

Malignant Plasmacytoid Tumor of Parotid Gland

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Abstract: A case of plasmacytoid tumor that appeared in the parotid gland of a 62- year- old woman is described. Histologic and ultrastructural features were typical of this extremely rare salivary gland neoplasm. The tumor exhibited diffusely infiltrating small islands of plasma cells. These cells had invaded an abundant myxoid stroma of mesenchymal type mucin. The infiltrating behavior of the tumor coupled with malignant cytologic criteria in some sporadic areas confirmed the aggressiveness of the lesion. Ultrastructural findings supporting myoepithelial derivation of the plasmacytoid cells were evidenced by the presence of occasional well developed myofilaments with typical focal densities, ill-defined basal lamina, pinocytotic vesicles microvilli, and desmosomal attachment. Owing to the paucity of the previously reported cases, larger series with long follow-up will assist in the establishment of reliable prognosis.

Key words: Infiltrating; plasmacytoid cells; ultrastructure; myoepithelial derivation; parotid gland.

INTRODUCTION

The plasmacytoid cells (hyaline cells) have been described in pleomorphic adenoma of salivary gland origin (Cardesa, A., L. Alos, 2005; Cuadra Zelaya, F., D. Quezada Rivera, 2007). The cell resembles a plasma cell as it appears oval or polygonal with eccentric hyperchromatic nucleus. The cytoplasm shows eosinophilic homogenous glassy appearance- hence the hyaline cell. There have been few reports describing salivary gland neoplasms composed entirely of admixture of both plasmacytoid cells and spindle-shaped myoepithelial cells (Ponce Bravo, S., C. Ledesma Montes, 2007; Acikalin, M.F., O. Pasaoglu, 2005; Lopez, J.I., A. Ugalde, 2000; Kuwabara, H., H. Uda, 1998). The electron microscopy has proved very useful in revealing the myoepithelial nature of such cells as evidenced by the presence of rather classical neoplastic myoepithelial cells intermingled with the plasmacytoid ones and moreover, detection of characteristic ultrastructural features strongly suggestive of myoepithelial derivation such as cytoplasmic microfilaments with its focal densities, desmosomes, and basal lamina associated with plasma membrane.

Owing to the paucity of reported cases of plasmacytoid tumor, the biological behavior is still difficult to assess. The case reported, herein, showed unusual clinicopathologic behavior in comparison with the previously reported cases

MATERIALS AND METHODS

Case Report:

A 62-year-old woman was admitted to Alexandria Medical Center with an 8-month history of increasing right parotid mass. The tumor had grown to 5x3 cm. and the border of the lesion was ill-defined. The mass was rather tender and appeared to be attached to the underlying tissues. There was a slight weakness of facial nerve branches, and no cervical lymphadenopathy was detected. The clinical diagnosis was that of malignant salivary gland tumor and total resection was performed. The histopathologic diagnosis was infiltrating plasmacytoid tumor of salivary gland. After 6 months, recurrence was evident and the biopsy examination showed the same previous histopathologic picture. Following the second operation the patient was treated with irradiation. The patient died after 4 months from other systemic problems.

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Specimen was fixed in 10% neutral buffered formalin, embedded routinely in paraffin blocks, and sections were stained with hematoxylin-eosin, PAS, and Alcian blue. Another portions of the tumor obtained at surgery were fixed in 2.5% glutaraldehyde in cacodylate buffer for 2-3 h, postfixed in 1 % osmium tetroxide for 1 h, and embedded in Epon-Araldite mixture. For thick sections (2-3 μ m) were cut and mounted onto glass slides. After epoxy resin removal procedure, the sections were stained with Levanol fast cyanine 5RN stain (Color Index: 26360). The technical tails of the resin-removal procedure and the different modifications of the tannic acid-phosphomolybdic acid Levanol fast cyanine (TPL) staining method have been discussed by El-Bardaie and Nikai (1986). Ultra thin sections were cut, mounted on copper grids and stained with uranyl acetate and lead citrate to be examined by electron microscopy.

RESULTS AND DISCUSSIONS

Results:

By light microscopy, the specimen showed an infiltrative neoplastic growth with no definite capsule. The tumor consisted of monotonous aggregates of cells either closely or loosely arranged in trabecular manner among abundant stroma of myxoid nature which reacted positively with Alcian blue. Among this myxoid stroma, some scattered fibrous tissue bundles were seen (Fig. 1). The tumor cells showed polygonal or ovoid configuration with occasional presence of spindle-shaped ones. The cells exhibited homogeneous eosinophilic cytoplasm which sometimes showed focal cytoplasmic pallor. The nuclei were prominent, round, eccentric, and either vesicular or hyperchromatic (Fig. 2). Examination of different tissue sections revealed the presence of cellular atypia including pleomorphism, hyperchromatism, abnormal mitotic figures with the presence of few cells showing binucleation. Some cells exhibited peripherally compressed crescent nuclei giving striking resemblance to signet-ring feature (Fig. 3). For screening of actomyosin-containing tumor cells by light microscopy from epoxy blocks, TPL staining of plastic-free sections revealed specific spotty reaction of dark blue coloration in a few number of cells scattered among the unstained cells. Interestingly, those intensely stained cells showed no cellular shrinkage which was observed in the majority of the unstained tumor cells (Fig. 4).

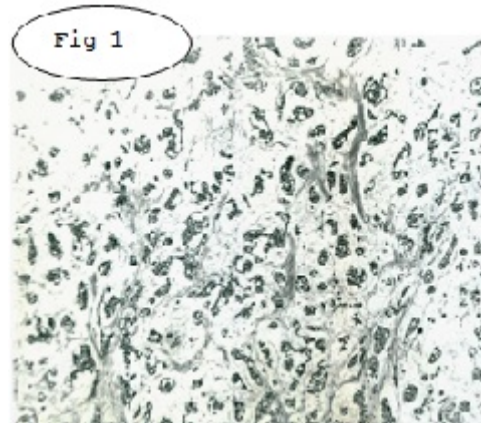


Fig. 1: Over-all photomicrograph . Aggregates of tumor cells widely scattered throughout myxoid stroma are the hallmark of plasmacytoid tumor (H.& E; X -68)

Ultrastructurally, similar findings were noted in different tissue sections. The cells were grouped in clusters and attached by desmosomes. The cell population was isomorphic with polygonal configuration and the eccentric nuclei were irregular in shape, sometimes showed obvious indentations. Some cells were encompassed partially by poorly developed basal lamina. The cytoplasm of the cells was fully packed with haphazardly arranged intermediate filaments; measured approximately 8-10 nm in diameter. The cell organelles such as rough endoplasmic reticulum, mitochondria, and Golgi apparatus were frequently observed. Two types of cells could be identified: dark cells and light cells. Most cells exhibited electron dense cytoplasm (dark cells) with highly condensed abundant filaments and few organelles located at the periphery of the cells opposite to the nuclei. In contrast, the light cells were less numerous with less abundant filaments but equipped with more cytoplasmic organelles distributed all-over the cytoplasm around the nuclei which mostly occupied central location. Careful search in different tissue sections revealed the presence of occasional cells of the dark variety containing isolated bundles of microfilaments in which its characteristic "dense bodies" were visualized. These

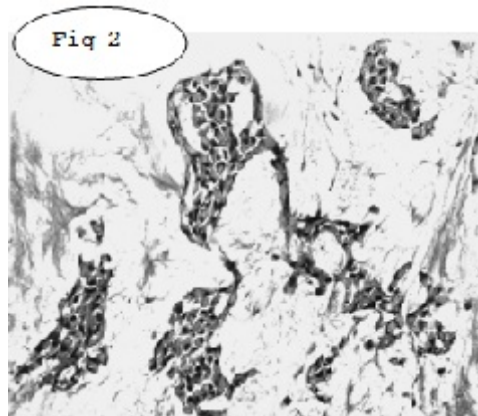


Fig. 2: Monotonous polyhedral cells with eccentric nuclei and homogenous cytoplasm (H.& E; X 280) .

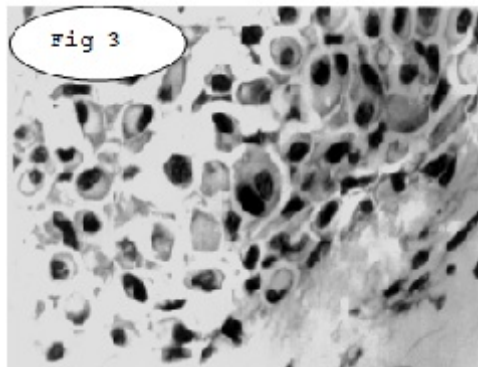


Fig. 3: High power photomicrograph demonstrating atypical features. Pleomorphism, abnormal mitosis, binucleated cells, and hyperchromatic nuclei are obvious (H.&E; X480).

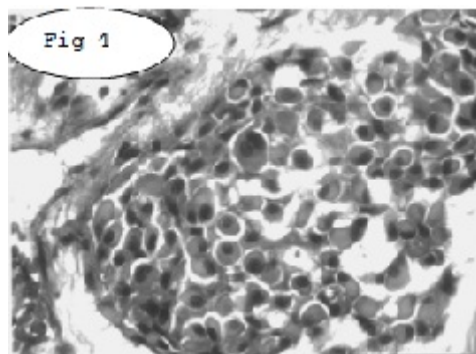


Fig. 4: The cytoplasm of a neoplastic cell shows strong spotty positive staining of actomyosin close to the cell membrane (TPL stain ; X 690).

microfilamentous structures had a tendency for peripheral location i.e close to the cell membrane (Fig. 5). The localization of the tumor cell-containing microfilaments was facilitated by previous light microscopic survey of many deresined semi-thin sections (2-3 μ m) stained by TPL.

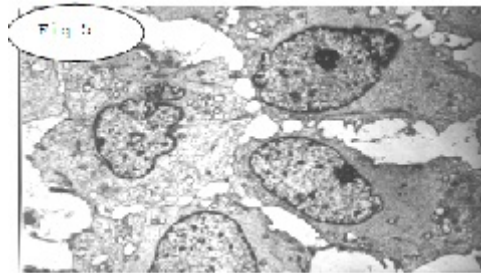


Fig. 5: Electron photomicrograph of a group of tumor cells showing microvillous projections and desmosomal attachment. Compare dark cells (right) and light cells (left). The prominent bundles of well developed microfilaments are evident. Note the number and distribution of organelles in both cell types (X 4800).

Discussions:

The microscopic feature of this extremely rare S.G. tumor is highly characteristic and distinctive i.e. cells resembling plasma cells showing no glandular pattern. Although the cells comprising this tumor do not meet the strict ultrastructural features for the complete identification of myoepithelial cells, the occasional presence of cells contain specific longitudinally oriented microfilaments with focal densities must be viewed as myoepithelial derivation.

Kahn & Schoub (1973) in 1973 reported the first case of plasmacytoid myoepithelioma in the palate of a 17-year-old female. The case showed admixture of polygonal plasmacytoid cells and the typical fusiform myoepithelial. In 1975, Stromeyer *et al.*, (1975) described a locally invasive myoepithelioma of the anterior maxillary gingival in a 14-year-old boy. Although the tumor was very cellular, most of the pleomorphic polygonal cells did not show the typical feature of either the spindle-shaped or the plasmacytoid pattern. The example reported by Crissman *et al.*, (1977) was a frankly malignant myoepithelioma of the parotid gland that eventually metastasized to the inguinal lymph node. The highly anaplastic cells were pleomorphic showing lack of any definite organization

Only two convincing examples of pure plasmacytoid myoepithelioma of the palate were described in detail: one was in a 22-year old man reported by Sciubba and Brannon (1982) and the other was in an 18-year-old black female published by Nesland *et al.*, (1981). The photomicrographs of these two cases showed remarkable similarity to the case reported here in, i.e. most of the cells were of plasmacytoid variety with the presence of some spindle-shaped cells among the plasmacytoid cell. It becomes obvious after a review of the literature, that very few cases of plasmacytoid myoepithelioma have been reported.

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