

Clinical Paper
Head and Neck Oncology

Salivary gland neoplasms in oral and maxillofacial regions: a 23-year retrospective study of 6982 cases in an eastern Chinese population[☆]

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Abstract. There is little information in the English-language literature about the epidemiology of salivary gland neoplasms in the eastern Chinese population. A large retrospective study (6982 primary salivary tumors during 23 years) was carried out to investigate the clinicopathological features (tumor location, patient sex and age) of these tumors in this population. 3593 tumors were in males and 3389 in females. Pleomorphic adenoma (69%) was the most common tumor and 20% were located in minor glands. 92% of Warthin's tumors occurred in males. Malignant tumors were predominantly adenoid cystic carcinoma (30%) and mucoepidermoid carcinoma (30%). Incidences of lymphoepithelial carcinomas (5%) and polymorphous low-grade adenocarcinoma (1%) of malignant tumors were identified. 28% of tumors originated from minor glands. Most findings were similar to those in the literature, with some variations. The salivary tumors slightly predominated in males. Relatively higher incidences of minor gland tumors and specifically of pleomorphic adenoma in minor glands were noted. Adenoid cystic carcinoma and mucoepidermoid carcinoma constituted the most common malignancies. There was a high incidence of lymphoepithelial carcinomas but a low incidence of polymorphous low-grade adenocarcinoma. The historical significant male predominance of Warthin's tumor was confirmed.

Keywords: salivary gland tumor; Chinese; retrospective study; epidemiology.

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Salivary gland tissues are distributed widely in the upper aerodigestive tract. The major salivary glands are the parotid, submandibular and sublingual glands. Minor salivary glands are present in many sites, such as the lips, gingiva, cheek,

palate, tongue, oropharynx, paranasal sinuses and parapharyngeal space. Neoplasms originating from salivary glands

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comprise about 3–6% of all head and neck tumors, with an estimated global incidence of 0.4–13.5 per 100,000 persons annually^{5,17}. In China, salivary gland tumors account for only about 2% of human tumors²², and malignant salivary gland tumors represent about 5%^{14,15} of all malignant tumors in the head and neck region, with an incidence of 1.0 per 100,000 persons per year. Salivary gland neoplasms are relatively rare in China, but the three major paired salivary glands and hundreds of minor salivary glands located within the submucosa can give rise to a wide range of neoplasms, forming one of the most heterogeneous groups of histopathology.

The site, patient age and sex distributions of different salivary gland neoplasms vary with race, histological type and geographic location¹¹. There are discrepancies in the incidence of salivary gland tumors between different geographic areas and ethnic groups⁷. A survey of different ethnic groups in Malaysia showed a higher frequency of salivary gland tumors in Malays than in Chinese and Indians¹⁶. Many studies of the distribution of tumor site, patient age and sex have dealt with tumors presenting within the parotid gland or major or minor glands¹². To the authors' knowledge, there are few reports in the English literature on salivary gland tumors in the eastern Chinese population. The aim of this study was to analyze the relative frequency, location, patient sex and age of a variety of histological tumors of the oral and maxillofacial region in the eastern Chinese population over 23 years.

Patients and Methods

This study included patients with primary epithelial salivary gland neoplasms who, during the 23-year period between 1985 and 2007, underwent operations in the Department of Oral and Maxillofacial Surgery, Ninth People's Hospital, Shanghai Jiao Tong University, School of Medicine in the east of China.

Hematoxylin-eosin stained slides (and immunostained sections if necessary) of all cases were reviewed and reclassified by three pathologists based on the World Health Organization (WHO) Pathology and Genetics of Head and Neck Tumors (2005) criteria⁴. The data were analyzed for their distribution of patient's sex and age and anatomical location of presentation.

Results

Histological Types

6982 patients underwent operations for salivary gland tumors during the specified

Table 1. Location and histological type of 4743 benign salivary gland tumors.

	Major glands (<i>n</i>)						Minor glands (<i>n</i>)					Total (<i>n</i>) (%)
	Parotid	Sub-mandibular	Sub-lingual	Floor of mouth	Palatal	Lips	Buccal	Larynx	Lingual	Gingival	Retro-molar	
Pleomorphic adenoma	2126 957	479 4	4	2	508	73	66	12	4	5	2	3281 (69.18)
Warthin's tumor												961 (20.26)
Basal cell adenoma	248	2			5							255 (5.38)
Myoepithelioma	119	3			47	2	1		2			174 (3.67)
Cystadenoma	17	1			1	1	4	1	2	1		28 (0.59)
Oncocytoma	22	1										23 (0.48)
Ductal papillomas	1				5		1		3			10 (0.21)
Gebaceous lymphadenoma	4											4 (0.08)
Canalicular adenoma	2								1			3 (0.06)
Sebaceous adenoma	2											2 (0.04)
Nonsebaceous lymphadenoma	2											2 (0.04)
Total (n) (%)	3500 (73.79)	490 (10.33)	4 (0.08)	2 (0.04)	566 (11.93)	76 (1.60)	72 (1.52)	13 (0.27)	12 (0.25)	6 (0.13)	2 (0.04)	4743

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