

the parotid gland approximately nine times more frequently than in the submandibular gland, with a partiality toward males (Ellis and Auclair 1996; Gaughan, Olsen, and Lewis 1992; Spitz and Batsakis 1984; Stermann et al. 1990). Patients generally present with an asymptomatic mass in the parotid region. However, with progression symptoms may comprise pain and/or facial nerve palsy (Shemen, Huvos, and Spiro 1987). Identification of these lesions requires segregating this primary carcinoma from metastatic disease originating from other head and neck or oral occurrences (Ellis and Auclair 1996). The diagnosis of primary disease probably cannot be made in minor salivary glands because of the size of the glands and proximity to mucosa that is vulnerable to develop squamous or epidermoid carcinoma (Ellis and Auclair 1996). Existing literature suggests that preceding exposure to ionizing radiation increases the risk for developing primary salivary squamous carcinoma; however, the sample size used in these studies was meager (Schneider et al. 1977; Shemen, Huvos, and Spiro 1987; Spitz and Batsakis 1984). The frequency of this primary salivary squamous carcinoma has ranged from 0.9% to 4.7% (Ellis and Auclair 1996). AFIP series have indicated that over a 10-year interval primary squamous cell carcinoma encompassed 2.7% of all tumors, 5.4% of malignant tumors, and 2.5% of parotid neoplasms and 2.8% of submandibular tumors, with an average age of 64 years (Ellis and Auclair 1996). Primary salivary gland squamous carcinoma is graded similar to extrasalivary squamous or epidermoid carcinomas, utilizing degree (low, intermediate, and high) of differentiation (Speight and Barrett 2002). The prognosis for these primary salivary gland cancers is dire, with an 18% 10-year survival rate (Shemen, Huvos, and Spiro 1987).

Epithelial-Myoepithelial Carcinoma

Epithelial-myoepithelial carcinoma, also designated by some as adenomyoepithelioma, clear cell adenoma, tubular solid adenoma, monomorphic clear cell tumor, glycogen-rich adenoma, glycogen-rich adenocarcinoma, clear cell carcinoma, and salivary duct carcinoma, is an uncommon, low-grade epithelial neoplasm composed of variable proportions of ductal and large, clear-staining, differentiated myoepithelial cells. These neoplasms embrace ~1% of all epithelial salivary gland tumors (Batsakis, el-Naggar, and Luna 1992; Ellis and

Auclair 1996). Epithelial-myoepithelial carcinomas are principally limited to the parotid glands. The lesions commonly present as localized painless swellings, although larger lesions may be associated with pain or compromise of the facial muscle tone (Collina et al. 1991; Daley et al. 1984). The best current data indicates that the mean age of patients with these lesions is ~60 years, with a gender bias of 60% toward females (Ellis and Auclair 1996). Although these tumors have a propensity to metastasize to parotid and cervical lymph nodes, and may on rare occasion give rise to distant metastasis and death, these tumors are generally regarded as low-grade carcinomas with a high frequency of recurrence (Batsakis, el-Naggar, and Luna 1992; Collina et al. 1991; Noel and Brozna 1992; Simpson et al. 1991).

Anaplastic Small Cell Carcinoma

Anaplastic small cell carcinoma is regarded by many as a neuroendocrine carcinoma (Gnepp and Wick 1990; Perez-Ordóñez et al. 1998). These tumors often appear with the cells arranged as sheets, strands, and nests. The cells possess oval, hyperchromatic nuclei and limited cytoplasm and generally have a high mitotic index.

Undifferentiated Carcinomas

Undifferentiated carcinomas of salivary glands is a group of rare, malignant epithelial neoplasms that lack the specific light-microscopic morphologic features of other types of salivary gland carcinomas. These carcinomas are histologically similar to undifferentiated carcinomas that arise in other organs and tissues. Accordingly, metastatic carcinoma is a principal matter in the differential diagnosis of these tumors (Ellis and Auclair 1996).

Small Cell Undifferentiated Carcinoma

Small cell undifferentiated carcinomas have also been termed "extrapulmonary oat cell carcinomas." These primary malignant tumors are comprised of undifferentiated cells that do not exhibit neuroendocrine differentiation. As such these lesions have been regarded as the undifferentiated equivalent of the anaplastic small cell carcinoma. Small cell carcinoma has represented ~1.8% of all major salivary gland malignancies in the AFIP series. The tumors have a mean patient age of 56 years, with half of the cases presenting as an