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Papillary Thyroid Carcinoma was Found in Lymph Nodes Station 2 Dissected During Lung Adenocarcinoma Surgery

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Abstract

In the surgical treatment of lung cancer, systemic mediastinal lymph node dissection, as one important routine procedure, has been accepted by most peers in the world. However, due to the special location of some mediastinal lymph nodes, the difficulty of dissection, and the negative preoperative CT results, the specific scope of lymph node dissection is still controversial. Especially the second group, which is located at the top of thorax, is likely to be overlooked for the above reasons. Here, we report a case of lung adenocarcinoma in which the preoperative CT showed no abnormal lymph nodes in the second group and also no enlarged lymph nodes of the second group were found during the surgery, yet lymphadenectomy was still performed according the routine with the lymph node of station 2 being sampled. In the postoperative pathological report, cancer cells were found in the second group, instead of lung adenocarcinoma, these cells come from thyroid and were proved to be papillary thyroid carcinoma, which is unusual because no obvious indication of thyroid carcinoma was found in preoperative color doppler ultrasound of superficial lymph nodes.

Keywords

Lung adenocarcinoma; Papillary thyroid carcinoma; Mediastinal lymph nodes; Lymphadenectomy

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Introduction

Among all types of cancer, Lung cancer is the one with highest morbidity and mortality in the world [1]. Surgical treatment should be considered as the first-line treatment for all patients with lung cancer except stage IIIB and IV, but for patients with no abnormal lymph nodes found by preoperative chest CT, lymphadenectomy helps to exclude lymph node metastasis negative on imaging, and to further clarify the pathological stage of lung cancer and evaluate the prognosis[2]. However, in lung cancer surgery, the second group of lymph nodes is often difficult to clean because of their special position near to the cupula of pleura [2]. If there is no obvious indication for removal in preoperative CT, generally they will not be dissected, thus there is the possibility to delay the timely treatment measures for special disease.

Case Description

The patient is 63 years old, female, with no special previous medical history. The chest CT showed a solid nodular shadow with irregular margins in the right upper lobe of the lung with a size of about 13mm×10mm, and no obvious abnormalities in the mediastinal lymph nodes (Fig. 1). Color Doppler Ultrasound of superficial lymph node showed disappearing medullary echo in the region VI of cervical lymph nodes, and diffuse changes in thyroid parenchyma (Fig. 2). Other examinations showed no obvious exception. The patient received right upper lobectomy and mediastinal lymph node dissection. During the surgery, group 2\4\7\11 of lymph nodes were dissected and sampled for pathological examination. Postoperative pathological report indicate

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a single focal adenocarcinoma with a diameter of 1.1cm in the upper lobe of the right lung (70% acinar type, 30% adherent growth type) with visceral pleural invasion but no parietal pleura, chest wall, lymphangia-vascular invasion; the report also indicate that the second group of mediastinal lymph nodes (1/4) exists thyroid papillary carcinoma metastasis with the remaining lymph nodes negative.

Immunohistochemical test showed that the tumor cells were CD56 (-), CK19 (+), galectin-3 (+), hbme-1 (+), TPO (-), with pathological staging as pT2N0Mx (Fig. 3). Postoperative thyroid color doppler ultrasound indicate that hypoechoic nodules in the thyroid isthmus near to the right lobe (TI-RADS 4a) and diffuse thyroid lesions (Fig. 4).

Discussion

The latest standard manual for lung cancer TNM staging (eighth edition) clearly defines that N1 site contains group 1 mediastinal lymph nodes, N2 site contains groups 2-9 mediastinal lymph nodes, and N3 site contains groups 10-14 mediastinal lymph nodes, and the manual also suggests that accurate staging should be performed after the dissection of at least three lymph nodes each from the N1 and N2 sites[2-4], among which the second and the forth mediastinal lymph nodes of N1 site mentioned by this article are not only the basis for pathological staging of lung cancer, but also that for thyroid cancer[5]. The second group of mediastinal lymph nodes is adjacent to apex pulmonis and cupola of pleura at the superior boundary, the upper edge of sternal notch in the middle, the lower edge of the intersection of innominate vein and

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trachea at the inferior boundary in 2R, the left edge of trachea in the inner boundary, and the upper edge of aortic arch at the inferior boundary in 2L[6], because of its special location, It is often difficult to dissect it in surgery, unless there is obvious indications on chest CT, these lymph nodes are often ignored, too.

In this case, no obvious abnormalities were found in the lymph nodes of the second group by preoperative CT, and only diffuse thyroid lesions were found in Color Doppler Ultrasound of superficial lymph node without obvious indication of thyroid cancer. After lymph nodes of the second group were sampled and examined, thyroid papillary carcinoma metastasis was found in one of the second group lymph node sample, which also bought time for follow-up diagnosis and treatment. Therefore, it is reasonable to consider that preoperative CT alone is sometimes inaccurate to judge whether there is lymph node metastasis or not, for some metastatic lesions are indeed too small to be presented by CT, which is prone to false negative results. However, if standard lymphadenectomy was generally performed, the false negative situation can be greatly reduced, the accuracy of pathological diagnosis and prognosis can be improved, and some special cases of multiple carcinomas can be detected as soon as possible for timely treatment and better prognosis. So, for the accuracy of diagnosis and treatment, we think it is necessary to perform standard mediastinal lymph node dissection in lung cancer surgery.

Conflict of interest

The authors declare no conflict of interest.

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Footnote

Informed consent: Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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Figures

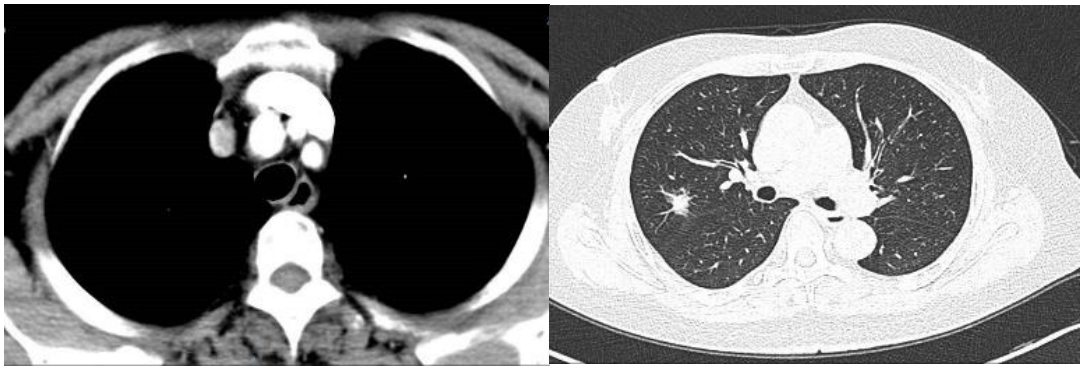

Fig 1. Preoperative chest CT (L, mediastinal window; R, pulmonary window)

Fig 2. Preoperative superficial lymph nodes ultrasound

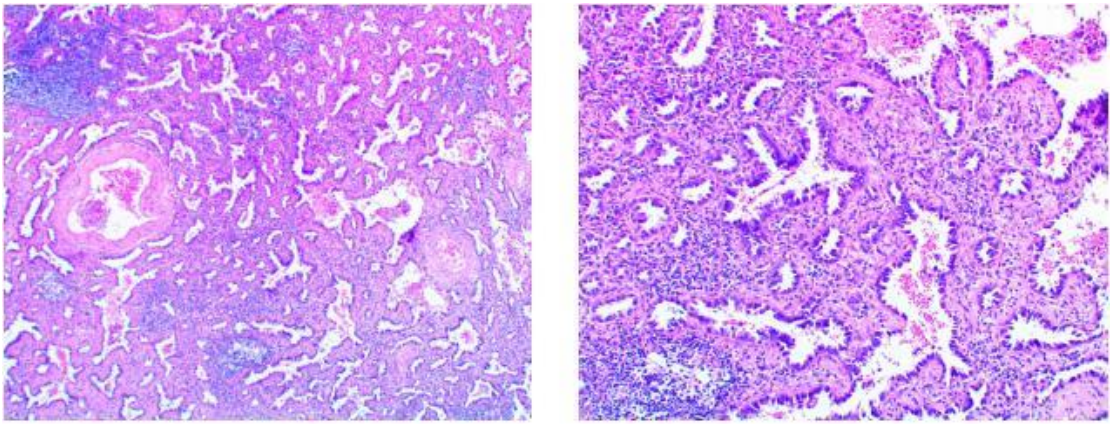

Fig 3. **Pathological report**

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Fig 4. Postoperative thyroid ultrasound