Benign Parotid Tumors

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KEYWORDS

• Benign parotid tumors • Parotid neoplasms • Pleomorphic adenoma
• Parotidectomy • Warthin tumor

KEY POINTS

- Most parotid tumors are benign, with pleomorphic adenoma and Warthin tumors accounting for up to 94% of all tumors.
- Evaluation of a parotid mass should be done to rule out malignancy and should include a fine-needle aspiration biopsy and imaging studies as indicated.
- Accurate preoperative diagnosis is critical for surgical planning and appropriate management in adequate tumor removal and preventing complications.
- Despite the myriad of histologies, surgical excision via parotidectomy is the most common treatment.
- Local recurrences are often related to subtotal tumor excision.

EPIDEMIOLOGY

Primary parotid tumors are rare and account for approximately 1% to 3% of all head and neck tumors.[1] Fortunately, most (75%–85%) are benign.[1–3] The annual age-adjusted incidence of benign parotid tumors in the United States is approximately 3.8 per 100,000 per year,[2] with roughly 1300 to 1600 diagnosed cases each year.[4] Worldwide, incidence varies by geography, with reports of 5.3 to 6.2 per 100,000 in the United Kingdom[2] and 1.35 per 100,000 in Poland. Japan and Malay report an incidence of 1.3 and 1.1 for all benign salivary neoplasms.[5] Unlike their malignant counterparts, no national registries exist for benign diseases, making true incidence difficult to ascertain.

No disclosures.
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Otolaryngol Clin N Am 49 (2016) 327–342
http://dx.doi.org/10.1016/j.otc.2015.10.005 **oto.theclinics.com**
0030-6665/16/$ – see front matter

Salivary tumor classification schemes include benign versus malignant, major (parotid, submandibular, sublingual) and minor salivary glands, and by individual histopathology.[4] The 2005 World Health Organization's classification contains 24 malignant salivary histopathologies and 11 benign, excluding hematolymphoid and secondary tumors.[4] Of parotid tumors, the most common benign and malignant tumors are pleomorphic adenoma (PA) and mucoepidermoid carcinoma, respectively.[1] This article is limited to benign parotid neoplasms and does not address malignancies or tumors that primarily occur in the submandibular, sublingual, or minor salivary glands. Many clinicians use the 80/20 rule for salivary gland neoplasms: 80% benign, 80% occur in the parotid, and 80% are PA. However, variations in certain proportions and relative incidences exist. A Ugandan study reported only 29% of benign tumors occur in the parotid gland, with 53.8% of parotid tumors being malignant. Zero cases of Warthin tumors (WTs) were found, a paucity also described in other African studies. Underreporting may be an issue in resource-poor areas, as adequate therapy may not be sought for non–life-threatening diseases.[6] These issues highlight the variations in incidence reporting for benign parotid tumors.

By age, incidence of benign parotid tumors steadily increases starting at 15 to 25 years of age, with a peak in 65 to 74 years of age.[7] There is a female sex preference overall (1.46:1.0) for benign parotid tumors and a racial difference favoring Caucasian patients over African American.[2,7] Males (ratio 2.31:1) are more affected in WTs (presumably because of historically higher rates of smoking) and parotid malignancies (ratio 3.47:1) overall. PA and WTs combine to make up 83% to 93% of benign parotid tumors.[2] More detailed epidemiologic variables will be forthcoming for individual histopathologies (**Table 1**).

EMBRYOLOGY AND HISTOGENESIS

Understanding parotid embryology is important as several theories propose an etiopathogenesis based on salivary cell types and tumor cell origin. All salivary glands derive from ingrowths of oral epithelium, with parotid anlage starting to appear at 4 to 6 weeks of development.[8] Lymphoid tissue develops before the encapsulation of the parotid

Table 1
Benign salivary tumors and masses

Epithelial Tumors	Soft Tissue Masses
PA	Hemangioma
Myoepithelioma	Vascular malformations
Basal cell adenoma	Benign lymphoepithelial cysts
WT	Lipoma
Oncocytoma	Lymph node
Canalicular adenoma	Cystic hygroma
Sebaceous adenoma/lymphadenoma	Congenital anomalies
Inverted ductal papilloma	—
Intraductal papilloma	—
Sialadenoma papilliferum	—
Cystadenoma	—

Data from Thompson L. World Health Organization classification of tumours: pathology and genetics of head and neck tumours. Ear Nose Throat J 2006;85(2):74.