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Case Reports

Osteoclastlike giant cell tumor of the salivary gland

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Abstract Giant cell tumor of the salivary gland is extremely rare, with only 15 cases published in the English literature. The tumor characteristically contains a mixture of multinucleated giant cells, resembling osteoclasts of bone, and neoplastic mononuclear cells. In about half of the reported cases, there is an associated carcinomatous component. We are reporting an additional case of giant cell tumor of the parotid gland that was initially misinterpreted as an extraosseous osteosarcoma in the biopsy specimen. The histologic and immunohistochemical findings as well as a review of the literature with discussion of the histogenesis of this unusual neoplasm are presented.

Keywords: Giant cell tumor; Salivary gland tumor; Parotid gland tumor; Osteoclast; Osteosarcoma; Carcinoma

1. Introduction

Giant cell tumor (GCT) of the salivary gland is extremely rare. It is typically composed of a mixed population of multinucleated giant cells and mononuclear cells (MNCs). The multinucleated giant cells morphologically resemble those seen in GCTs of bone, therefore referred to as osteoclastlike or osteoclast-type giant cells (OGCs). The tumor sometimes also contains a variable amount of carcinomatous components, including carcinoma ex pleomorphic adenoma and salivary duct carcinoma. In contrast to GCT of bone, in which the nuclei of giant cells and mononuclear cells are essentially similar to each other, the nuclei of those 2 components are morphologically different in salivary gland GCT. Since the first 3 cases of GCT of the salivary gland were reported by Eusebi et al [1] in 1984, 12 additional cases have been added to the English literature [2-9]. We are reporting the 16th case of such a tumor, with a literature review and discussion of histogenesis and immunohistochemical findings.

2. Case report

The patient is a 43-year-old man who noted a mass in the left lateral aspect of his face with rapid growth and fluid drainage. The patient also complained of left facial paralysis manifested by incomplete closure of the left eye and inability to move his left facial muscle. On physical examination, a firm mobile mass was palpated in the left parotid region. Computer tomography showed a large complex tumor in the same location. An open biopsy was performed, and an extraosseous osteosarcoma was entered into the differential diagnoses by the local pathologist. Three months later, a total parotidectomy with facial nerve sacrifice and parapharyngeal space resection of the tumor was performed in Roswell Park Cancer Institute, Buffalo, NY. The patient was without recurrence of his neoplasm after 1-year follow-up.

3. Pathologic findings

3.1. Gross findings

A parotid gland with an attached ellipse of facial skin measuring 7 × 7 × 6.5 cm was received. The gland was largely replaced by a yellow-tan firm mass measuring 3.5 × 3 × 2.5 cm, with a 5 × 4.4 × 4–cm adjacent cystic and

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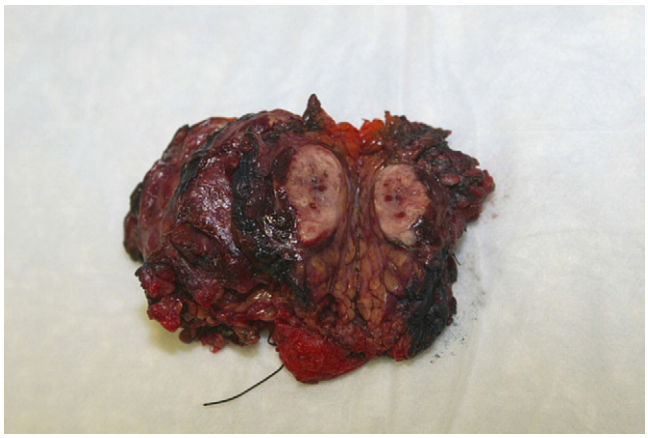

Fig. 1. The tumor is firm and well circumscribed with a pink-tan cut surface and peripheral cystic and hemorrhagic changes.

hemorrhagic area. The tumor was well circumscribed but not encapsulated. There was only a thin rim of unremarkable parotid tissue at periphery of the tumor (Fig. 1).

3.2. Microscopic findings

Review of the biopsy slides submitted from the local medical center identified numerous multinucleated OGCs distributed in a background of MNCs. The stroma was hyalinized and focally chondromyxoid.

The total parotidectomy specimen was composed of approximately 65% OGCs and MNCs, morphologically similar to that of the biopsy tissue. Thirty-five percent of the tumor also demonstrated a component of classic high-grade salivary duct carcinoma, predominately located in the cystic and hemorrhagic areas. A small amount of benign salivary tissue remained at the periphery of the parotid gland.

The giant cell portion of the tumor was characterized by OGCs evenly distributed among MNCs (Fig. 2). The OGCs, which were morphologically bland and indistinguishable from the osteoclasts of bone, had round ovoid nuclei, finely granular chromatin, and small nucleoli. The number of nuclei per cell ranged from 6 to 14. The sizes of MNCs were variable: the nuclei in some areas were uniform, oval to round, with vesicular chromatin and inconspicuous nucleoli, whereas in other areas, the nuclei were large, irregular, and bizarre, with hyperchromatic chromatin and prominent nucleoli. The mitotic rates were high in the latter areas.

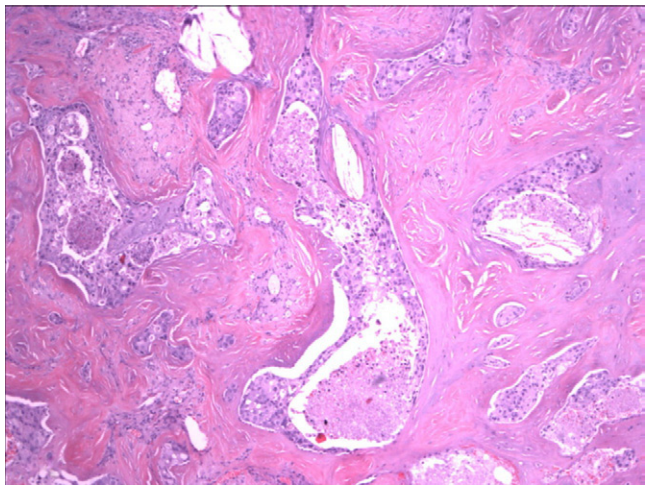

Fig. 3. Components of a typical salivary duct carcinoma infiltrating a hyalinized fibrous stroma (medium power).

The carcinomatous portion of the tumor consisted of ductal, cribriform, and cystic structures with frequent central comedo necrosis (Fig. 3). The neoplastic epithelial cells showed hyperchromatic pleomorphic nuclei and prominent nucleoli. The mitoses were numerous. Lymphatic invasion was evident. The OGCs were sparse to absent in the carcinomatous area. At the interface, the components of giant cells and carcinoma were merged together.

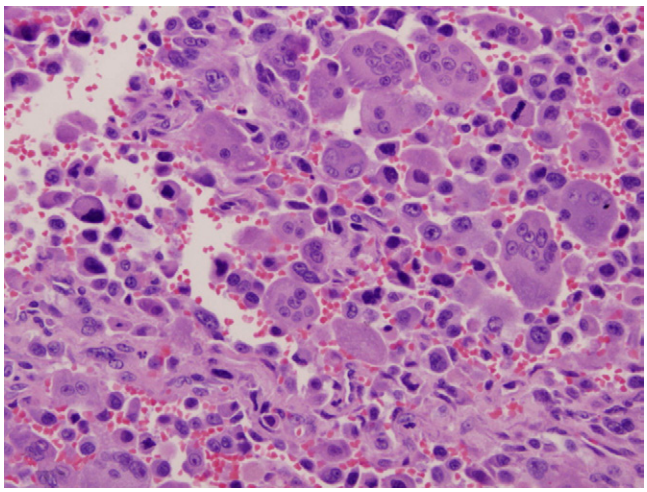

Fig. 2. Multinucleated giant cells resembling osteoclasts of bone are distributed among neoplastic MNCs (high power).

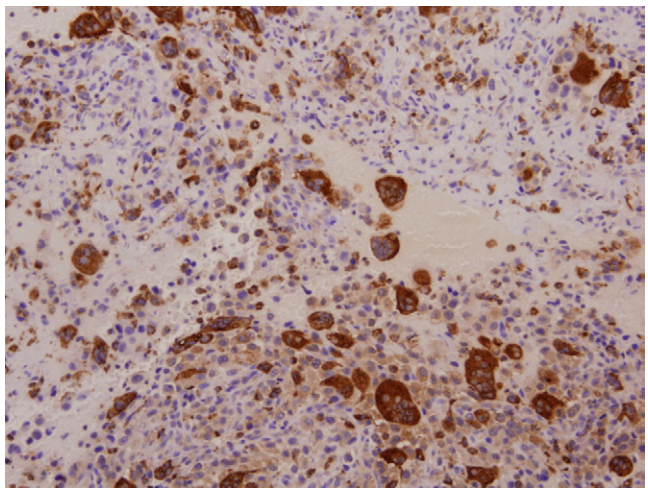

Fig. 4. Immunohistochemical staining of CD68. Both multinucleated giant cells and MNCs are positive for this marker (high power).