

## NON-HODGKIN'S LYMPHOMA PRESENTING AS A PRIMARY ENDOBRONCHIAL TUMOR- A CASE REPORT

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### ABSTRACT

Non-Hodgkin's lymphoma (NHL) involving the endobronchial tree is uncommon, and the initial presentation of NHL as an endobronchial tumor is extremely rare. Several clinical reports have described bronchial-associated lymphoid tissue (BALT) lymphoma as an endobronchial lesion.

A 77 year old male hospitalized in another hospital for acute breathlessness and mechanically ventilated. He was shifted to Delhi Heart And Lung Institute because of failed extubation after 3 days of mechanical ventilation and reintubated. Past History of intubation was present 1 month back and diagnosed as a case of acute bronchitis. On evaluation at another hospital, the patient was found to have normal chest radiograph. Chest examination revealed findings consistent assisted ventilatory breath sounds associated with bilateral ronchi. Blood investigations were within normal limit. Contrast enhanced computed tomography of the chest revealed endoluminal soft tissue mass lesion at carina significantly obliterating bilateral main bronchi. USG Whole Abdomen revealed mild hepatomegaly and left renal cortical cyst measuring 4x5 cm and grade I BPH. Fiberoptic bronchoscopy revealed a globular smooth mass causing near complete obstruction of left main bronchus. Histopathological examination of the endobronchial biopsy showed tumor cells have a round or oval nucleus that appears vesicular because of margination of chromatin at the nuclear membrane, but large multilobed or cleaved nuclei predominate in some cases. Immunohistochemical staining was positive for LCA, CD20, and CD79a and negative for CD3, CD5, CD30, NSE, CK, Ki67, Chromogranin and Synaptophysin. While in the hospital, the patient was managed with mechanical ventilation and symptomatic treatment. FOB and rigid Bronchoscope, debulking of tumour growths was done using electrocautery snare. Patient was continued on overnight mechanical ventilation and extubated after one day. Post extubation, patient remained alright without any respiratory distress and discharged in stable condition. Latter on patient followed in Rajiv Gandhi Cancer Hospital. He underwent PET scan of whole body, which revealed normal study. Patient was managed with chemotherapeutic agents and he is still alive after 3 years of management without any symptoms.

NHL rarely presents as an endobronchial growth and only histopathology can differentiate it from other benign and malignant endobronchial masses.

**Key words:** Non Hodgkin Lymphoma, Primary Endotracheal Tumour

### INTRODUCTION

Non-Hodgkin's lymphoma (NHL) involving the endobronchial tree is uncommon.<sup>13</sup> It is rare for an endobronchial lesion to be the primary presentation

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of lymphoma, comprising <1% of all NHL. Endobronchial lymphoma is classified into two types, according to pattern of involvement. Type 1 includes diffuse submucosal infiltrates originating from hematogenous or lymphangitic spread in the presence of systemic lymphoma. Type II (similar to our patient) includes airway involvement by a localized mass due to direct spread of lymphoma from adjacent lymph nodes or arising de novo from bronchus-associated lymphoid tissue (BALT). The differential diagnosis of BALT lymphoma includes reactive lymphoid conditions such as

intrapulmonary lymph node, lymphoid hyperplasia, follicular bronchitis and interstitial lymphoid hyperplasia. Overall, the 5-year survival is over 80% and the median survival time is greater than 10 years.<sup>11</sup>

### Case Summary

A 77 year old male hospitalized in another hospital for acute breathlessness and mechanically ventilated. He was shifted to Delhi Heart And Lung Institute because of failed extubation after 3 days of mechanical ventilation and reintubated. Past History of intubation was present 1 month back and diagnosed as a case of acute bronchitis He was conscious, oriented comprehending verbal commands. On evaluation at another hospital, the patient was found to have normal chest radiograph. At admission, the patient was afebrile, had endotracheal tube in situ, heart rate 109/min and a respiratory rate 18 /min. There was no pallor, clubbing, lymphadenopathy or pedal oedema. Chest examination revealed findings consistent assisted ventilatory breath sounds associated with bilateral ronchi. The rest of systemic examination was unremarkable. On investigation, hemoglobin, arterial blood gases levels, blood counts and metabolic parameters were within normal limits. Sputum smear examination by Gram's and Ziehl-Neelsen's stains was negative.

Chest radiograph showed normal study (Figure 1). Contrast enhanced computed tomography of the chest revealed endoluminal soft tissue mass lesion at carina significantly obliterating bilateral main bronchi (Figure 2, 3). USG Whole Abdomen revealed mild hepatomegaly and left renal cortical cyst measuring 4x5 cm and grade I BPH. Fiberoptic bronchoscopy revealed a globular smooth mass causing near complete obstruction of left main bronchus (Figure 4.)

Histopathological examination of the endobronchial biopsy showed tumor cells have a round or oval nucleus that appears vesicular because of margination of chromatin at the nuclear membrane, but large multilobed or cleaved nuclei predominate in some cases (Figure 5) .Nucleoli may be 2-3 in number and located adjacent to the nuclear membrane, or they may be single

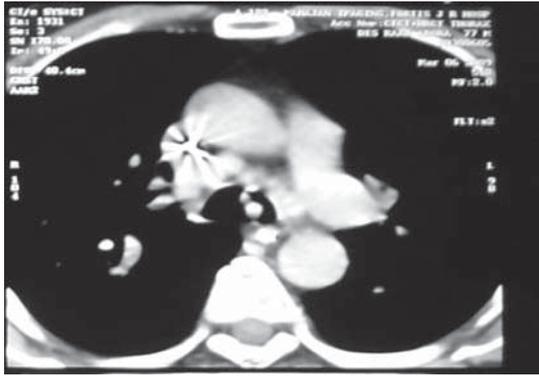
and centrally placed. Cytoplasm is usually present in moderate abundance and may be pale or basophilic. Immunohistochemical staining was positive for LCA, CD20, and CD79a and negative for CD3, CD5, CD30, NSE, CK, Ki67, Chromogranin and Synaptophysin. While in the hospital, the patient was managed with mechanical ventilation and symptomatic treatment. FOB and rigid Bronchoscope, debulking of tumour growths was done using electrocautery snare. The patient had mild bleeding which could be controlled easily. Airway patency on both sides was restored. Patient was continued on overnight mechanical ventilation and extubated after one day. Post extubation, patient remained alright without any respiratory distress and discharged in stable condition. Latter on patient followed in Rajiv Gandhi Cancer Hospital. He underwent PET scan of whole body, which revealed normal study. Patient was managed with chemotherapy in the form of dexamethasone, cyclophosphamide, doxorubicin, vincristine and etoposide. The patient showed good response. He is still alive after 3 years of management without any symptoms and again followed in our hospital.



Figure 1: Chest radiograph



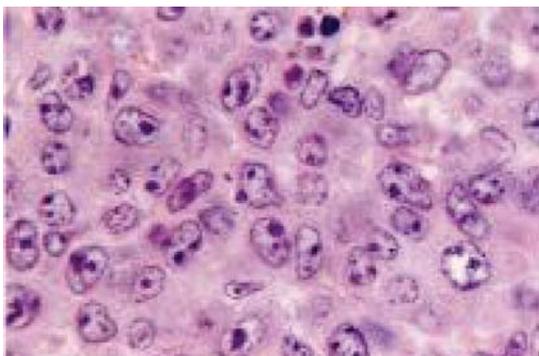
Figure 2: Computed tomographic scan of the chest showing endoluminal soft tissue mass lesion at carina significantly obliterating bilateral main bronchi



**Figure 3:** Computed tomographic scan of the chest showing endoluminal soft tissue mass lesion at carina significantly obliterating bilateral main bronchi



**Figure 4:** Bronchoscopy showing multiple pedunculated growths seen just above carina almost fully obscuring the lumens of both main bronchi



**Figure 5:** Diffuse large B-cell non-Hodgkin lymphoma. Large cells with abundant cytoplasm and large round-ovoid nuclei with thick nuclear membrane and multiple prominent nucleoli

## DISCUSSION

The first case of endobronchial NHL was described in 1955 by Dawe *et al.*<sup>4</sup> Since then, about 50 cases have been described in the literature.<sup>2,3</sup> In an autopsy study of patients with NHL (n=55),

where none of the cases showed endobronchial involvement.<sup>14</sup> In another autopsy study, only one patient had endobronchial lesion out of 93 patients with pulmonary lymphoma.<sup>10</sup> These observations suggest that endobronchial involvement is very rare in patients with NHL. The involvement of tracheobronchial tree is more common in Hodgkin's lymphoma than in NHL. The most common involvement is displacement or narrowing of airway lumen by enlarged mediastinal or hilar lymph nodes<sup>12</sup>, followed by diffuse peribronchial infiltrates resembling lymphangitis carcinomatosa<sup>7</sup> and as an endobronchial mass like in the present case. The endobronchial lesion can be solitary<sup>6,12</sup> or multiple.<sup>2,5</sup> The symptoms depend upon the type of involvement of intrathoracic sites and the morphological subtype of NHL. The anaplastic large cell lymphoma accounts for about 2% of all NHLs.<sup>1</sup> The most common extranodal site of occurrence of this type of lymphoma is the skin and its primary occurrence at other extranodal sites is rare.<sup>3</sup> Chest radiograph shows the features of atelectasis or obstructive pneumonitis in most of the cases with endobronchial involvement. There are different mechanisms postulated for the development of endobronchial lesions in lymphoma. These include direct invasion from adjacent mediastinal or parenchymal disease, lymphatic spread to peribronchial connective tissues or hematogenous spread.<sup>14</sup> In the present case, there was only primary endobronchial involvement not due to extension from the mediastinal lymph node. Bronchoscopy and endobronchial biopsy is the definitive investigation. Treatment depends on the extent of involvement of the tumour and the general condition of the patient. Most of the patients are managed with chemotherapy and/ or radiotherapy. The 5-year survival is over 80% and the median survival time is greater than 10 years. Poor prognostic indicators include age over 60 years, elevated B microglobulin, the lack of t(11,18) (q21,q21), persistent of disease after completion of chemotherapy.<sup>11</sup>

## CONCLUSION

NHL rarely presents as an endobronchial growth and only histopathology can differentiate it from other benign and malignant endobronchial masses.

## REFERENCES

1. Armitage JO, Longo DL. Malignancies of lymphoid cells. *Harrison's Principles of Internal Medicine* New York: McGraw-Hill. 2001;725.
2. Banks DE, Castellan RM, Hendrick DJ. Lymphocytic lymphoma recurring in multiple endobronchial sites. *Thorax* 1980;35:796-7.
3. Bhalla R, McClure S. Pathological quiz case: a 17-year-old adolescent girl with a short history of dyspnea. Endobronchial, anaplastic large cell lymphoma, T-cell phenotype. *Arch Pathol Lab Med* 2003;127:430-1.
4. Dawe CJ, Woolner LB, Parkhil EM, McDonald JR. Cytological studies of sputum secretions and serous fluids in malignant lymphoma. *Am J Clin Pathol* 1955;25:480-8.
5. Ieki R, Goto H, Kouzia Y, Morisaki T, Asano S, Shimada K, *et al.* Endobronchial non-Hodgkin's lymphoma. *Respir Med* 1989; 83: 87-9.
6. Kilgore TL, Chasen MH. Endobronchial non-Hodgkin's lymphoma. *Chest* 1983;84:58-61.
7. Lee KS, Kim Y, Primack SL. Imaging of pulmonary lymphomas. *Am J Roentgenol* 1997;168:339-45.
8. McRae WM, Wong CS, Jeffery GM. Endobronchial non-Hodgkin's Lymphoma. *Respir Med* 1998;92:975-7.
9. Ogawa Y, Takada Y, Okada S, *et al.* Four cases of malignant lymphoma with intrabronchial involvement. *Jpn J Chest Dis* 1981;44:699-704.
10. Papaioannou AN, Watson WL. Primary lymphoma of the lung: an appraisal of its natural history and a comparison with other localized lymphomas. *J Thorac Cardiovasc Surg* 1965;49:373-87.
11. Samuels ML, Howe CD, Dodd GD Jr, Fuller ML, Shullenberger CC, Leary WL. Endobronchial malignant lymphoma. Report of five cases in adults. *Am J Roentgenol Radium Ther Nuclear Med* 1961;85:87-90.
12. P. Kavoura, S. Kalampoka, H. Lambrakis, G. Birba, D. Amaxilati, L. Papageorgiou, P. Roussou, F. Vlastos. Balt lymphoma, a rare endobronchial tumor. A case Report. 19<sup>th</sup> ERS Annual Congress - September 12-16, 2009;2716
13. Soloman A, Zuckerman T, Gerenuk L, Ben-Arieh Y, Rowe JM, Yigla M. Non-Hodgkin Lymphoma presenting as an endobronchial tumour: report of eight cases and literature review. *Am J Hematol*, 2008; 83:416-9.
14. Vieta JO, Cravor LF. Intrathoracic manifestations of the lymphomatoid diseases. *Radiology* 1941;37:138-59.