

## Chapter 9

# Tumors of the Submandibular and Sublingual Glands

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### Introduction

This chapter will discuss the diagnosis and management of epithelial derived tumors of the submandibular and sublingual glands. These tumors are much less common than tumors of the parotid gland and a long series of cases from which to apply evidence-based medicine treatment protocols is lacking, particularly with regard to the sublingual gland neoplasms. Current approaches are highlighted, although the diversity of histologic types, paucity of cases, and lack of long-term follow-up results in many of these cases being treated empirically based on oncologic principles derived from other tumors and sites in the head and neck region.

### Epidemiology and Etiology

The etiology of tumors of the submandibular and sublingual glands is the same as discussed in relation to salivary gland tumors of the parotid gland (see chapter 8). At a molecular level in a study that examined PCNA, Ki-67, and p53 in pleomorphic adenomas (PAs), mucoepidermoid carcino-

mas (MECs), and adenoid cystic carcinomas (ACCs), PCNA, Ki-67, and p53 expression for PA and ACC in the submandibular gland was similar to that reported for tumors of the parotid gland and minor salivary glands. However, there was a higher expression of these markers in MEC of the submandibular gland (Alves, Pires, and DeAlameda et al. 2004). This may indicate that MEC of the submandibular gland is potentially more aggressive.

Approximately 10–15% of all salivary gland tumors will occur in the submandibular gland, and only 0.5–1% in the sublingual gland, so these tumors are very rare. In the submandibular gland approximately 50% of these tumors are benign. Series vary in their percentages, from 657 of 1,235 tumors (53%) benign (Auclair, Ellis, and Gnepp et al. 1991), 55% benign (Oudidi, El-Alami, and Boulaich et al. 2006), which included nonepidermoid cancers, to 39.2% benign (Rapidis et al. 2004). Pleomorphic adenoma is the commonest benign tumor in the submandibular gland, while ACC predominates for malignant tumors. In examining malignant tumors, Bhattacharyya (2004) analyzed 370 cases from the Surveillance, Epidemiology, and End Results (SEER) database, finding ACC 42.2% and MEC 22.2%, while the Rapidis et al. (2004) literature review of 356 cases showed ACC 45.3%, adenocarcinoma 14.3%, MEC 12.9%, and carcinoma ex-pleomorphic adenoma 11.2%, and Auclair, Ellis, and Gnepp et al. (1991) found ACC 24% and MEC 19% of 578 cases.

Although sublingual gland tumors are extremely rare they are important to recognize, as they have an extremely high rate of malignancy. In a review of approximately 4,000 patients with salivary tumors collected over a 55-year period, only 18 (0.5%) had sublingual gland tumors, all of which were malignant (Spiro 1995). There are very few other large series of sublingual gland