trachea, characterized by a large number of plasma cells and histiocytes.

She was followed up for 18 months and there was no local recurrence.



(a)



(b)

Figure 1 (a) & (b): Collapse of the right lung with Mediastinal shift and near total Obstruction of the Tracheal Lumen

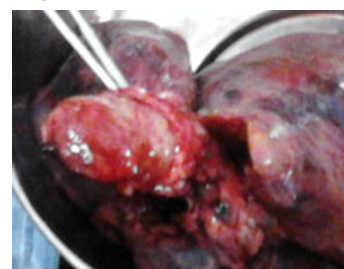


Figure 2: Pneumonectomy Specimen

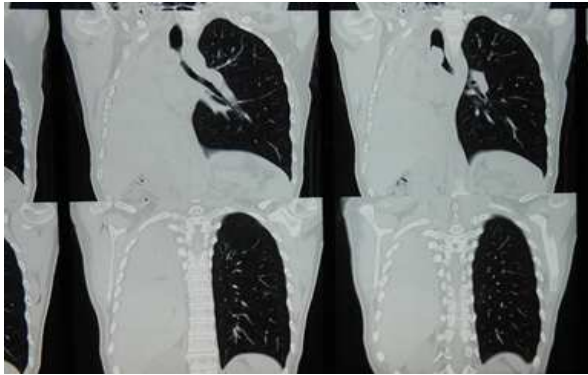


Figure 4: Total Obstruction of Trachea with Extension into right main Bronchus and collapse of right lung

DISCUSSION

Inflammatory pseudotumors are uncommon neoplasms, observed in a limited number of cases, approximately in 04-0.7% of all lung and airway tumors. They are typically observed in children and rarely in adults. These tumors are typically considered to be harmless, with an uncertain cause, perhaps resulting from a reactive or inflammatory process. The prevailing belief is that it is an inflammatory response to trauma. Another hypothesis is that the cause may be attributed to an autoimmune reaction or an inflammatory process. Some authors propose that it is a low-grade malignancy characterized by the presence of inflammatory cells.³

Patients typically have nonspecific symptoms such as coughing and difficulty breathing. An acute presentation may occur due to the occlusion of the tracheal lumen. The diagnosis is frequently delayed due to the variability and non-specificity of the symptoms.⁴

An acute presentation may occur as a result of the occlusion of the tracheal lumen. Due to the variability and no specificity of symptoms, the diagnosis is frequently delayed. A CT scan has identified the presence of a mass in the endotracheal region, which is partially obstructing the airway.⁵

Local invasion and lung involvement are infrequent. Performing a Bronchoscopic biopsy is necessary to make a diagnosis. There are multiple treatment modalities available. The most prevalent modality is conservative Bronchoscopic resection utilizing laser technology. Nevertheless, there is a possibility of observing local recurrence.^{6,7}

When it comes to intraluminal lesions that cause near-total occlusion of the trachea, surgical resection is the treatment of choice.^{8,9}

A surgical procedure including a cardiac bypass was performed on our patient, who presented to us with severe dyspnoea and a stridor. The management of the airway was difficult, and the patient required surgical intervention. In addition, Pneumonectomy was required since the tumor had spread into the right main bronchus, and surgical removal would have been insufficient due to the possibility of a recurrence of the tumor.

Radiotherapy is indicated for patients who are ineligible for surgery.¹⁰

CONCLUSION

Tracheal pseudotumor should be taken into account when evaluating pediatric patients who exhibit asthma-like symptoms and have a tracheal mass within the airway. A biopsy is essential before determining the treatment modality. Follow-up is essential due to the possibility of recurrence, necessitating repeated bronchoscopies. The prognosis following complete resection is highly favourable.

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