Case Report

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TANAFFOS

Huge Hilar Carcinoid Tumor Resected by Transsternal Pneumonectomy: A Case Presentation

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Carcinoid tumors comprise an uncommon group of pulmonary neoplasms with neuroendocrine origin. In comparison with typical carcinoid tumors, atypical tumors are less common and more aggressive. We present a 35-year old female with atypical carcinoid tumor. The mass was located centrally and transsternal pneumonectomy was performed to resect the tumor.

Key words: Neuroendocrine tumor, Carcinoid, Pneumonectomy, Sternotomy

INTRODUCTION

Neuroendocrine tumors of the lung include a wide spectrum of tumors such as typical carcinoid tumors, atypical carcinoid tumors, large cell neuroendocrine carcinomas and small cell carcinomas (1). Carcinoid tumors, comprising 2% of all primary lung tumors, are an uncommon group of lung neoplasms with neuroendocrine origin. These tumors are typically benign and grow slowly (2, 3). Lung is the second most common site of involvement (4). First, carcinoid tumors were classified as benign adenomas but due to their aggressive behavior, they were then classified into two groups of typical and atypical tumors (5). Prevalent clinical manifestations include cough, hemoptysis and pneumonitis (6). In comparison with typical type, atypical carcinoid is less common (11-24 % of lung carcinoids) and more commonly demonstrates poor differentiation and atypia. Poor differentiation and aggressiveness are more common in atypical carcinoids, and thus, they have poorer prognosis (2). Large size, high mitotic rate, female gender and rosette are important parameters contributing to patient survival (7). For localized tumors, surgical resection is the treatment of choice (3, 7).

CASE SUMMARIES

A 35 year-old woman complaining of pleuritic chest pain since 6 months ago is presented. A right hilar mass with maximal diameter of 68.36 mm was detected on chest X-ray and computed tomography (CT) scan (Figure 1). CT guided biopsy of the lesion demonstrated a neuroendocrine tumor compatible with atypical carcinoid tumor. Right thoracotomy had been previously performed

but due to right main pulmonary artery and superior pulmonary vein involvement, tumor was not resected and open biopsy was only done, which confirmed the diagnosis.

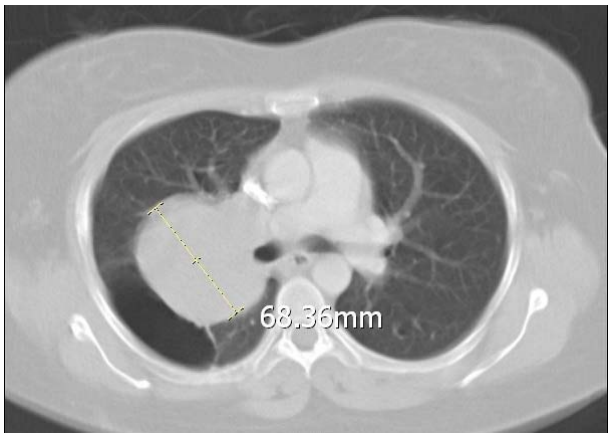

Figure1. CT scan of the chest showing a large right pulmonary mass.

Following admission, rigid bronchoscopy was performed, which revealed obstruction of bronchus intermedius due to external pressure with no endobronchial lesion.

Due to mediastinal lymphadenopathy, the patient was recommended to undergo mediastinoscopy to begin chemotherapy in case of lymph node involvement but she refused chemotherapy. Therefore, based on previous operation report of the right main pulmonary artery involvement, transsternal pneumonectomy was scheduled.

Right pleural space was entered through a median sternotomy. Extrapericardial control of the pulmonary hilum seemed difficult and unsafe due to the presence of a large central tumor and huge lymph nodes over the superior pulmonary vein. Pericardium was opened longitudinally and the proximal right main pulmonary artery and bronchus were exposed after dissection between the superior vena cava and aorta. The right main pulmonary artery and superior pulmonary vein were easily encircled and ligated using a vascular stapler and the right main bronchus was closed by manual suturing. The inferior pulmonary vein was ligated extrapericardially. Mediastinal lymph node dissection was performed and sternotomy was closed in a standard fashion after leaving a small intra pleural catheter.

Postoperatively, fever and leukocytosis were detected; however, bronchopleural fistula was not present and symptoms were treated using antibiotics. During 10 months of follow up, no complication was reported and bronchoscopy showed no evidence of recurrence.

DISCUSSION

Several studies have discussed treatment of carcinoid tumors. Non-surgical treatments, such as radiation therapy, iodine 131 metaiodobenzylguanidine and interferon therapy are not effective enough. Additionally, multi-chemotherapy is slightly more effective than single therapy and in metastatic cases, combination chemotherapy is moderately advantageous (3, 8). Overall, carcinoid tumors are resistant to chemotherapy; therefore surgery is the treatment of choice (2, 7). The purpose of surgery is total resection of tumor besides preserving uninvolved parts of the lung. Lobectomy and mediastinal lymphadenectomy are recommended to be performed (5, 9, 10). Surgical technique is determined based on tumor size, tumor location and its adjacent structures (2). Prognosis of central tumors is worse than peripheral types with more rapid spread to mediastinal lymph nodes (8). Treatment of central carcinoid tumors is a matter of controversy and is influenced by radiographic features and endoscopic and surgical findings. An experienced surgeon can avoid pneumonectomy and, for instance, use sleeve resection instead. Nonetheless, in some cases, especially for huge central tumors like our case, pneumonectomy is inevitable (2, 5).

In our patient, according to the size of the tumor and its central location in addition to clinical N2 lymphadenopathy, it would be better to consider neoadjuvant chemotherapy. But, she refused chemotherapy and also there was a concern about increasing the fibrotic process in the previous operation field and also around the mediastinal lymphadenopathy and great vessels, which could make the dissection more

difficult. Thus, surgical resection through median sternotomy was scheduled. We conclude that all attempts should be done to resect carcinoid tumors and we believe that for huge central tumors that seem unresectable through thoracotomy, median sternotomy should be considered as a safe method of resection.

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