

Invasive Thymoma with Endobronchial Polypoid Growth

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Abstract

Thymomas are the most common neoplasms of the mediastinum. It is common that thymoma invades neighboring structures in the thorax, but direct polypoid tumor growth into the airway is extremely rare. We report a rare case of invasive thymoma with polypoid endobronchial growth in a 66-year-old woman. Computed tomography demonstrated an anterior mediastinal tumor which extended into the right upper lobe. Endoscopic examination revealed a polypoid tumor which occluded the right upper bronchus. A biopsy specimen obtained from the intraluminal mass was very suggestive of thymoma. The patient had no parathymic syndrome. The tumor was resected with the right upper lobe. The final post-operative tissue findings confirmed a type B2 thymoma of the World Health Organisation classification.

Keywords

Invasive Thymoma, Anterior Mediastinal Tumor, Bronchoscopy, Endobronchial Growth

1. Introduction

Thymomas are one of the most common neoplasms of the mediastinum. It represents approximately 15% of all

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mediastinal masses and 50% of primary tumors of the anterior mediastinum [1]. It may demonstrate invasion of contiguous mediastinal structures (pleura, pericardium, or other mediastinal structures). However, endobronchial invasion with polypoid growth is still a rare mode of extension of thymoma. We document a rare case of invasive thymoma with an endobronchial polypoid tumor in the right upper bronchus in which the preoperative diagnosis is made by flexible bronchoscopic biopsy.

2. Case Report

A 66-year-old nonsmoker woman was hospitalized for persistent cough and hemoptysis. The patient had a history of hydatid cyst of the right upper lobe of the lung ten years ago. On admission, clinical examination and laboratory data were unremarkable. Computed tomography demonstrated an anterior mediastinal tumor. The mass extended into the right upper lobe (Figure 1).

Bronchoscopic examination showed polypoid tumor in the right upper bronchus (Figure 2).

A biopsy was attempted twice, because the diagnosis was not clear from the first specimen. Histological examination of the second biopsy showed an ulcerated bronchial mucosa and a proliferation of the epithelial cells. They were admixed a component of lymphocytes. The T lymphocytes were immature and showed positive immunoreactivity for Tdt (Tdt+) (Figure 3).

These histological findings were highly suggestive of thymoma. The patient had no parathymic syndrome particularly any myasthenia or hypogammaglobulinemia. The patient was referred to thoracic surgeon. Thymectomy combined with right upper lobectomy, partial resection of the pericardium and lymphadenectomy was performed through a right posterolateral thoracotomy. The surgical specimen revealed that the tumor extended nodularly not only into the pulmonary parenchyma but also into bronchial lumen (Figure 4(a)). The final postoperative tissue findings confirmed a type B2 thymoma of the World Health Organisation (WHO) classification (Figure 4(b)). Surgical excision was complete. Postoperative radiotherapy was indicated for the patient.

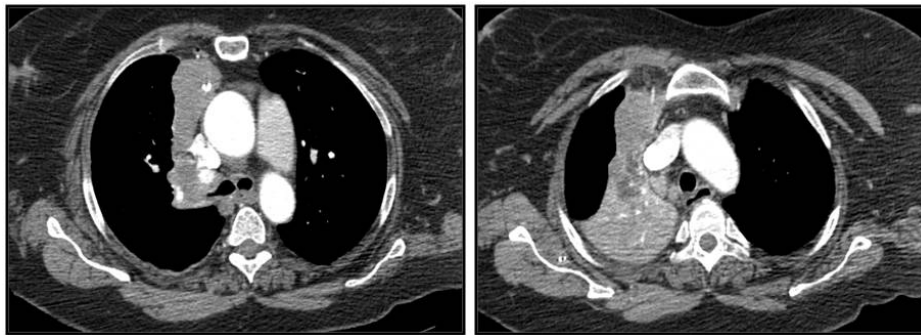


Figure 1. Chest computed tomography showed a mass in the anterior mediastinum invading upper right lobe with obstruction of upper right bronchus and collapse of the lobe.

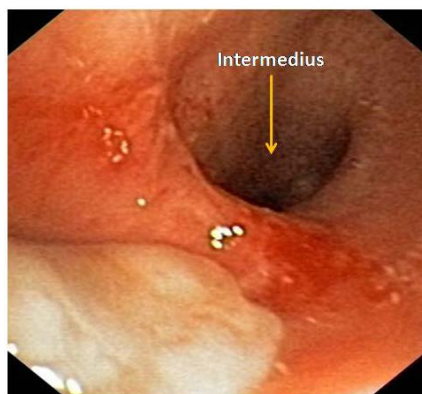


Figure 2. Bronchoscopic examination revealed complete obstruction of the right upper bronchus by polypoid tumor.

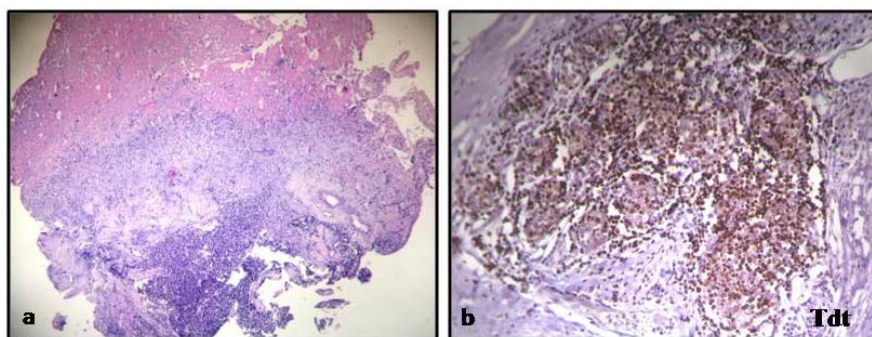


Figure 3. (a) Biopsy showed proliferation of the epithelial cells with a component of lymphocytes. (b) Lymphocytes were immature and showed positive immunoreactivity for Tdt.

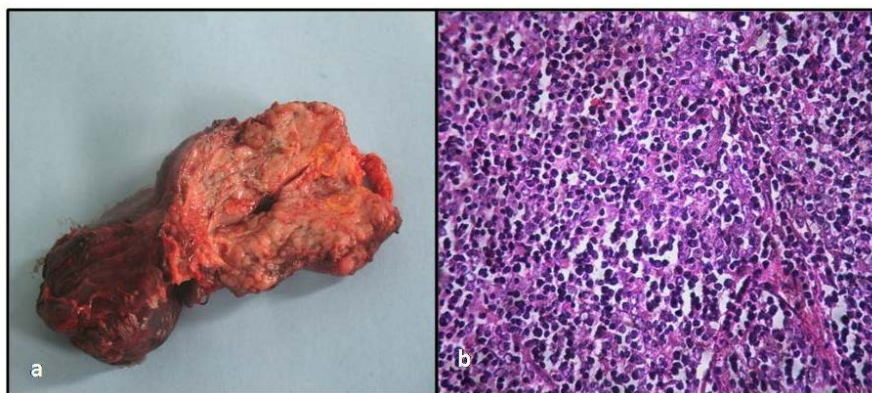


Figure 4. (a) The surgical specimen revealed extension of the tumor into the pulmonary parenchyma and the bronchial lumen. (b) The tumor was composed of epithelial cells with lymphocytes.

3. Discussion

Thymomas are rare epithelial neoplasms that constitute approximately 15% of all mediastinal masses and 50% of primary tumors of the anterior mediastinum [1]. Some forms of thymoma are invasive and can have extension to the mediastinum and all neighboring structures. Invasive thymomas directly extend in all directions from the original site and may penetrate the pleura, pericardium, or other mediastinal structures [2]. One third of thymoma invades the pleura and the lungs and can compress the airway. However, endobronchial invasion with polypoid growth is a rare mode of extension of thymoma. Up to the present, according to a literature review, only 20 cases of invasive thymoma with endobronchial growth have been documented [3].

The exact mechanism of endobronchial mass proliferation of invasive thymoma is not yet clearly known. Honda and colleagues [2] proposed that thymoma first invades the parietal and visceral pleura, and then infiltrates the lung and distal bronchial wall, after which it progresses to endobronchial polypoid proliferation.

The most common clinical signs suggestive of invasive thymoma are cough, chest pain and dyspnea. However, thymoma can be asymptomatic discovered on chest radiograph [4]. In the case of our patient, the suggestive clinical sign was a recurrent hemoptysis. The CT scan allows better study of the characteristics of the mediastinum pulmonary mass. Bronchoscopic examination revealed in the majority of cases polypoid lesions obstructing the left upper bronchus [4]. In our case, thymoma involved the right upper lobe bronchus. This could be explained by the history of cystectomy for hydatid cyst of the upper right lobe.

Diagnosis of invasive thymoma is usually made by histologic study of resected tumor from patients who have a suspicious lesion in the anterior mediastinum on the preoperative imaging study such as chest x-ray and CT [5]. A tissue confirmation by bronchoscopy before surgery is rare among cases of invasive thymoma with endobronchial growth. In fact, most cases showed normal bronchial mucosa or necrotic tissues, except for two cases reported by Asamura [6] and a case reported by Sakuraba [4]. In our case, histological confirmation was made

with flexible bronchoscopy tried twice. The immunohistochemical study of the biopsy specimen was very helpful in making a diagnosis of thymoma preoperatively. This may exclude differential diagnosis such as lung cancer invading the mediastinum or lymphoma infiltrating the lung. However, surgical resection is necessary to final histological diagnosis and classification of the tumor.

The treatment of invasive thymoma with endobronchial growth consists on thymectomy combined with lobectomy. A preoperative chemotherapy may be necessary in some unresectable cases to reduce tumor volume. Various chemotherapy regimens based on platinum for thymoma have been reported [3] [4] [7]. Postoperative radiotherapy is often indicated to complete remission [8]. Endobronchial brachytherapy has been used by Matsuguma [9] for recurrent thymoma showing endobronchial polypoid growth. Despite early response of these tumors to such interventions, long-term prognosis of advanced invasive thymoma remains poorly defined. Regular Follow-up is necessary to detect recurrence of the tumor.

4. Conclusion

The present case shows that thymoma can be diagnosed on a bronchoscopic biopsy, although this might be rare. The possibility of an endobronchial polypoid growth of invasive thymoma and the utility of immunohistochemical study should be considered by both pulmonologist and pathologist in cases of mediastinal tumor and endobronchial invasion.

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