

Retrospective Study of Salivary Gland Tumor Cases in a Large Italian Public Hospital and Review of the Literature

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Abstract

A variety of tumors can develop in the salivary glands. The aim of this retrospective study was to describe the demographic characteristics of salivary gland tumors (SGT) in the population of a large area of the city of Rome, ASL RM1, over a 4-year period and compare these data with other epidemiological studies. Forty-nine cases were diagnosed as SGT; 63.2% were males and 32.6% were females. The mean age range was 62.13 years. Forty SGT (81.6%) were benign and 9 (18.4%) were malignant. Among benign tumors, Warthin's tumor was the most common tumor, comprising 55.1% all SGTs followed by Pleomorphic Adenoma and other less common types. Among malignant tumors, Non-Hodgkin lymphoma was the most frequent type. The results of this study suggest that benign tumors are most common in parotid gland and are mainly represented by Warthin's Tumor. Males are the most affected, especially for benign lesions. Regarding malignant tumors, the incidence by gender is variable, as the incidence of several types worldwide. The findings of this study contribute to the knowledge regarding the incidence of SGT. *Clin Ter 2021; 172 (2):168-171. doi: 10.7417/CT.2021.2306*

Key words: salivary gland tumors, Warthin's Tumor, Pleomorphic adenoma, parotid

Introduction

A variety of tumors can develop in the salivary glands; they include 10 subtypes of benign and 20 subtypes of malignant Salivary Gland Tumors (SGT) (1). These tumors are relatively uncommon, comprising 3-6% of all head and neck neoplasms in various reports (1-4). SGT have inconsistent characteristics in different countries; evidence suggests that geographic location and ethnic factors may significantly affect their clinicopathologic profile (5-7). Diagnosis is performed through clinical examination, radiological evaluation with Ultrasound, Magnetic Resonance Imaging and, in selected cases, Fine Needle Aspiration Biopsy (8, 9).

The aim of this retrospective study was to describe the demographic characteristics of SGT cases in the population

of a large area of the city of Rome, ASL RM1, over a 4-year period and compare these data with other epidemiological studies.

Materials e methods

The study evaluated the demographic characteristics of SGT cases in a large area of the city of Rome. ASL RM 1 population is of 1.052.946 persons (nearly 37% of total population of Rome). The samples included this study were selected from histopathological reports of the Anatomical Pathological Service of the San Filippo Neri hospital of Rome, Italy, the main hospital of the ASL RM1 area.

They underwent cytological examination with ultrasound-guided needle-aspiration of salivary glands. Successive staining procedure, such as haematoxylin and eosin, was performed on all tissue specimens embedded in paraffin and microscopic examination was carried out.

All cases of SGT diagnosed between December 2016 and December 2019 were selected.

Clinical data were collected from surgical piece reports from pathological services. The patient information included age and gender. Lesion-related data included histological types and anatomic sites.

SGT were classified according to the World Health Organization 2005 classification (WHO 2005).

Statistical analysis was performed using Excel Office 2013 statistics software to analyze associations between the variables of interest (age, gender, histological diagnoses).

A review of the literature with no restriction on publication year was performed to retrieve studies about SGT. The inclusion criteria were retrospective and case series studies without restriction on SGT site or histological type. An electronic search was performed in PubMed and Scopus databases on January 2020 using the following combinations of keywords: "Salivary Gland Neoplasms" OR "Cancer of the Salivary Gland" OR "Salivary Gland Cancer" OR "Salivary gland diseases" OR "Salivary gland tumours" OR "Salivary gland tumors" AND "Retrospective study."

The selection of the studies was performed in two phases. In the first, titles and abstracts that met the eligibility criteria were selected. If sufficient information for a decision on inclusion/exclusion was available, the full text was obtained and assessed in the second phase. Those that met the eligibility criteria were also included.

Results

Forty-nine cases were diagnosed as SGT in our area: 31 (63.2 %) were males and 16 patients (32.6%) were females (M/F 1,9/1). The mean age range was 62.13 years.

Forty SGT (81.6%) were benign and 9 (18.4%) were malignant.

Among benign tumors, Warthin's tumor was the most common tumor (n=27) comprising 55.1% all SGTs followed by Pleomorphic Adenoma (n=11), Basal cell adenoma (n=1), Lipoma (n=1), Hodgkin lymphoma (n=1), Non Hodgkin lymphoma (n=3), Adenocarcinoma (n=1), Mixed Carcinoma (n=1), Squamous cell carcinoma (n=1), Oncocytoma (n=1), Acin cell carcinoma (n=1). These neoplasms involved the parotid and submandibular glands more frequently. Male patients were more affected (67.5%) compared to females (32.5%).

Among malignant tumors, Non-Hodgkin lymphoma was the most frequent type (n=3). Males were slightly more affected (55.6%) than females.

Details are shown in Table 1.

Discussion

In the current study, patients with malignant tumors have similar mean age compared to patients with benign tumors (mean 60.21 and 60 years, respectively). Our data were similar to other studies in Brazil (2, 10-12). Studies from Africa reported lower mean ages (< 40 years), suggesting that factors such as low life expectancy and lack of prevention measures may contribute to this index (13, 14).

Overall, SGT were more common in males than in females; however, the distribution of malignant tumors was similar between women and men. Our results are in disagreement with other studies that instead show a slight female preponderance for SGT, with an average of 55.4% in females (2, 5, 15, 16). In contrast, some studies have reported a predominance of SGT in men (17). Two large studies from China have shown that benign tumors are more common in women, while malignant tumors are more common in men (18, 19).

In the present study, benign tumors were more common than malignant ones, with a prevalence in our case series of 83% and 27%, respectively. This finding is similar to the rates reported by studies from China (6, 19), India (20), Mexico (21) and Brazil (2, 10, 12). The global incidence was 61.9% for benign tumors and 22.4% for malignant tumors. In general, there appear to be geographical variables and the proportions of benign/malignant tumors can be variable (3, 15).

Table 1. Comparative incidence, gender, and mean age distributions according to the histological subtypes of 40 benign and 9 malignant salivary gland tumors.

	Total	Male	Female	Age (mean)	Age (range)
Benign					
Warthin Tumour	27	20	7	65.5	43-88
Pleomorphic Adenoma	11	6	5	46	26-66
Basal Cell Adenoma	1	0	1	64	
Lipoma	1	1	0	58	
Malignant					
Hodgkin lymphoma	1	1	0	53	
Non Hodgkin lymphoma	3	3	0	76.5	59-94
Adenocarcinoma	1	0	1	67	
Mixed carcinoma	1	0	1	48	
Squamous cell carcinoma	1	1	0	67	
Oncocytoma	1	0	1	83	
Acin cell carcinoma	1	0	1	27	

In our study, the majority of SGT occurred in major salivary glands (80%), especially in the parotid gland; this is consistent with data found in the literature (73.2%). Several large series, especially in Asian countries, have shown similar distribution, with more frequency in the parotid, followed by the minor and submandibular gland (5, 20, 22). Other studies showed a higher distribution in submandibular glands compared to minor salivary glands (10, 16).

In the present study, Warthin's Tumor was the most common (59.8%) of all salivary gland tumors. The frequency of Warthin's Tumor among all SGT in the literature ranges from 32.6 to 78.6% (3, 23-28). The average in our literature review was 48.2%. The second most common benign tumor was Pleomorphic Adenoma (20.4%). This data is not consistent with previously published reports, in which the incidence was different (5% and 4.1%) (25-29). However, its frequency varies between studies, ranging from 0.5% to 18% of all tumors. The average in our literature review was 11.2% (1-5, 7, 12, 15, 21, 23, 24, 26, 27, 30).

Among malignant tumors, Non-Hodgkin Lymphoma was the most frequent (30%), followed by other types. Hodgkin Lymphoma, Adenocarcinoma, Mixed Carcinoma, Squamous Cell Carcinoma, Oncocytoma, Acin Cell Carcinoma presented at the same frequencies. However, in our literature review, they presented at frequencies of 8.7%, 8.3%, and 2.3%, respectively, while adenocarcinoma was most frequent malignant tumor (16, 20, 28).

Studying SGT is difficult because they are a large and diverse group of lesions characterized by morphological heterogeneity. Moreover, studies on the relative frequencies of SGT from different parts of the world are difficult to compare because many are based on outdated classification, the number of cases is often small, and the origin of the study differ (medical or dental centers); in addition, the morphological criteria for various histopathological diagnoses vary by pathologist, due in part to their individual training and experience (2, 24, 26).

Conclusions

The results of this study suggest that benign tumors are most common in parotid gland and are mainly represented by Warthin's Tumor. Males are the most affected, especially for benign lesions. Regarding malignant tumors, the incidence by gender is variable, as the incidence of several types worldwide. The findings of this study contribute to the knowledge regarding the incidence of SGT.

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