Oncocytic Glomus Tumor
- A Case Report -

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Glomus tumors are benign neoplasms commonly seen in the extremities, and they typically occur in the nail bed of the fingers and toes. Oncocytic (eosinophilic) changes are defined as eosinophilic granular cytoplasm on hematoxylin and eosin stain and numerous intracytoplasmic mitochondria are seen on electron microscopy. These features can be found in tumors of various organs such as salivary gland, pancreas, thyroid, parathyroid, adrenal and in the trachea. Here, we describe a case of oncocyic glomus tumor, which is distinct from the other types of glomus tumor.

CASE REPORT

A 25-year-old woman presented to us with a subungual discoloration and tenderness that she had had on her finger for six years. Simple X ray revealed no bony erosion of the underlying phalanx. Light microscopically, the mass was well circumscribed but unencapsulated (Fig. 1). The size of the mass was 0.4 × 0.3 × 0.3 cm, and it was composed of organoid nests of round to polygonal cells with eosinophilic granular cytoplasm, distinct cell borders, round nuclei of fine chromatin and occasional prominent nucleoli (Fig. 2). The tumor cells stained positive for alpha-smooth muscle actin (HHF35, Dako, prediluted) and vimentin (V9, Dako, prediluted) only. Immunostainings for alpha fetoprotein (polyclonal, Dako, prediluted), melanoma antigen (HMB-45, Dako, prediluted), desmin (D33, Dako, prediluted), CD34 (QBEnd10, Dako, prediluted), S-100 protein, and pancytokeratin (AE1/AE3, Dako, prediluted) showed negative reaction. The granular eosinophilic cytoplasm strongly stained positive with periodic-acid-Schiff stain. An oncocyic variant of glomus tumor was finally diagnosed.

DISCUSSION

Glomus tumors are uncommon benign neoplasms commonly seen in the extremities, particularly in the nail bed of the fingers and toes. Under hematoxylin and eosin stain, tumor cells of glomus tumor are characterized by small polygonal cells with dark round nuclei and scanty pale staining cytoplasm, and they resemble the modified smooth muscle cells of the normal glomus appa-
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Epithelioid glomus tumors, another variant, are composed of large polygonal cells with abundant eosinophilic cytoplasm and large, irregularly shaped nuclei. The variants may be histologically mistaken for other lesions such as epithelial tumor of skin appendage including hamartoma, paraganglioma, schwannoma, leiomyoma, hemangiopericytoma, and etc. Immunohistochemistry and ultrastructural examination is very helpful for the diagnosis. For example, immunostainability for S-100 protein of sustentacular cells in paraganglioma and smooth muscle activity of tumor cells of leiomyoma helps to distinguish these tumors from an oncocytic glomus tumor. Some glomus tumors may show cytological ancient changes or symplastic features. The oncocytic variant of glomus tumor that we described here is another new variant that shows prominent oncocytic changes, and this may subsequently cause confusion with the epithelial tumors of oncocytic changes. Other differential diagnoses should include metastatic oncocytoma, paraganglioma, alveolar soft part sarcoma, and oncocytic metaplasia of skin appendage tumor. Immunohistochemistry and electron microscopy should be indicated because the unusual variants of glomus tumor also show similar features identical to those of smooth muscle differentiation seen in conventional glomus tumors: prominent cytoplasmic filaments, pinocytotic vesicles, focal densities, basal laminae and the plasmalemmal linings. Besides these features, the oncocytic variant has numerous mitochondria.

Various organs including bone, soft tissue, gastrointestinal tract, nasal cavity, veins and respiratory tract may be involved with the conventional glomus tumor including the unusual histological variants such as epithelioid, symplastic and infiltrative variants. Oncocytic glomus tumors usually take a benign, indolent clinical course. Surgical excision is curative. Here we emphasize that glomus tumor displays variable patterns including spindle, diffuse, neural, epithelioid and oncocytic variants. To our knowledge, oncocytic glomus tumor of the trachea has been reported only once in Korea.

**REFERENCES**


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**Fig. 1.** A low magnification shows a well delineated circumscribed mass.

**Fig. 2.** Cords or nests of polygonal shaped tumor cells have moderate amount of eosinophilic granular cytoplasm.