Glomus tumors most commonly occur in the peripheral soft tissues, especially distal parts of extremities. Occasionally, they occur deep in muscles, mucosa and internal organs, but rarely in the trachea. We herein report a typical case of glomus tumor arising from the trachea.

CASE REPORT

A 50-year-old female non-smoker was admitted to our hospital on account of hemoptysis for 1 day. She had suffered from cough and exertional dyspnea for 8 years and was diagnosed and treated as a case of bronchial asthma. Physical examination was essentially normal except for expiratory wheezing. Chest X-ray film showed a mass at the lower third of the trachea with luminal stenosis. Computed tomographic (CT) scan demonstrated a well-circumscribed homogenous mass at the right posterior aspect of the lower third of the trachea with extraluminal extension (Fig. 1). Bronchoscopy revealed a red polypoid mass located 9 cm below the vocal cord and 1.5 cm above the carina. The lesion occupied an irregularly shaped area, with a smooth surface and a firm consistency.

Key Words
asthma;
glomus tumor;
trachea

Glomus tu mor of the tra chea is extremely rare. There were approximately 15 reported cases before. Herein, we report an other case of glomus tumor of the trachea in a 50-year-old woman presenting with cough and dyspnea for 8 years. She suffered from hemoptysis for 1 day before this admission. Bronchoscopy and CT scan showed a polypoid tumor protruding into the tracheal lumen and with extraluminal extension. The tumor was located at 9 cm below the vocal cord and 1.5 cm above the carina. It measured 2.5 × 2.5 × 2.0 cm and arose from the posterior wall of the trachea. Microscopically, the tumor consisted of a sheet of uniform cells surrounding vascular spaces. Only few scattered tumor cells showed weak positive staining for muscle actin (HHF-35) by immunohistochemical stain. Ultrastructural study confirmed the presence of small amount of myofibrillar bundles with focal densities in some of the tumor cells. Other cells exhibited mainly rare or very sparse myofilaments. Characteristic feature of fine pinocytotic vesicles along the plasma membrane of the tumor cells was also noted.

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Fig. 1. Computed tomographic scan of chest depicts a 2.5 × 2.5 × 2.0 cm well-circumscribed homogeneous mass (arrow) at the right posterior aspect of the lower third of the trachea with extraluminal extension.
approximately 60% of the lumen. Due to easy contact bleeding, biopsy was not done. The patient underwent segmental resection of the trachea with an end-to-end anastomosis. The post-operative course was smooth, and she was alive and well 12 months after surgery.

Grossly, the surgical specimen consisted of a segment of trachea, 3.0 cm in length and 2.0 cm in diameter, with a red dish-brown tumor mass, $2.5 \times 2.5 \times 2.0$ cm in size, arising from the posterior wall of the trachea and protruding into the lumen as a polypoid mass. The tumor also extended beyond the periphery of the trachea (Fig. 2).

Microscopically, the tumor was composed of round to polygonal cells with uniform round to ovoid nuclei and slightly eosinophilic cytoplasm. They formed solid sheets with interspersion of variable-sized vessels. Cellular atypia and mitotic figures were absent (Fig. 3). Immunohistochemical stains revealed diffuse vimentin to vimentin.
positivity and focal weak muscle actin (HHF-35) positivity. S-100 protein, chromogranin, cytokeratin and factor VIII were negative. Reticulin stain revealed a pattern of in situ cells surrounded by reticulin fiber (Fig. 4). Under electron microcopy, the tumor consisted of uniform cells with uniform nuclei. They were surrounded by a layer of basal lamina. Along the plasma membrane, many pinocytotic vesicles were seen. The cytoplasm contained small amount of myofilaments and moderate amount of myofilaments.

DISCUSSION

Glomus tumor is a benign lesion that arises from the modified smooth muscle cells of the glomus body. Normal glomus body is a specialized form of arteriovenous anastomosis that controls skin circulation and thermal regulation. Glomus tumors are most commonly in dermis or subcutis. Subungual region of the finger is the most common location. Some also occur in visceral organs.1,2 How ever, the tra chea is an unusual site, and only 15 cases have been described before.2,3 The mean age of the patients was 54 years old (between the ages of 34 to 74). There were four females and eleven males. Presenting symptoms were non-specific, including dyspnea, cough, hemoptysis and stridor. Gross picture showed polypoid mass ranging from 1.2 cm to 4.5 cm in diameter. There were three cases showing extra-tracheal extension. All published cases exhibited tumor in the posterior wall of the trachea, where normal glomus bodies may be present.5 Their histologic features were similar to those of other typical cases: oval-to-round cells, with central nuclei; variable eosinophilic to clear cytoplasm; well-demarcated cell borders in close proximity to a rich vasculature; and lack of mitoses in the tumor. Glomus tumor in soft tissues can be divided into three histologic patterns: classic glomus tumor, glomangioma and glomangiomyoma. In reported tracheal glomus tumors, 71% of patients had a classic glomus tumor, 21% had a glomangioma, and 7% had an oncocytic glomus tumor.5

Immunohistochemically, glomus tumor is positive for vimentin and actin, but negative for S-100 protein, chromogranin, desmin, cytokeratins and factor VIII.5 Reticulin stain reveals the pattern of in situ cells surrounded by reticular fiber. The characteristic ultrastructural findings include thin basal lamina surrounding individual tumor cells, many pinocytotic vesicles within dense bodies in cytoplasm. All reported cases showed strong positive results for muscle marker actin and large amount of myofilaments.5-10 The present case, however, showed only few muscle actin-positive and small amount of myofilaments, a finding also rarely found in glomus tumors of other sites.11,12 The principal differential diagnosis includes carcinoid and hemangiopericytoma.5 The carcinoid tumor is composed of uniform round or polygonal cells with a variety of patterns, such as solid, trabecular and acinar. Immunohistochemically, tumor cells stain positively for cytokeratin, S-100 protein, synaptophysin, chromogranin and neuron-specific enolase and negatively for vimentin, actin and desmin. The characteristic electro micrographic findings reveal dense core bodies in cytoplasm. The hemangiopericytomas manifest histologically non-specific branching and staghorn vascular spaces surrounded by and enclosed within nests and masses of ovoid or spindle-shaped cells. Most tumor cells express vimentin and CD34 and negative actin, desmin, S-100 protein, chromogranin and cytokeratin. Electron microscopic findings are occasional arrays of myofilaments in cytoplasm, cell processes and poorly developed junctions.5,6 The curative procedures include tracheal resection,3-10,13 endoscopic excision,14 and excision by laser.15

In conclusion, we have reported a typical case of tracheal glomus tumor with only sparse muscle actin. The sparse muscle actin immunostaining may raise a problem in differential diagnosis. When in doubt, ultrastructural examination is very helpful in confirming the diagnosis.

REFERENCES


