

Abstract

Background: Mucoepidermoid carcinoma (MEC) is the most common primary salivary gland malignancy. Fine needle aspiration biopsy (FNAB) is an essential diagnostic tool for MEC, but is subject to inaccuracies, particularly when diagnosing low-grade MEC. FNAB inaccuracies may lead to erroneous pre-operative diagnoses, which are then subsequently identified correctly as high- or low-grade MEC based on surgical pathology.

Objective: To recognize the potential diagnostic shortcomings of FNABs when diagnosing MEC of the base of tongue (BOT).

Methods: Case series of 2 patients at a single tertiary referral center who underwent transoral robotic hemiglossectomy for a BOT mass suspicious for squamous cell carcinoma (SCC).

Results: We identified 2 patients who were initially misdiagnosed as having SCC of the BOT based on FNAB and were subsequently diagnosed correctly as having MEC based on final surgical pathology. One patient was identified as having low-grade MEC and one had high-grade MEC.

Conclusion: MEC of the BOT may initially be misdiagnosed as SCC based on pre-operative FNAB results. Awareness of this diagnostic inaccuracy when treating these patients can aid in interpreting potentially false FNABs of BOT neoplasms.

Introduction

Mucoepidermoid carcinoma (MEC) is the most common primary salivary malignancy, with a mean patient age of 45 years at time of diagnosis (1, 2). Of the major salivary glands, parotid is the most common site. The World Health Organization (WHO) defines MEC as “a malignant glandular epithelial neoplasm characterized by mucous, intermediate and epidermoid cells, with columnar, clear cell and oncocytoid features” (3). It usually presents as a painless, variably fixed, rubbery or soft mass (4). Because of their superficial location, intraoral tumors may appear as a blue-red tinged swelling resembling a mucocele or vascular tumor (5, 6). Patients with sublingual tumors generally present earlier than parotid or submandibular tumors because this location is more likely to produce pain even with small sized tumors (7).

Fine needle aspiration biopsy (FNAB) is an essential part of the pre-operative assessment of MEC. It is a minimally invasive and reliable procedure that offers prompt clarification in distinguishing between benign and malignant diseases. Use of FNAB, however, is controversial since it is subject to diagnostic inaccuracies and is largely operator sensitive. The reported sensitivity of FNAB in detecting malignant lesions ranges widely in the literature, from 29% to 97%; specificity ranges from 84% to 100% (1-7). Hughes et al. found that the malignant cases with the highest false-negative rates were lymphoma, acinic cell carcinoma, low-grade MEC and adenoid cystic carcinoma, in that order (8). Diagnostic accuracy of FNAB is higher for high- than low-grade tumors (87% vs. 68%) because of the heterogeneous cellular population and scant cellularity in low-grade tumors (9).

Case Report 1

A 57-year old male presented with a right-sided neck node he noticed several weeks ago. Previous FNA showed SCC, and PET/CT demonstrated activity in a right level II neck node (SUV 6.1), as well as uptake at the right tongue base (SUV 5.2) with no evidence of metastatic disease. The patient had no other complaints; he is a nondrinker with a 20 pack-year smoking history. Palpation of the tongue base showed slight fullness to the right and inspection of the oral cavity showed smoking related changes.

Panendoscopy with right neck dissection revealed metastatic SCC with extensive extracapsular extension in level IIA, III, and IV nodes. He then underwent transoral robotic right posterior hemiglossectomy, and biopsy of the right tongue base revealed a T1N2b high-grade mucoepidermoid carcinoma with metastasis in multiple ipsilateral lymph nodes and negative margins. PNI and ECE were present, and LVI was indeterminate; the specimen was p16 positive. The patient received post-operative chemoradiation therapy, and follow-up biopsies and CT scans were negative for malignancy.

Case Report 2

A 53-year old man complaining of hoarseness and cough presented for evaluation of a recent right-sided neck node. Previous FNA showed mild atypical cells with squamous cells and was not definitive. Previous CT revealed a 1.2 cm right tongue base mass and an enlarged right jugulodigastric lymph node suspicious for metastasis (**Figure 1**). He is a lifetime nonsmoker and nondrinker. Physical exam showed a single 3 cm right-sided, mobile, nontender, firm neck node with no additional adenopathy. Inspection of the oral cavity, anterior rhinoscopy and flexible endoscopy were normal. Palpation of tongue base and tonsillar fossa showed to be soft. Due to the indeterminate FNA, a flexible nasal endoscopy with laryngoscopy and biopsy of tongue base were performed, which showed benign squamous mucosa and no evidence of neoplasia.

Two weeks later, the patient underwent transoral robotic right posterior hemiglossectomy with right neck dissection levels Ib through IV. Final pathology revealed a T1N1 low-grade mucoepidermoid carcinoma of the tongue base resected to negative margins (**Figure 2**). Metastasis was identified in a single ipsilateral neck node, with the largest positive node measuring 4 cm. Specimens were negative for lymphovascular invasion, perineural invasion, and extranodal extension.



Figure 1: CT neck demonstrating a right BOT mass suspicious for malignancy

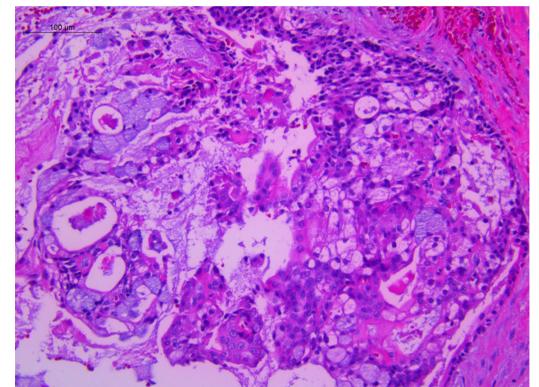


Figure 2: Surgical pathology image at 20x magnification demonstrating low-grade mucoepidermoid carcinoma

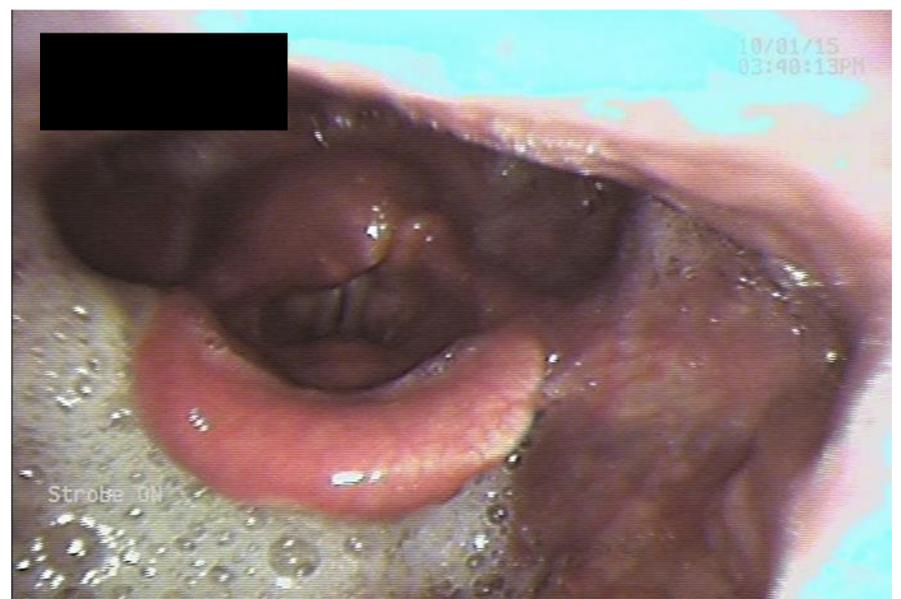


Figure 3: Image from office videostroboscopy 1 week post-op TORS resection showing bilateral mobile vocal folds and intact mucosal wave

Conclusion

An unintended consequence of surgical management of BOT neoplasms has been the identification of rare cases of mucoepidermoid carcinoma in patients who were previously thought to have SCC based on pre-operative FNAB. Cognizance of this diagnostic inaccuracy when treating these patients can aid in interpreting potentially false FNABs of BOT neoplasms. These case reports emphasize the significance of panendoscopy and its role in diagnosis of the primary lesion, and the utility of TORS in successfully managing non-squamous pathology of the BOT.

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