Case Report

Epithelial-myoepithelial carcinoma of the base of tongue: Pathology and management

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Abstract

Epithelial-myoepithelial carcinoma is a rare tumor which makes up about 0.2% of epithelial neoplasms of the salivary glands; parotid gland being the most common primary site of origin. The tumor may also very rarely originate in minor salivary glands of the base of the tongue. Due to rarity of its occurrence, histogenesis and clear cut therapeutic guidelines are not defined. The present report describes the case of a 48 year old male who was diagnosed to have a tubular variant of epithelial-myoepithelial carcinoma of the base of tongue, Stage T3 N0 M0 (Stage group III). The patient was treated with neoadjuvant chemotherapy followed by radical radiotherapy (Rt) and is alive with no evidence of disease 14 months following end of treatment.

Key Words: Base of tongue; carcinoma; minor salivary gland; epithelial-myoepithelial

Introduction

Epithelial-myoepithelial carcinomas are rare glandular epithelial neoplasms. They commonly originate from major salivary glands and uncommonly among minor salivary glands. They may also originate in other anatomic areas where there are glands viz breast, lung, kidney, uterus etc.[1] They commonly occur in the fifth or sixth decade of life with no predilection to either sex. As an adjunct to histologic study, immunohistochemical analyses are used to identify markers for epithelial and myoepithelial cells, namely cytokeratin, smooth muscle actin, calponin, caldesmon, smooth muscle myosin heavy chain and S-100.[2] Due to its rarity, precise histogenesis for this tumor is not defined and there are no randomized trials available to outline the treatment for the same. We describe the case of a 48 year old male with epithelial-myoepithelial carcinoma of the base of tongue (Stage T3 N0 M0, Stage group III).

Case Report

A 48-year-old male, chronic smoker, non alcoholic, was referred to the department of Radiotherapy in September 2002. He had complaints of soreness in throat, dysphagia, alteration of voice quality and right sided earache for 2-3 months. There was no history of hemoptysis, loss of appetite, weight loss, headache, fever or cough. General physical examination and review of systems were normal. He had no cervical lymphadenopathy. Orodental hygiene was poor. Oral examination revealed a firm to hard, ulceroproliferative growth, approximately 5 cm x 3 cm on the right side of the base of tongue. There was no spread to the adjacent structures.

Biopsy from the tumor showed stratified squamous epithelium. Immediate subepithelium and deeper tissues showed a cellular tumor, showing prominent glandular pattern, lined by two types of cells with luminal cuboidal and peripheral cells with clear cytoplasm. The glands were separated by dense fibromyxoid stroma. Focus of perineural invasion was also noted. Immunohistochemical analysis revealed that peripheral cells of the glands expressed smooth muscle actin; suggestive of myoepithelial differentiation. The inner cuboidal cells were positive for cytokeratin, indicating

an epithelial-myoepithelial carcinoma. A histopathologic diagnosis of tubular variant of epithelial-myoepithelial carcinoma was made. Imaging studies (plain skiagram of chest and soft tissue neck) and routine hematological investigations were within normal limits. The patient was thus diagnosed as a case of carcinoma of base of tongue Stage T3 N0 M0; Stage group III (histology: epithelial-myoepithelial carcinoma tubular variant).

The patient was referred to the department of oto-rhino-laryngology and head and neck surgery for a surgical opinion. The patient however refused any surgical intervention and he was referred back to us.

The patient was then planned for neoadjuvant chemotherapy followed by radical radiotherapy (Rt). Dental opinion was taken and carious teeth were extracted. Initially, 3 drug combination chemotherapy comprising Cisplatin, Doxorubicin and 5-Fluorourcil was started. After two such courses at three week interval, the patient was planned for Rt. He was treated on cobalt teletherapy unit (Th 780E AECL, Canada) with two parallel opposed portals. Initially a dose of 40 Gy by conventional fractionation (2 Gy/fraction, 5 fractions/week) was delivered to the primary and whole neck after which spinal cord was shielded and treatment continued till a dose of 50 Gy. Thereafter, the field was reduced to include primary and drainage area and further 16 Gy was given to make a total of 66 Gy tumor dose. The patient tolerated the course of radiotherapy well.

At the end of treatment, the patient showed complete response with disappearance of all measurable disease. He was followed up initially every month for 3 months and thereafter 3 monthly. He was completely symptom free with no evidence of any disease, at the time of writing this report; 14 months after completing Rt.

Discussion

The commonest histology among tumors of base of tongue is squamous cell carcinoma (>90%), with salivary gland tumors comprising small subsets (1–2%). Epithelial-myoepithelial carcinomas have traditionally been categorized under "malignant mixed tumors", but the term has now been separated and added to the second edition of the World Health Organization's histological classification of salivary gland tumors.[3] Other synonyms of epithelial-myoepithelial carcinoma include epithelial carcinoma, myoepithelial carcinoma and clear cell carcinoma of salivary gland origin.[4]

The peak age of incidence of epithelial-myoepithelial carcinoma is in the sixth decade of life with no predilection for either sex. More than two thirds of cases arise in the parotid gland. It can also originate elsewhere in other major or minor salivary glands or other organs such as breast.[1] It is an intermediate to high grade malignancy. Distant metastases to lung, liver, vertebrae are known but cervical lymph node involvement is relatively rare.[5]

The tumor is usually encapsulated, and may exhibit areas of necrosis and cystic degeneration. It may show one or more of spindle cells, epithelioid cells, plasmacytoid hyaline cells and clear cells. Nuclear atypia ranges from mild to marked. Solid, fascicular, trabecular and lace-like growth patterns are common. There can be various amounts of myxoid, collagenous or hyaline stroma.[6] Tumor cells show variable frequencies of immunoreactiviity for cytokeratin (90%), CK 14 (100%), actin (70-80%), calponin (100%), S-100 protein (100%), GFAP (50%), EMA (100%), CEA (0%), HMB 45 (0%).[6]

The clinicopathologic behavior and outcome of the reported cases of epithelial-myoepithelial carcinoma are variable and there are no discernible histologic features correlating unequivocally with behaviour. Di Palma and Guzzo considered epithelial-myoepithelial carcinoma to be low grade when it arose in a pleomorphic adenoma and high grade when it arose de novo.[7] The inability of histologic features to predict the behavioral outcome in these tumors could be explained by their biochemical secretory properties. These tumor cells secrete extracellular matrix, proteinases and proteinase inhibitors and also inhibit angiogenesis, and modification of these attributes could affect their biological behavior.[8]

Due to nonavailability of standard treatment guidelines, therapeutic approach to these tumors presents a dilemma. Previously reported cases have cited surgery with or without pre/postoperative Rt as the treatment for these tumors, akin to other salivary gland neoplasms.[9,10] In the case being reported, the patient refused surgical intervention and was treated with chemotherapy followed by radical radiotherapy, with a good result.

To conclude, epithelial-myoepithelial carcinoma is a rare salivary gland tumor with clinicopathologic diversity but no clear cut management guidelines. Although surgery has been used for treatment of epithelial-myoepithelial carcinoma at all sites, the present case shows that chemotherapy and radiotherapy may be a viable option for treating epithelial-myoepithelial carcinoma of the base of tongue.

References

1. Senis-Segarra L, Sahuquillo-Arce E, Davo R, Hamad-Arcis P, Floria-Garcia LM, Baquero MC. Salivary gland epithelial-myoepithelial carcinoma: Behaviour, diagnosis and treatment. Med Oral 2002;7:391-5.
2. Scarpellini F, Marucci G, Foschini MP. Myoepithelial differentiation markers in salivary gland neoplasia. Pathologica 2001;93:662-7.
3. Seifert G, Sobin LH. The World Health Organization's histological classification of salivary gland tumors. A commentary on the 2nd Ed. Cancer 1992;70:379-85.
4. Rosai J. Major and minor salivary glands. *In*: Rosai J, editor. Rosai and Ackerman's Surgical Pathology (vol 1). 9th Ed. New Delhi: Mosby 2004. p. 873-916.
5. Yu G, Ma D, Sun K. The behaviour and treatment of myopeithelial carcinoma of salivary glands. Zhonghua Kou Qiang Yi Xue Za Zhi. 1997:32:67-9.
6. Cheuk W, Chan JKC. Salivary gland tumors. *In*: Fletcher CDM, editor. Diagnostic histopathology of tumors (vol 1). 2nd Ed. London: Churchill Livingstone 2000. p. 231-311.
7. Di Palma S, Guzzo M. Malignant myoepithelioma of salivary glands: Clinicopathological features of ten cases. Virchows Arch A Pathol Anat Histopathol 1993;423:389-96.
8. Batsakis JG, El-Naggar AK. Myoepithelium in salivary and mammary neoplasms is host-friendly. Adv Anat Pathol 1999;6:218-26.
9. Savera AT, Sloman A, Huvos AG, Klimstra DS. Myoepithelial carcinoma of the salivary glands: A clinicopathologic study of 25 patients. Am J Surg Pathol 2000; 24:761-74.
10. Takahashi H, Fujita S, Tsuda N, Tezuka F, Okabe H. Intraoral minor salivary gland tumors: A demographic and histologic study of 200 cases. Tohuku J Exp Med 1990;161:111-28.