Pulmonary glomus tumor observed for 6 years: A case report

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ARTICLE INFO

Keywords: Glomus tumor  Pulmonary  Lung

ABSTRACT

Glomus tumors are rarely developed in the lung. We report a case of a pulmonary glomus tumor that was observed for a long period. The patient was a 50-year-old man. Chest computed tomography showed a 6 mm nodule in the left lower lobe. The patient requested follow-up observation. The nodule gradually increased and was resected 6 years later. Pulmonary partial resection was performed thoracoscopically. The lesion was diagnosed as a glomus tumor with no malignant features. Pulmonary glomus tumors are rare and difficult to diagnose before resection. However, care is necessary as they may be malignant.

1. Background

Glomus tumors are derived from the neuromuscular vascular apparatus. The frequent sites of development are the nail bed and digits, and development in regions other than soft tissue is rare. There have been reports of cases in the stomach, colon, rectum, uterus, bone, trachea/bronchus, and lung field as examples of sites other than soft tissue. To our knowledge, this is the 32nd reported case of a glomus tumor in the primary lung field. The case was followed over a long period.

2. Case presentation

The patient in this report was a 50-year-old man. He had a smoking history of 20 cigarettes per day from 15 to 35 years of age, in addition to a history of hypertension. An abnormal lung shadow in the left upper field was noted on chest radiography during a medical checkup. A nodule was observed in the 6th area of the left lower lobe on chest computed tomography (CT), and the patient was admitted to our hospital.

As findings suggesting malignancy were absent, the patient was initially followed with CT. However, the lesion slowly increased in size; thus, we recommended surgery, but the patient declined. Positron emission tomography-CT was performed, and there was no fluorodeoxyglucose avidity; therefore, we continued observation. However, the lesion further increased in size and surgery was selected 6 years later. There were no subjective symptoms throughout the observation period, and there were no abnormal physical or blood test findings.

A nodular shadow was noted in the left upper lung field on chest radiography on admission (Fig. 1). On chest CT, an 8-mm nodule was present in the 6th area of the left lower lobe; this nodule was 6 mm on the initial CT during the medical checkup, and had increased in size by 2 mm over 6 years (Fig. 2).

Thoracoscopic surgery was performed. Partial resection of the left lower lobe, submission of the specimen for rapid pathological examination, and lobectomy if the diagnosis was a primary pulmonary malignant tumor were planned as the treatment strategy.

A 3-cm skin incision was made on the left chest as an operative window, and a 1-cm forward oblique viewing endoscope port was made on the back, employing the “thoracoscopic one-window plus puncture method”. There was no adhesion in the thoracic cavity. Slight pleural changes were noted in the nodular region. Partial resection was performed using endoscopic surgical stapler, and the specimen was submitted for intraoperative rapid pathological diagnosis. As it was difficult to make a definite diagnosis via intraoperative rapid pathology, surgery ended with partial resection.

The postoperative course was favorable, the thoracic drain was removed 1 day after surgery, and the patient was discharged 3 days after surgery.

On examination of the excised specimen, the tumor was an 8-mm grayish-white nodule with a clear boundary from the surrounding pulmonary tissue (Fig. 3). Histologically, the lesion was composed of tumor cells containing a round-to-oval nucleus and eosinophilic cytoplasm exhibiting solid growth around dilated blood vessels of varying sizes (Fig. 4a, b, c). On immunostaining, the tumor cells were positive for α-smooth muscle actin (SMA) and negative for CD34 and pancytokeratin (Fig. 4d and e). Based on these findings, the patient was diagnosed with...
Glomus tumors are tumors derived from glomus cells of the neurovascular system. These cells regulate peripheral circulation in response to temperature change and are present around blood vessels of the peripheral arteriovenous anastomotic site. This tumor type was initially described by Masson et al., in 1924 [1].

The frequent sites of the development of glomus tumors are the nail bed, digits, and palm, and development in regions other than soft tissue is rare, although cases in the stomach, colon, rectum, uterus, and bone have been reported. In the respiratory system, development in the trachea, bronchus, and lung has been reported, but this is rare. To our knowledge, our report describes the 32nd case of a glomus tumor originating in the lung [2–10]. The age of the patients in previous reports ranged from 9 to 74 years (median/average value: 45.5/45.5 years), and the incidence was higher in men (23 patients were male). Many tumors were discovered without symptoms, but some were discovered because of cough, chest pain, dyspnea, and hemoptysis. The size varies and lesions of approximately 1 cm to larger than 9 cm have been reported. Multiple tumors were noted in some cases [5,9]. Glomus tumors are benign in many cases, but 13 of the 32 reported cases in the lung have been malignant [3,4,7–10] and the probability of malignancy was higher in the lung than in other regions; this finding is important. Because glomus tumors are rarely diagnosed before surgery, surgical treatment, such as partial resection and lobectomy, is performed as a rule.

The pathological characteristics of glomus tumor are homogeneously round cells containing eosinophilic cytoplasm and an oval nucleus homogeneously proliferating around microvessels. Immunohistology reveals smooth muscle-like characteristics. Differential diagnoses using CT imaging findings include carcinoid tumor, hamartoma, sclerosing...
hemangioma, leiomyoma, and paraganglioma. Pathologically, it is necessary to distinguish between carcinoid tumor and hemangiopericytoma, and this is distinguished by positivity for α-SMA and negativity for neuroendocrine markers and CD34.

In the present case, glomus tumor was not included in the preoperative differential diagnoses, but the patient was followed for a long period of 6 years because the CT findings suggested a benign tumor, the size was small, and the patient did not want surgery. This is an informative case in which the course of a rare pulmonary glomus tumor was followed over time. When it is difficult to make a bronchoscopic diagnosis of a tumor because of its location or size, although it is difficult to include glomus tumor in the differential diagnoses before treatment, it should be considered because there is a possibility of malignancy.

4. Conclusions

This report describes a patient with a rare pulmonary glomus tumor, who was followed for a long period. Pulmonary glomus tumors are rare and are usually not included in the preoperative differential diagnoses. However, they are an important consideration because they may be malignant.

Declaration of competing interest

The authors declare no conflicts of interest.

Acknowledgements

None.

List of abbreviations

CT    computed tomography
SMA   smooth muscle action

Ethics approval and consent to participate

Not applicable.

Consent for publication

The patient provided consent for the publication of this case report.

Availability of data and materials

The data supporting the conclusions of this article are included within the article.

Funding

No grant support or funding from public institutions or private enterprises was received for this case report.

Authors’ contributions

RH described and designed the article. RH was involved in treating the patient. RM, and MI participated in editing the manuscript critically. All authors declare that they contributed to this article and that they have read and approved the final manuscript.
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