Mucoepidermoid Carcinoma Mimicking a Lesion of Endodontic Origin

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Abstract

Cancer of the oral cavity and pharynx ranks eighth among the top 10 cancer sites in all United States males. Salivary gland tumors (SGTs) are uncommon, and malignancies in SGT are even more uncommon than benign tumors. Intraoral minor SGTs are rare, and when they do occur, the tumor is often benign. The purpose of this report is to present a case of a malignant, intraoral minor SGT mimicking a lesion of endodontic origin. Histopathologic analysis determined the tumor to be a high-grade mucoepidermoid carcinoma. The patient was referred to oral and maxillofacial surgery where it was determined the patient would best be treated by partial maxillectomy. Recall examination at 5 years revealed no recurrent or new disease. Suspicious lesions require histopathological assessment. *(J Endod 2018;■:1–5)*

Key Words

Malignancy, minor, neoplasms, salivary glands

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Significance

All lesions with unusual or uncharacteristic signs and symptoms require exploratory surgery and biopsy for microscopic evaluation. Likewise, all tissue recovered from endodontic surgery and suspicious and/or nonhealing lesions should be submitted for histopathological assessment.

Cancer of the oral cavity and pharynx ranks eighth among the top 10 cancer sites in all United States males. In 2011, the prevalence for United States black males was slightly less, ranking ninth, whereas the incidence in United States Hispanic males did not rank among the top 10 (1). The National Cancer Institute reports that based on the most recent data available (2012–2014), 11.2 per 100,000 new cases of oral cavity and pharynx cancers were diagnosed each year, and 1.1% of men and women were diagnosed in their lifetime. Between 2007 and 2013, the 5-year survival rate was 64.5%, and in 2014, an estimated 346,902 people were living with this cancer in the United States (2).

Salivary glands are included as a Surveillance, Epidemiology and End Results site of the oral cavity and pharynx major grouping of cancer (3). Salivary gland tumors (SGTs) are uncommon, and malignancies in SGTs are even more uncommon than benign tumors (4–9). The parotid glands account for the majority of SGTs (58%–75%) followed by minor salivary glands (MSGs) (15%–27%), submandibular glands (10%–14%), and sublingual glands (<1%). Although sublingual tumors occur infrequently, when present, they are usually malignant (5).

The most common benign SGT is pleomorphic adenoma (4, 5, 8), accounting for 84.1% of all benign SGTs, followed by Warthin tumors (11.7%) and monomorphic adenomas (4.1%) (4, 5). In a literature review, 27.4% of SGTs were malignant. At 45.3%, the most commonly reported SGT cancer was mucoepidermoid carcinomas (MECs) followed by adenoid cystic carcinomas (36.8%) and adenocarcinomas (17.9%) (4). A study using the World Health Organization histologic classification system identified 380 cases (0.04%) of intraoral minor SGTs out of 92,860 biopsy samples submitted for review between 1986 and 2005. Of these tumors, 41% were malignant. The most common intraoral minor SGT malignancies were MECs (21.8%), which is in agreement with a previously reported range of 9%–23% (6). Another study found a malignancy rate of 44% in intraoral minor SGTs (10).

A recent review of 9723 endodontic surgery biopsy reports submitted between the years 1992 and 2006 found that 73% of the lesions were apical granulomas and cysts. Other tissue samples were identified as keratocystic odontogenic tumors (8.8%), central giant cell lesions (1.3%), ameloblastomas (1.2%), and metastatic lesions (0.3%). The remaining cases were a variety of benign and malignant tumors, including MECs (11). Similarly, a retrospective review of 1521 biopsy request forms submitted with a preoperative diagnosis of periapical inflammation, periapical abscess, periapical granuloma, or periapical cyst was completed. Despite the clinical diagnosis, investigators found that 3.42% of the cases examined were not lesions of endodontic origin. Keratocystic odontogenic tumor was the lesion most frequently found not to be the sequelae of pulpal necrosis. Although there were malignant tumors, none were MECs (12).

Although cancer of the oral cavity and pharynx occurs frequently in the United States, all SGTs are uncommon. Intraoral minor SGTs are rare, and when they do occur, the tumor is often benign (6). The purpose of this report is to present a rare case of a malignant, intraoral minor SGT mimicking a lesion of endodontic origin. Histopathologic analysis determined the tumor to be MEC.

Case Report

In February 2009, a 65-year-old white man was referred by his general dentist to the endodontics office with a chief complaint of "occasional numbness" and a past dental history of "sinus tract" in the anterior maxilla for at least 3 weeks. The patient stated that a root canal treatment was completed sometime in the 1980s.

His past medical history included diet-controlled, non–insulin-dependent diabetes but was otherwise noncontributory. The patient reported no known allergies. Medications included self-prescribed 81 mg aspirin daily. Extraoral examination findings were noncontributory. Intraoral examination revealed a small (1.5 cm), fluctuant, vestibular swelling in the labial alveolar mucosa adjacent to the apex of tooth #7 (Fig. 1). The swelling appeared similar to a parulis. Further examination of tooth #7 concluded the periapical area of tooth #7 was sensitive to palpation and not sensitive to percussion with normal periodontal probings. The tooth was previously restored with a crown. Pulp vitality tests were not completed on tooth #7. Teeth #6 and #8 were responsive/nonlingering to cold and were not sensitive to percussion or palpation. Radiographs revealed tooth #7 was endodontically treated. Dental material within the root canal had a radiodensity consistent with a post. Also visible in the periapical radiographs were areas of high radiodensity consistent with a crown (#5), and composite restorations (mesial #6, distal #8). There was a widened periodontal ligament space and a small area of low radiodensity at the apex of tooth #7 (Fig. 2). The pulpal and periapical diagnosis for #7 was previously treated with symptomatic apical periodontitis. The pulpal and periapical diagnoses for #6 and #8 were normal pulp with normal apical tissues.

The indications, risks, benefits, and need for endodontic microsurgery including root-end resection, root-end filling, and submission of diseased tissue for histopathological analysis were explained to the patient. The patient was given time to ask questions and was appointed to return for treatment in 2 weeks. Upon return, the patient consented to the procedure and was anesthetized with local anesthesia; a full-thickness intrasulcular incision was made with a vertical releasing incision distal to tooth #6. The lesion was entirely within the soft tissue and did not appear to invade the bone. The lesion did not appear to be of endodontic origin. To prevent possible seeding of the lesion, perforation of the cortical plate for root-end surgery was avoided until a definitive diagnosis could be made. Because malignancy was suspected, an incisional technique including representative areas of the lesion with healthy margins was chosen, and a 2.3 × 0.6 × 0.4 cm tissue sample was submitted for histopathologic evaluation. The flap was repositioned with eight 4-0 gut sutures. The patient tolerated the procedure well and was released with routine postoperative instructions. A 2-week follow-up examination revealed healing was normal.

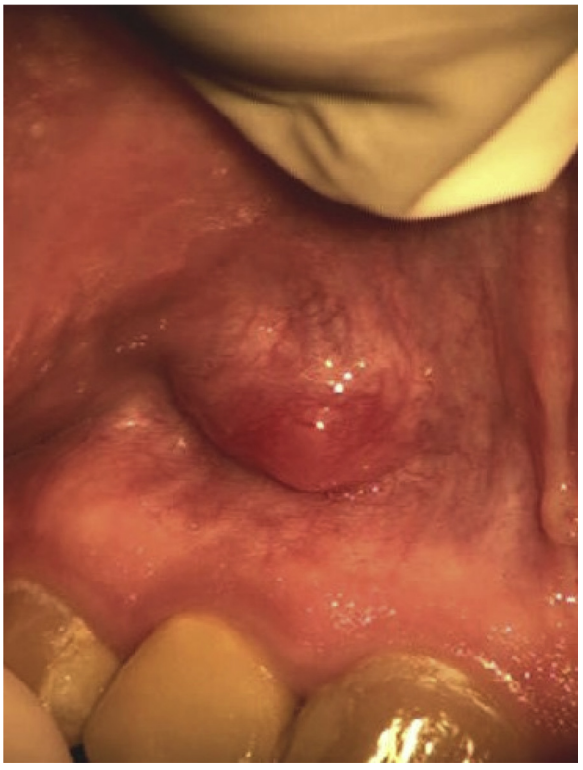

Figure 1. Small, fluctuant, vestibular swelling in the alveolar mucosa adjacent to the apex of tooth #7.

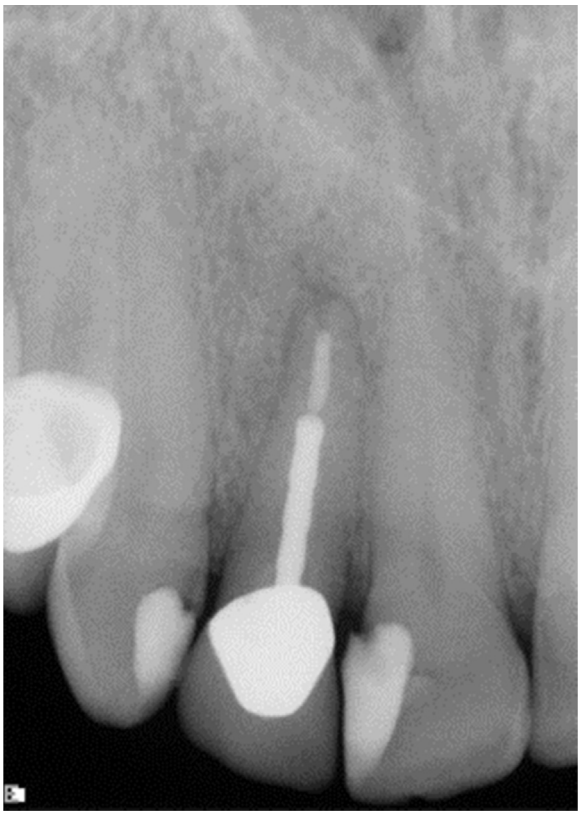

Figure 2. Radiographic presentation of tooth #7 upon evaluation and before biopsy.

The hematoxylin-eosin–stained sections showed tumor composed of a mixture of different cell types. This tumor formed solid islands consisting of epidermoid cells, intermediate cells, and less prominent mucous-producing cells. Cyst formation by tumor cells was not observed. The epidermoid and intermediate cells showed high cellular atypia and mitotic activity (Fig. 3). Mucicarmine stain highlighted the mucous-producing cells (Fig. 4). The histopathologic findings were consistent with high-grade mucoepidermoid carcinoma. The patient was referred to the Oral and Maxillofacial Surgery Department at the University of Maryland, Baltimore, MD, for the continuation of treatment.

After evaluation of the patient, it was determined by a tumor board that the patient would best be treated by a right partial maxillectomy with a split-thickness skin graft for tissue coverage and insertion of an obturator. The indications, risks, benefits, and need for surgery were explained to the patient. Questions were answered, and he consented to