Non-Hodgkin’s Lymphoma Presenting as an Endobronchial Polypoid Mass: A Case Report

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Non-Hodgkin’s lymphoma seldom, if ever, involves the tracheobronchial tree, and it manifests as a diffuse infiltrating pattern with clinically apparent systemic lymphoma. Endobronchial involvement presenting as an endobronchial polypoid mass is far rarer. We report here on a case of diffuse large B-cell non-Hodgkin lymphoma that presented as an endobronchial polyloid mass obstructing the central bronchi and this led to lobar atelectasis.

Index words: Lymphoma
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Tumors in the tracheobronchial tree are rare and the vast majority of them are malignant tumors such as squamous cell carcinoma [1]. A localized endobronchial mass is a far less common pattern of endobronchial Non-Hodgkin’s lymphoma (NHL) as compared to the diffuse distribution pattern [2]. We report here on a case of endobronchial NHL that presented as a localized polypoid mass.

Case Report

An 82-year-old man was admitted due to 1-month history of blood tinged sputum, dyspnea and cough. Night sweats, fevers, weight loss, fatigue and chest pain were not reported at the initial presentation. The patient had a medical history of hypertension that was diagnosed 6 months earlier and this was treated with antihypertensive drug. He is a smoker with a 30-pack-year history and had no familial history of lung disease or cancer. The findings of the basic laboratory investigations such as a complete blood count and the blood chemistry tests were unremarkable.

A chest radiograph showed a left hilar mass accompanied by atelectasis of the left upper lobe [Fig. 1A]. He underwent a CT scan of the chest (Asteion, Toshiba, Tokyo, Japan), which demonstrated an intraluminal polypoid protruding mass that measured 2 × 1 cm with homogeneous enhancement in the left upper lobe bronchus and nearly total collapse of the left upper lobe [Fig. 1B]. The focal areas of ground-glass opacity with reticulation in the posterobasal segment of the left lower lobe were regarded as focal pneumonia. Slightly enlarged lymph nodes were present in the left upper paratracheal, right lower paratracheal, paraaortic and subaortic areas and both the lower paratracheal and left hilar areas [Fig. 1C]. Multifocal areas of centrilobular and paraseptal emphysema with bullae in both lungs were also noted.

Bronchoscopy revealed a fleshy polypoid mass ob-
structing the left upper lobe bronchus (Fig. 1D). Bronchoscopic biopsy was performed and histopathological examination showed packed lymphocytes with pleomorphic hyperchromatic nuclei overlying the ciliated pseudostratified columnar epithelium. The cells were CD-20-positive B cells that coexpressed bcl-2 and they showed immunoreactivity for Ki-67 antigen, which was consistent with a diffuse large B-cell non-Hodgkin’s lymphoma (Fig. 1E).

On the additional staging investigations, PET/CT showed uptake in the area of the endobronchial mass and regional lymphadenopathies (Fig. 1F). Otherwise, there was no other lymphomatous involvement in the extrathoracic area. The patient was started on 6 cycles of Rituximab with cyclophosphamide, adriamycin, vincristine and prednisone (CHOP) chemotherapy for 4 months, which led to complete resolution of the endobronchial mass. Follow up chest CT showed a decreased size of all the regional lymphadenopathies.

Discussion

Making the differential diagnosis of an endobronchial mass is difficult because tracheobronchial tumors are
rare and diverse in their etiologies. The CT findings of each endobronchial tumor are not specific for determining the origin, yet the disease prevalence and the overall clinical history such as gender, a smoking history and systemic symptoms can help the differentiation. In this case, the patient’s old age, the long smoking history and the relatively short duration of dyspnea without any other systemic symptoms were clues for malignancy, which makes up the vast majority of endobronchial tumors. Further, a well enhancing polypoid mass with slightly enlarged lymph nodes raised the suspicion for lung cancer.

Endobronchial lymphoma is thought to be a rare manifestation of intrathoracic NHL [3]. Intrathoracic NHL most frequently manifests as a mediastinal lymphadenopathy followed by an intraparenchymal mass and pleural effusion [4]. The combined data from 425 cases of tracheal tumor showed only a 0.23% prevalence of NHL [5]. Primary endobronchial involvement is far rarer according to strict criteria that exclude extrapulmonary disease and adjacent mediastinal lymphadenopathy [6, 7]. Otherwise, some authors have considered the patients with adjacent hilar or mediastinal lymphadenopathy as having a primary pulmonary lymphoma in the absence of extrathoracic disease [8]. This present case is also an extension of those arguments in that the tumor did not show any other extrapulmonary involvement except for mediastinal lymphadenopathy.

For the pathological correlation, two types of endobronchial NHL have been proposed. The first type is a diffuse distribution of submucosal nodules throughout the bronchial tree in the presence of systemic lymphoma. This is believed to be the result of hematogenous or lymphatic spread along the bronchi. The second type is characterized by a localized endobronchial mass associated with regional lymph node enlargement and atelectasis. The atelectasis might be caused by direct tumor extension from the regional lymphadenopathy to the bronchi or retrograde lymph flow from a node obstructed by tumor [3]. Our case presented here is more likely to be classified into the second type as the endobronchial mass had close contact with the enlarged hilar lymph nodes and the patient clinically presented with atelectasis of the left upper lobe.

Radiologically it is impossible to distinguish between an endobronchial lymphoma and other tumors presenting as an isolated mass within the airway. Yet minor radiologic manifestations can give some clues to differentiate endobronchial lymphoma from other tumors. Squamous cell carcinoma is the most common primary lung tumor, and this may appear as a polypoid, focal sessile lesion or as irregular wall thickening that sometimes distorts the adjacent bronchial wall. Adenoid cystic carcinoma tends to grow along the submucosal layer and it displays a circumferential infiltrative pattern. Mucoepidermoid carcinoma in the tracheobronchial tree is a rare tumor that manifests with intraluminal nodules that occupy the bronchi and they adapt to the features of the airway. Secondary malignant tumors of kidney, colon, breast, melanoma and thyroid cancer
may result in localized polypoid nodules (3), while malignancy of the lung, larynx, esophagus and thyroid are more likely to invade directly (1). Hodgkin’s disease can also appear as a solitary mass involving the central airways in association with regional adenopathy (3). Although its CT appearance is insufficient to differentiate it from other localized masses, the second type of endobronchial NHL has some common characteristics. Solomonov et al. (8) reported that primary pulmonary NHL that presented as an endobronchial growth also showed lobar atelectasis; two patients had bi-lobar atelectasis and five had atelectasis associated with a mediastinal mass invading the lobar bronchus. Sabanathan (9) found that the endobronchial lesions of NHL were more frequent in the main bronchi with varying degrees of lobar atelectasis in half of the cases. The additional findings were central opacity that represented mediastinal or hilar adenopathy, parenchymal infiltrates and pleural effusion (1, 8). Some authors have recently reported cases of an enhancing polypoid soft-tissue mass that obstructed the bronchi (6, 7, 10). Our case was a homogeneously enhancing mass with preserved bronchial architecture and left upper lobe atelectasis, and the additional findings were focal parenchymal infiltrates and regional lymphadenopathy.

In summary, endobronchial involvement is a rare manifestation of NHL, although NHL usually manifests with a diffuse infiltrating pattern (2). If NHL occurs as a localized mass, then it can be recognized as homogenous soft tissue mass that causes atelectasis combined with regional mediastinal adenopathy, as our case demonstrated.

References

Ji-Yeon Han, et al : Atypical Appearance of Endobronchial Non-Hodgkin’s Lymphoma

기관지 내 폴립양 종괴로 발현한 비호지킨림프종: 1예 보고

1동아대학교병원 임상의학과
2동아대학교병원 병리과
한지연 ∙ 이기남 ∙ 노미숙2 ∙ 김우정

비호지킨림프종은 기관기관지에서 거의 발생하지 않으며, 발생하더라도 임상적으로 전신 림프종이 현저한 경우 미만성 침습 형태로 발생한다. 기관지 내 폴립 종괴의 형태로 발현한 경우는 더욱 드물다. 저자들은 중심 기관지를 폐쇄하고 폐엽무기폐를 일으킨 독립 돌출형태의 미만성 큰 B세포 비호지킨림프종 (Diffuse large B-cell Non-Hodgkin lymphoma) 1예를 보고한다.