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Case Report

Esophageal Cancer and Synchronous Multiple Primary Lung Cancer: A Rare Case Report

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2. Keywords

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1. Abstract

Esophageal cancer and synchronous multiple primary lung cancer are rare in clinic and mainly reported by single cases, which are more rarely reported in simultaneous operation. One case of concurrent operation for esophageal cancer and synchronous multiple primary lung cancer was recently carried out, and the analysis report is presented. A 64-year-old male complained of progressive dysphagia and therefore performed with gastroscopic examination, which suggesting lower esophageal cancer. He therefore admitted to our hospital. The result of chest CT scan showed heterogeneous circular thickening in the lower thoracic and abdominal segments of the esophagus, and the formation of intrabronchial embolism and pulmonary consolidation in the dorsal, lateral and posterior basal segments of the left lower lobe of the lung was founded. Gastroscopy revealed irregular cauliflower-like mass located at 36-40 cm away from the incisor teeth. Pathological examination offered a presumed diagnosis of squamous cell carcinoma. Fiberoptic bronchoscopy showed neoplasm occlusion in the basal segment of the left lower lobe. Squamous cell carcinoma was considered and needed further examined. During the surgery, pulmonary lesions were removed and squamous cell carcinoma was identified after frozen. Next, left thoracotomy was performed and radical resection of left lower lobe lung cancer, lower esophagectomy and esophagogastric anastomosis were performed. The patient has recovered and discharged from hospital, and is being followed up.

3. Introduction

The most easily metastatic site of esophageal cancer is lung, but the treatment and prognosis between primary lung cancer and metastatic lung cancer are essentially different, so it is important to distinguish primary lung cancer from metastatic lung cancer [1]. Warren and Gate present the diagnostic criteria of multiple primary cancer as follows [2]:

(1) Each tumor must be malignant.

(2) Each tumor is independent and not correlated to each other.

(3) There must exist certain range of normal tissues between malignant tumors.

(4) Each tumor must be excluded as a metastatic lesion of other tumors.

Esophageal cancer and synchronous multiple primary lung cancer are rare in clinic and mainly reported by single cases, which are more rarely reported in simultaneous operation. Simultaneous resection of esophageal and pulmonary lesions is riskier and more difficult to operate, which is more critical for perioperative treatment of patients. One case of concurrent operation for esophageal cancer and synchronous multiple primary lung cancer was recently carried out, and the analysis report is presented.

4. Case presentation

A 64-year-old male presented to the local hospital two month ago with progressive dysphagia and therefore performed with gastroscopic examination, which suggesting lower esophageal cancer. He reported no cough, manifestation of fever, night sweats, acid reflux, vomiting, abdominal distension, abdominal pain or other symptoms. The patient admitted to our hospital as lower esophageal cancer for further diagnosis and treatment. The patient was physically health with no medical history of basic diseases such as diabetes. He denies the history of infectious diseases such as tuberculosis, and denies the history of surgery, blood transfusion and trauma. On the physical examination, the patient was afebrile with the temperature of 36.5°c. His heart rate was 92 beats per minute, blood pressure 139/90 mm Hg, respiratory rate 20 per minute. He was alert and not in acute distress. Superficial lymph nodes were

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not enlarged, a small amount of wet rale can be heard in the left lower lung, the rest of the lungs was clear. The cardiac and abdominal examinations were unremarkable, limb muscle strength and muscle tension were normal, and there was no edema in both lower limbs founded.

The blood gas analysis (21% inhaled oxygen concentration) showed that pH was 7.41, partial pressure of oxygen was 64 mm Hg, partial pressure of carbon dioxide was 43 mm Hg, and oxygen saturation was 92%. The result of chest CT scan showed heterogeneous circular thickening in the lower thoracic and abdominal segments of the esophagus, which was corresponded to the CT imaging signs of esophageal cancer (Figure 1A). Additional findings included the formation of intrabronchial embolism and pulmonary consolidation in the dorsal, lateral and posterior basal segments of the left lower lobe of the lung (Figure 1B-D). Gastroscopy revealed irregular cauliflower-like mass located at 36-40 cm away from the incisor teeth (Figure 2). Pathological examination offered a presumed diagnosis of squamous cell carcinoma. Fiberoptic bronchoscopy showed neoplasm occlusion in the basal segment of the left lower lobe. Squamous cell carcinoma was considered and needed further examined (Figure 3). Collectively, the diagnosis was given as follows: lower esophageal squamous cell carcinoma, probable left lower lobe lung cancer to be further examined, left lower lobe bronchiectasis with pulmonary consolidation.

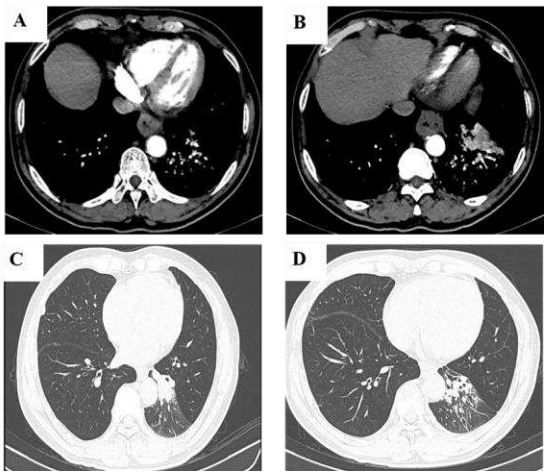

Figure 1: CT scan showed heterogeneous circular thickening in the lower thoracic and abdominal segments of the esophagus (A) and the formation of intrabronchial embolism and pulmonary consolidation in the dorsal, lateral and posterior basal segments of the left lower lobe of the lung. (B-D)

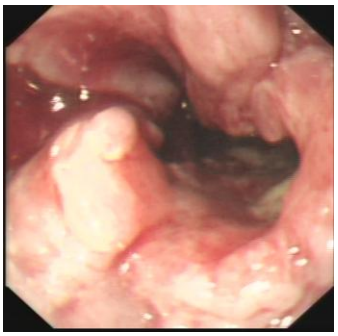

Figure 2: Gastroscopy revealed irregular cauliflower-like mass located at 36-40 cm away from the incisor teeth

Figure 3: Fiberoptic bronchoscopy showed neoplasm occlusion in the basal segment of the left lower lob=7==

No contraindication of surgery was identified in the rest of the examination, therefore a surgery under general anesthesia was performed in 8/14/2008. During the surgery, pulmonary lesions were removed and squamous cell carcinoma was identified after frozen. Next, left thoracotomy was performed and radical resection of left lower lobe lung cancer, lower esophagectomy and esophagogastric anastomosis were performed. Postoperative pathological examination showed poorly differentiated squamous cell carcinoma in esophageal and neoplasms, as well as moderately differentiated squamous cell carcinoma in the lower lobe of the left lung and neoplasms. The patient has recovered and discharged from hospital, and is being followed up.

5. Discussion

Multiple primary cancers refer to two or more unrelated malignant tumors in different parts of the same organ or system of the same patient. It can be divided into synchronous and metachronous cancers according to the occurrence of multiple primary cancers within 6 months of first onset cancer or not [3]. The incidence of esophageal cancer ranks eighth among all kinds of cancers. Each year, about 456 thousand cases diagnosed as esophageal cancer worldwide [4]. In China, the main histological type of esophageal cancer is squamous cell carcinoma [5] and its 5-year-survival rate is low as 15% - 20% [6]. Recently, surgery is one of the main treatments of esophageal cancer in early stage, while the lack of typical clinical symptoms and valid detection method is considered as one of the main reasons for the late detection and poor prognosis of esophageal cancer. Lung cancer is known as one of most common cancer worldwide in terms of its morbidity and mortality. In 2012, 1.8 million new cases and 1.59 million death of lung cancer was recorded worldwide [7]. Data from the United States in 2016 show that lung cancer was the second leading cause of morbidity and mortality among male, while which is the leading cause of death in China [8]. With early-diagnosis and surgical resection, the 5-year survival rate of minimal and focal lung cancer (stage I) is approximate 70-90%. However, clinically, near 75% of the patients were in late stage (stage III and IV), and therefore the survival rate was extremely low [9].

The incidence of multiple primary esophageal cancer and lung

cancer is relatively low clinically. Accumulated researches revealed that probability of concurrent or heterogeneous lung cancer in esophageal cancer is 3.2% [10]. Therefore, it is necessary to clarify whether the lung cancer is primary or metastatic before treatment. However, there is no effective method exists to differentiate, especially for squamous cell carcinoma, which occurs more difficult in diagnosis. At present, the main clinical references are as follows:

(1) Lung tumors and esophageal tumors have different pathological types, and the degree of differentiation is different when the pathological types are the same;

(2) When pulmonary lesions present typical imaging features such as lobulated sign and spiculated sign, they tend to be primary;

(3) Bronchial-derived squamous cell lung cancer is usually considered to be primary [11].

When it refers to the treatment of synchronous primary carcinoma of esophageal and lung, the patient's physical condition should be carefully evaluated, and the treatment should be selected according to their respective preoperative scores [12]. For resectable esophageal cancer or lung cancer, surgery combined comprehensive treatment is considered the most ideal treatment for now.

In this case, the patient admitted due to probable esophageal cancer. Preoperative examination of the chest CT showed patch shadow in the left lower lobe, and the malignant signs were not typical. Only bronchoscopy showed moderate atypical changes in squamous metaplastic cells. This is also a major feature of multiple primary tumors of the esophagus and lung. The clinical manifestations of patients usually include esophageal cancer symptoms such as progressive dysphagia, upper abdominal pain, etc., while pathological changes in lung cancer are more concealed [13]. Therefore, patients with esophageal cancer as the main manifestation shouldn't limited to the diagnosis of esophageal diseases, and to perfect inspection shown in figures is necessary for clinicians to diagnose the disease more comprehensively and determine the treatment. No sign of surgical contraindication was found in the patients before operation. Because the pulmonary lesions were located in the left lower lobe, we chose to undergo surgery through the left chest approach. At the same time, in this case, since the preoperative diagnosis of pulmonary lesions is not clear, lobectomy or total pneumonectomy should be performed first in the surgery, and then esophageal space-occupying surgery should be performed after the intraoperative frozen pathological examination was performed, which can reduce the incidence of complications such as bronchial stump fistula caused by bronchial stump contamination. It is also more accord with the sterility requirements of surgical procedures.

It is reported that, no significant difference exists between the prognosis of esophageal cancer and synchronous primary carcinoma of esophageal and lung. Zhao et al. followed up 20 patients who underwent simultaneous resection of esophageal cancer and synchronous multiple primary lung cancer and found that the 1-year, 3-year and 5-year survival rates of patients were 67.9%, 47.4%, 44.4% respectively [3]. Therefore, comprehensive evaluation of preoperative physical tolerance and tumor stage and selection of appropriate surgical methods are effective methods for the treatment of synchronous primary carcinoma of esophageal and lung.

For patients with esophageal cancer and synchronous multiple primary lung cancer that require postoperative adjuvant treatment, to select a treatment that is advantaged for long-term prognosis is also crucial. However, there is still a lack of reliable researches in this respect. Surgery is still the most considerable treatment when it refers to esophageal cancer and lung cancer. In terms of esophageal cancer, for the patients with suspected metastases, incomplete resection of local lesions and lymph node metastasis after operation, postoperative adjuvant concurrent chemoradiotherapy can improve the survival rate of patients with lymph node-positive, and can effectively reduce the incidence of complications [14]. Trastuzumab, cetuximab and bevacizumab are the main drugs for targeted therapy of esophageal cancer. Shah et al. found that when cisplatin, docetaxel, 5-fluorouracil combined with bevacizumab were used to treat esophageal cancer, the effective rate was 67%, and the median survival time was 16.8 months [15]. It indicates that targeted therapy has clinical significance in prolonging the survival time of patients with esophageal cancer, but there is still lack of large-scale randomized clinical trials. As far as lung cancer is concerned, the median survival time of patients receiving systemic chemotherapy is still not optimistic, about 10 months, but with the development of targeted drugs, the median survival time can be extended to 33 months, and the targeted therapy of lung cancer has been more mature clinically.

In conclusion, although considerable progress has been made in surgical treatment, the combination of non-surgical treatment to reduce surgical-related trauma and improve overall prognosis is still need to be explored.

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