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Case Report

Squamous cell carcinoma of lung associated with osteoclast-like giant cells: report of a case

Lingchen Kong[1], Wenhong Peng[1], Jing Liu[2], Wei Wang[2], Peiyou Gong[3], Guohua Yu[2], Junxia Li[3]

[1]Department of Intensive Care Unit, Yishui Central Hospital, Linyi 276400, China; [2]Department of Pathology, Affiliated Yantai Yuhuangding Hospital, Medical College of Qingdao University, Yantai 264000, China; [3]Department of Image Center, Affiliated Yantai Yuhuangding Hospital, Medical College of Qingdao University, Yantai 264000, China

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Abstract: Resently, we treated a 69-year-old patient with squamous cell carcinoma of lung with osteoclast-like giant cells which were similar with the giant cell tumor of bone. The clinical and pathological characteristics of this case were presented, and the literatures were reviewed. The tumor differed histologically from the pleomorphic carcinoma, which occurs most commonly in the lung and showed diverse pleomorphic manifestation with benign looking osteoclast-like multinucleated cells and bizarre giant cells. In addition, undifferentiated carcinoma with a sarcoma-like appearance containing small areas of papillary adenocarcinoma was evident in the tumor. Histological features and immunohistochemical staining could be helpful in differential diagnosis.

Keywords: Lung, squamous cell carcinoma, osteoclast-like giant cells

Introduction

Osteoclast-like giant cells (OGCs) have been described in many malignant tumors which originate from pancreas [1], breast [2], renal [3], stomach [4], et al. However, OGCs have rarely been found in the lung neoplasm. To our best knowledge, only three cases about squamous cell carcinoma of lung with OGCs have been reported in the literatures so far [5-7]. Two cases were squamous cell carcinoma accompanied by sarcomatoid carcinoma and one case was associated with tumor giant cells. Recently, we observed another case of squamous cell carcinoma of lung associated with OGCs without sarcomatoid or giant cells differentiation. The features of clinic-pathology are present.

Case presentation

A 69-year-old man who had suffered from cough and blood in phlegm for three months and then he was sent to the Department of Respiratory Medicine of our hospital. Chest X-ray showed a mass in the lower lobe of right lung. The lung cancer was further diagnosed by chest CT scan and multiple enlarged lymph nodes were found in the hilus of the lung. The surgery was performed with the patient under general anesthesia. The procedure revealed an irregular tumor, volume of which was 2 cm×1.5 cm×1 cm, under the visceral pleura of the lower lobe of right lung. Pathologic findings during surgery showed that the tumor was off-white with obscure boundaries. The result of pathology was squamous cell carcinoma. The lower lobe of right lung and enlarged hilar lymph nodes were excised together.

Histological findings showed that the visceral pleura were involved by the neoplasm which was consisted of the epithelial nests ranging from the size infiltrated in the stroma. The neoplastic cells presented obscure boundary and eosinophilic cytoplasm. Nucleus was atypia and mitosis could be observed. There were few keratin pearl and intercellular bridge. Among the epithelial nests, there were many OGCs with abundant eosinophilic cytoplasm and multinucleation. The nucleus was bland and monomorphic showing round or oval shape. Lacked atypia and mitosis could be distinguished from the nuclei of the neoplastic cells (**Figure 1**).

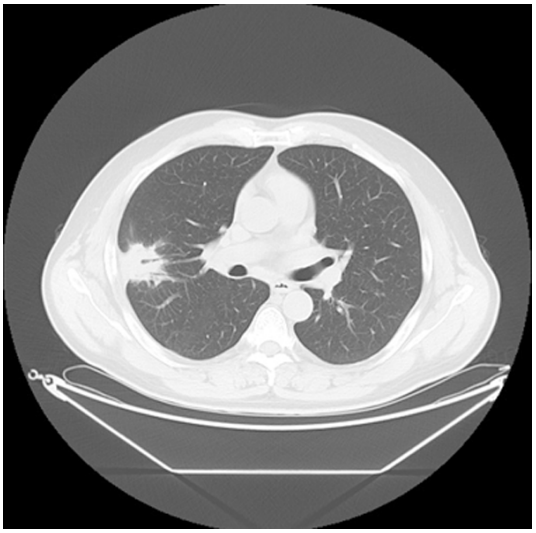

Figure 1. Tumor imaging changes: Chest CT showed a mass in the lower lobe of right lung adhering the pleura and multiple enlarged lymph nodes were found in the hilus of the lung.

Neoplastic metastasis was not discovered in the dissected lymph nodes.

Using immunohistochemical techniques, the neoplastic cells were positive with antibody to cytokeratin and negative to CD68, vimentin while OGCs showed quite the contrary immunohistochemical staining results (**Figure 2**). On the basis of clinical imaging, histological features and immunohistochemical characters, a diagnosis of poor-differentiated squamous cell carcinoma of lung associated with OGCs was made. Radiotherapy and chemotherapy were accepted. The total follow-up period was six months and the repeated chest X-ray revealed no recurring during the post-surgical course.

Discussion

Recent studies have shown that OGCs is one special type of microphage driving from the mesenchymal tissue and have similar histological features with osteoclasts. But there was a time when some scholars thought OGCs were one kind of tumor cells originated from epithelium [8]. The case we presented showed that OGCs were bland and lacked atypia. Immunohistochemically, OGCs were positive to CD68 and negative to Cytokeratin. These results proved once again that OGCs derived from the mesenchymal tissue which might be simply reactive cells.

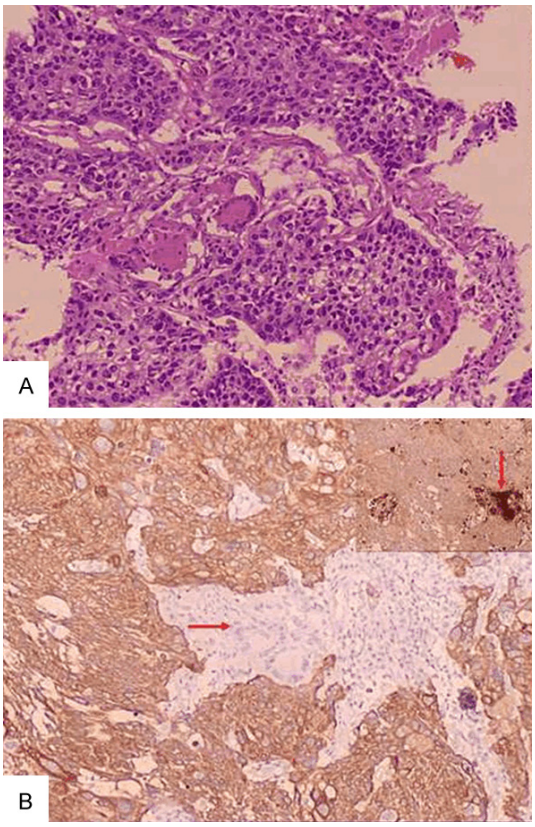

Figure 2. A. Irregular epithelial nests show infiltrative growth and there are OGCs among the epithelial nests. The nucleus of epithelial cells are atypia and mitosis could be observed while the nucleus of OGCs are bland and monomorphic. B. OGCs show negative staining for Cytokeratin and strong positive staining for CD68 (top right corner).

OGCs have been described in many malignant tumors. As far as the reason why OGCs was presented is concerned, there were two kinds of conjectures. One reason might be the active reaction generated from the body aiming at the tumor itself and the other reason might be a chemotaxis produced by tumor cells or inflammatory cells. In our case, it is very important to distinguish from giant cell carcinoma which always indicates poor prognosis as we all know. Tumor giant cells have the nuclei with hyperchromatism and pleomorphism while OGCs are just reactive component with uniform chromatin and no obvious atypia. Although OGCs might be the active reaction, the present of OGCs seemly does not signify good prognosis [2, 6].

In general, the meaning of squamous cell carcinoma with OGCs in the lung is still unclear due to the rarity. Our present case serves to pres-

ent the clinical features and histological findings of this kind of tumor; to demonstrate that OGCs are one kind of microphage driving from the mesenchymal tissue, not the type of tumor differentiation in squamous cell carcinoma of lung; to explain that giant cells carcinoma is the primary differential diagnosis. Histological features and immunohistochemical staining could be helpful.

Acknowledgements

Written informed consent was obtained from the patient for publication of this Case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

Disclosure of conflict of interest

None.

Address correspondence to: Dr. Guohua Yu, Department of Pathology, Affiliated Yantai Yuhuangding Hospital, Medical College of Qingdao University, Yantai 264000, China. E-mail: ygh0535@hotmail.com; Dr. Junxia Li, Department of Image Center, Affiliated Yantai Yuhuangding Hospital, Medical College of Qingdao University, Yantai 264000, China. E-mail: kll0535@126.com

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