Lymphoepithelial carcinoma in the body of the tongue: The first case report

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Case Report

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Abstract

Background

Lymphoepithelial carcinoma (LEC) of the tongue is a rare subtype of squamous cell carcinoma. Histologically, it is an undifferentiated carcinoma with rich lymphocyte and plasma cell infiltration. The most common location for LEC in the head and neck is the salivary glands, and LEC of the oral cavity is extremely rare¹.

Conclusions

The first case report of LEC in the body of the tongue is presented. In addition, a review of the literature was performed, and the relationship between LEC and Epstein-Barr virus infection was considered.

1. Introduction

Lymphoepithelial carcinoma (LEC) is a squamous cell carcinoma morphologically similar to non-keratinizing nasopharyngeal carcinoma, undifferentiated subtype¹. Schminke first described LEC of the nasopharynx in 1921. Histologically, LEC consists of atypical epithelial-derived cells that have pale cytoplasm and large-round vesicular nuclei. It is characterized by lymphoid cells breaking up the tumor into tiny aggregates. Epstein-Barr virus (EBV) is associated with head and neck LEC (HNLEC).

HNLEC is a tumor diagnosed most commonly in the salivary glands, and only 17 cases in the oral cavity appear to have been reported so far. To the best of our knowledge, no case of LEC in the body of the tongue has been reported in the English literature. A case of LEC in the body of the tongue is presented, along with a review of the literature on oral LEC and a discussion of the relationship between oral LEC and EBV infection.

2. Case Report

An 82-year-old man with a previous history of alcohol and tobacco use and esophageal cancer 8 years earlier noticed a mass on the left edge of the tongue. Malignancy was suspected on examination of a biopsy specimen, and he was referred to our hospital. On clinical examination, a hard, slightly bulging mass with a smooth surface, approximately $2 \times 1 \text{ cm}^2$, was found (Fig. 1). The tumor was localized in the posterior edge of the left side of the tongue, and there was no cervical lymph node enlargement on computed tomography (CT) (Fig. 2). The nasal cavity, nasopharynx, and larynx appeared normal on endoscopy. The tumor was resected, and macroscopically, the excised tumor was a pale yellowish, solid mass, $1.7 \times 1.0 \times 1.2 \text{ cm}^3$ in size (Fig. 3). Histologically, the tumor cells showed proliferation of pale staining, cohesive epithelial cells with prominent surrounding and infiltrating lymphocytes (Fig. 4). The tumor cells contained large round vesicular nuclei with prominent nucleoli. On immunohistochemistry, the tumor cells were positive for cytokeratin AE1/AE3, p40, and p53. On in situ hybridization, the epithelial

cells were negative for EBV-encoded small RNA (EBER) (Fig. 5). The diagnosis of LEC was made. After surgery, no recurrence was observed at the 7-month follow-up visit.

3. Discussion

LEC is a subset of poorly differentiated squamous cell carcinoma with intermingled lymphocytes. LEC outside of the nasopharynx is rare, and only 17 cases of oral LEC have been reported (Table 1). Oral LEC developed commonly in the minor salivary gland, lip, and palate. This is the first report of LEC arising in the body of the tongue. The age of patients ranged from 11 to 82 years (average 55.5 years), and there was no sex predilection. All tumors were within 3 cm (range: 0.5 to 2.6 cm) in size. Six patients (37.5%) had metastases to the cervical lymph nodes. Although one patient who refused treatment died of tumor 34 months after diagnosis, the prognosis of patients with oral LEC was excellent.

Histologically, the present case showed proliferation of non-keratinized epithelial cells with massive infiltration of lymphocytes. On immunohistochemical examination, tumor cells were diffusely positive for cytokeratin AE1/AE3 and p40. These results confirm the character of the tumor cells as squamous epithelium.

Previous reports showed an association between EBV and oral LEC, especially in Asian cases. Of the 11 Asian cases, 9 were positive. In contrast, no cases in North and South America, Europe, and Africa showed an association with EBV. In the present case, the tumor cells were negative on EBER in situ hybridization.

The tumor cells of the present case showed overexpression of p53. This finding suggests that mutation of *TP53* may play a key role in carcinogenesis of this tumor. In the previous studies, p53 status was studied in only 2 cases. One case with EBV showed p53 expression in only 25% of the tumor cells, suggesting wild type³. In contrast, one EBV-negative LEC showed overexpression of p53 on immunohistochemistry⁴. Although the number of cases is limited, there may be different mechanisms of tumorigenesis in oral LEC.

Lymph node metastasis was present in 6 of 18 cases, and it was more common in EBV-positive cases. The EBV status of oral LEC may have some role in nodal metastasis.

In conclusion, the first case of LEC in the body of the tongue was presented. This EBV-negative case might have been caused by *TP53* mutation, another possible mechanism of tumorigenesis of oral LEC. To identify prognostic factors, study of additional cases is needed.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Obtained.

Competing interests

Not applicable.

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Authors' contributions

SO: Pathology fellow responsible of working up the case. Write up of the manuscript and final submission. HY: Pathology professor responsible for interpretation and final diagnosis of case. Review and editing of final manuscript. HN: Oral pathology professor, consultant during the interpretation and getting to the final diagnosis. Review of final manuscript. All authors review and approved the final article.

Availability of data and materials

Not applicable.

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Tables

Figures

Figure 1

Gross findings of the tumor (a): Intraoral aspect of the tumor. (b): Endoscopic findings of the tumor. The tumor is seen in the posterior edge of the left side of the tongue.

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Gross findings of the tumor (a): Intraoral aspect of the tumor. (b): Endoscopic findings of the tumor. The tumor is seen in the posterior edge of the left side of the tongue.

Figure 2

Radiographic findings of the tumor The tumor is localized in the left side of the tongue, and the cervical lymph node is not enlarged.

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Figure 3

Gross findings of the resected material The tumor is in the anterior vallate papilla. The surface of the tumor is smooth, and the central depression of the tumor is the biopsy scar.

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Gross findings of the resected material The tumor is in the anterior vallate papilla. The surface of the tumor is smooth, and the central depression of the tumor is the biopsy scar.

A

B

Figure 4

Histological findings of the tumor (a) The tumor invades irregularly to the muscles of the tongue (20×). (b) The tumor cells are polygonal with enlarged vesicular nucleoli and eosinophilic cytoplasm, and abundant infiltration of lymphocytes is seen (200×).

A

B

Figure 4

Histological findings of the tumor (a) The tumor invades irregularly to the muscles of the tongue (20×). (b) The tumor cells are polygonal with enlarged vesicular nucleoli and eosinophilic cytoplasm, and abundant infiltration of lymphocytes is seen (200×).

A

b

c

d

Figure 5

Immunohistochemical and in situ hybridization findings of the tumor On immunohistochemistry, the tumor cells are positive for cytokeratin AE1/AE3(a), p53(b), and p40(c) (200×). The tumor cells are negative on EBER (d) in situ hybridization.

Figure 5

Immunohistochemical and in situ hybridization findings of the tumor On immunohistochemistry, the tumor cells are positive for cytokeratin AE1/AE3(a), p53(b), and p40(c) (200×). The tumor cells are negative on EBER (d) in situ hybridization.

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