CASE REPORTS

Tracheal Tumour and Asthma Mimic Each Other - Report of Three Cases

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Abstract

Three case reports are presented in this article. Out of three cases, two were being treated as bronchial asthma initially. Ultimately, these two cases were diagnosed as endotracheal tumour - one was leiomyoma and the other was carcinoid. In contradistinction, the third one was considered to be a case of obstructive sleep apnoea syndrome or endobronchial/endotracheal lesion. Interestingly, it was established as a case of severe persistent asthma and the patient improved with the conventional management of bronchial asthma.

It is obvious that tracheal tumors and asthma mimic each other. The rarity of the cases and comparatively better prognosis following surgery inspired us to report these cases.

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Introduction:

Benign tumours of the lung account for about 2% to 5% of intrathoracic tumours[1]. In order of frequency, the tumours are found in the peripheral lung, small bronchi, central bronchi and trachea. The clinical picture depends primarily on the location of the lesion. Symptoms, signs and roentgenologic features differ among benign tumours that arise in trachea, the bronchi and the lung parenchyma. Endotracheal benign tumors may be asymptomatic, but may manifest with wheezing, cough, dyspnoea or haemoptysis. The leiomyomas are the most common soft tissue tumors found in the lungs[2].

Careful examination of the tracheal air shadow by standard roentgenography may help to detect the tumour but confirmation by computed tomography (CT) is required. Bronchoscopy is usually diagnostic and may even permit adequate tumor removal by forceps or with the aid of laser technology. Surgical resection, however, is treatment of choice. Leiomyoma, leiomyosarcoma and carcinoids have all been reported in the trachea, presenting with signs of respiratory obstruction. This may be misdiagnosed as asthma. Careful history, clinical examination, FOB and relevant investigations, especially. HRCT of chest might be helpful in the diagnosis of leiomyoma and bronchial carcinoid[3].

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Case Report-1

A 36-year-old lady presented to a pulmonologist with severe respiratory distress, occasional cough and haemoptysis for one month. Breathlessness was associated with occasional wheeze and was gradually increasing in severity. Cough was unproductive and haemoptysis was scanty. Since her illness, she was on treatment with Tab. Aminophylline, Tab. Betnelan etc., but with no improvement. She had no personal or family history of bronchial asthma or atopy. She is neither hypertensive nor diabetic. On examination she was alert with respiratory distress with prominence of accessory of muscles of respiration. Breath sound was vesicular and of diminished intensity with occasional rhonchi in both the lung fields. Urgent high resolution CT scan (HRCT) of chest was recommended. HRCT revealed a sessile polypoid mass measuring 19.9X16.0 mm within the trachea, about 5 cm above the carina. The lesion was attached to the right posterior wall of the trachea, which almost obliterated the tracheal lumen. The impression was *intra-tracheal polypoid mass.* Following the diagnosis, the patient was attended by an ENT Surgeon and urgently transferred to a specialized hospital in Bangkok for further management where urgent surgery was recommended. Resection of the tumour and trachea (four rings) with end-to-end anastomosis was done. The histopathological diagnosis was Epitheloid Leiomyoma (Benign Leiomyoblastoma). Immunohistochemical study was negative for cytokeratin and CAM 5.2 and positive for vimentin and actin which makes an epithelial tumor unlikely and supports the smooth muscle nature of the tumor. At present the lady is in good health with no respiratory distress and leading a normal life.

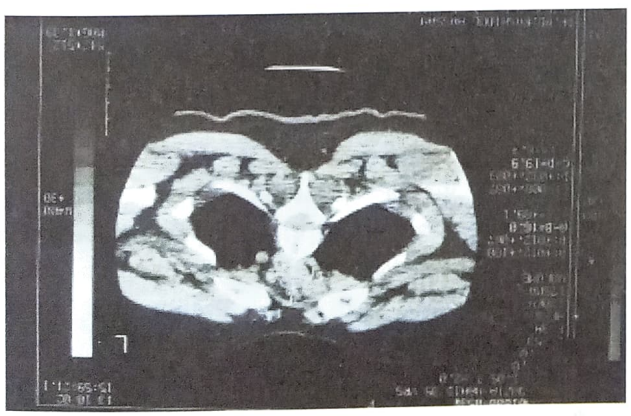

Fig-1 : *HRCT scan of chest*

Case Report-2

A 15-years-old boy presented with severe respiratory distress for four months which was gradually increasing in severity. It was associated with cough, which was productive, purulent and profuse. He had no personal or family history of bronchial asthma, atopy or allergy. He was being treated with conventional medicines used for asthma including nebulised bronchodilators and steroids, both oral and inhaled. On examination, patient was in respiratory distress with prominence of accessory muscles of respiration. On auscultation of left side there were features of diminished air entry peripherally with bronchial breath sound centrally. On the right, auscultatory findings were suggestive of resolving pneumonia. Chest X-ray (PA view) revealed non-homogeneous opacities in the right lower lung field. High resolution CT scan (HRCT) of chest revealed a small nodular swelling measuring about 1.5X1.5 cm, on the left tracheal wall just above the carina, partially occluding the opening of the left principal bronchus. Bronchoscopy and biopsy was not done pre-operatively for the risk of uncontrolled haemorrhage. The patient was directly prepared for surgical intervention. Per-operatively, the tumor was identified and HRCT finding was confirmed. The tumor bleed on touch and its base extended from lower tracheal ring to adjacent areas. It was excised by wedge resection. The post-operative period was uneventful. The histopathological diagnosis was *pulmonary carcinoid tumor.* After the diagnosis, opinion of the oncologist was sought; no chemotherapy / radiotherapy was suggested. They advised periodic monitoring of the patient clinically, radiologically and endoscopically for any recurrence of the tumor.

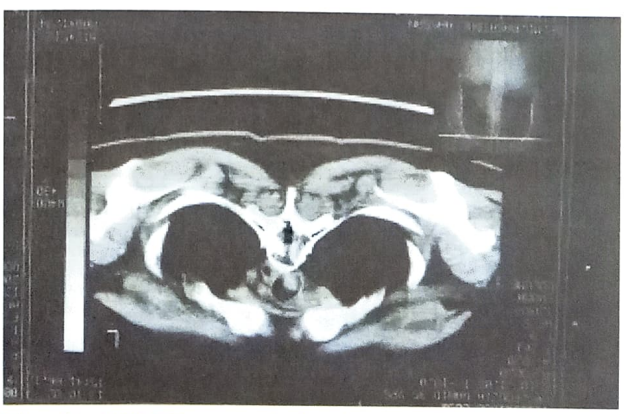

Fig-2 : *HRCT scan of chest*

Post-operative high resolution CT scan (HRCT) of chest was advised which revealed no abnormality.

After 6 (six) weeks, the patient was observed and found healthy without any further attack of breathlessness and advised again to report after three months.

Surgical Procedure

After induction, anaesthesia was maintained with laryngeal mask without endotracheal intervention. Right posterolateral thoracotomy was done through the uper border of 5th rib. The basal part of the right lower lobe was found to be consolidated. Right principal bronchus and trachea was mobilized. A vertical incision about 3cm in length was made from lower part of trachea, extending upto the beginning of right principal bronchus. The tumor was identified and thick purulent exudate was found coming from both right & left principal bronchus, which was thoroughly sucked out. Immediately, left lung was intubated and anaesthesia was shifted from laryngeal mask to that tube and one lung anesthesia (left lung) was maintained. The Right lung got collapsed and thereby proper field was obtained for surgical procedure. The tumor was identified and HRCT findings were confirmed. The tumor bled on touch and its base extended from lower tracheal ring to adjacent areas. It was excised by wedge resection. The area bled profusely which was controlled with diathermy coagulation and palpated for any residual tumor. After ensuring absence of residual tumor and absolute homeostasis, anesthesia was again shifted to laryngeal mask. The tracheal wall was closed in usual way after bronchial toileting of both sides. Subsequently, expansion of the right lung was ensured and the consolidated area assumed more or less the same consistency. Then the chest was closed in the usual way leaving a water-seal drainage tube to the pleural cavity. Post-operatively the patient was observed for any respiratory distress or haemoptysis but the period was uneventful. The histopathological diagnosis was carcinoid tumor.

Case Report: 3

Severe persistent asthma is a serious and complicated type of asthma and sometimes it mimics other obstructive airway disease.

We present a 8-year-old student who developed high grade fever, breathlessness and productive cough for 3 days. Despite the bronchodilators and analgesics, he developed severe respiratory distress and was admitted to Dhaka Shishu Hospital where he was treated with nebulized Salbutamol, injectable steroid etc. After returning home, he again developed severe breathlessness and was brought to a physician where he was diagnosed as a case of bronchial asthma and prescribed Ketotifen and bronchodilators etc. to which he did not respond; subsequently he was taken to a cardiologist. The cardiologist found nothing wrong with the patient and referred him to an ENT specialist. The ENT surgeon thought it might be due to a foreign body in the trachea and advised to consult a thoracic surgeon for possible bronchoscopy. But his parents refused to undergo bronchoscopy. He was again taken to a cardiologist where an Echocardiogram was performed. The report was normal. The parents then brought the child to a homoeopath doctor but with no improvement. The child came across various physicians, pediatricians, chest specialists and other doctors in Bangladesh.

Then the patient was taken to a hospital in Kolkata. Hematological examinations, chest X-Ray, sputum for AFB and other relevant investigations were done, but all were normal. Patient was getting bronchodilator and nasal decongestant from India with little improvement. Fibreoptic laryngoscopy was performed with normal findings. Ultimately, he was presumed to be a case of obstructive sleep apnoea syndrome. His sleep pattern was recorded by a paediatrician of Bangladesh and the record was sent to Australia. But the diagnostic dilemma and the sufferings persisted.

In due course, he was referred to the National Asthma Centre, NIDCH, Dhaka: HRCT scan of the chest was done to rule out any endobronchial lesion and the report was normal. Sputum Eosinophil was scanty. Spirometry showed severe obstructive and restrictive defect. Therapeutic trial was started with Seretide accuhaler 50/250 and Montelukast 5 mg with an assumption of severe persistent asthma and the patient responded to treatment significantly.

Post-operative high resolution CT scan (HRCT) of chest was advised which revealed no abnormality.

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Discussion

Leomyoma may present as a central bronchial or tracheal lesion, often polypoid or pedunculated and may present with pseudo- asthmatic breathlessness, cough, occasional wheeze and haemoptysis[4.5.6]. It tends to occur in children and young adults. The first patient reported with the same presentation. The very rare leiomyoma originates in airway smooth muscle. The clinical picture depends primarily on the location of the lesion.

HRCT is highly diagnostic and confirmatory in these rare cases. Resection with end-to-end tracheal anastomosis or with tracheal reconstruction with myocutaneous flaps has been associated with reported cures[1,3,7].

There have been many reports of pulmonary leiomyomata occurring in women with similar tumours of the uterus. Whether or not the pulmonary lesions represent "benign metastases" are subject to controversy, as low-grade smooth muscle metastases and primary leiomyomas are difficult to distinguish[8]. Nevertheless, in women with pulmonary leiomyomata, a careful pelvic examination is recommended[9]. In our patient, pelvic examination revealed no abnormal findings.

The bronchial carcinoids usually arise from a main or segmental bronchus and can often be seen bronchospopically as an intra-luminal tumour, generally covered with intact epithelium[10.] . They may also arise from the trachea. It is a neoplasm of bronchial endocrine or APUD cell derived from the primitive gut. As foregut derivatives, bronchial carcinoids may produce ACTH but do not usually produce 5-Hydroxy tryptamine that is seen in midgut or hindgut carcinoid tumours[12]. They are predominantly slow growing endobronchial lesions. They occur equally in either sex usually at younger age than lung cancer. Patient may have recurrent haemoptysis, chronic cough, obstruction with atelectasis, lobar collapse, recurrent pneumonia, unilateral monophonic wheeze and signs of obstructive emphysema[1,2,9].

Surgical excision is the primary treatment for all types of bronchial adenomas, including carcinoid. Surgical excision is the treatment of choice for pulmonary carcinoid tumor. Extent of surgery is determined at operation and should be as conservative as possible. Often bronchotomy with local excision, sleeve resection, segmental resection or lobectomy is sufficient. 5-years survival rates after surgical resection are 95%, decreasing to 70% if regional nodes are involved[2,11,12].

On the other hand, severe persistent asthma may mimic endotracheal/ endobronchial lesions or obstructive sleep apnoea syndrome as demonstrated in our last case.

Conclusions

1. Tumors of the airways may present as asthma.
2. High resolution CT scan can help in identifying such tumors.
3. A coordinated team approach should be adopted in such situations. The team should consist of pulmonologists, thoracic surgeons, pathologists, radiologists, oncologists and ENT surgeons.
4. Surgery is very useful for the management of these patients.

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