

A Review of 60 Salivary Gland Tumours in the Head and Neck Region: A Tertiary Institution Study

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ABSTRACT

Introduction: The salivary gland consist of three major paired gland (parotid, submandibular and sublingual) and numerous minor salivary gland. Neoplasm of the salivary gland are divided into benign and malignant. Benign neoplasm of the salivary gland are more common. Both sexes are involved with a female preponderance. Parotid gland is the most common gland involved. Current research aimed to study the different types of salivary gland neoplasm regarding age, sex and clinicopathological distribution.

Material and methods: Data for this study was obtained from retrospective case notes of all patients with salivary gland tumour operated at the department of otolaryngology and head and neck surgery, Assam medical college from June 2012 to June 2015.

Results: There were 60 patients included in the study. 25 were males (41.66%) and 35 were females (58.33%). Most common neoplasm was benign (88.33%). Most common benign and malignant tumour were pleomorphic adenoma (76.66%) and acinic cell carcinoma (5%) respectively. Parotid was most commonly involved gland followed by submandibular gland.

Conclusion: Parotid gland is the most common gland involved in salivary gland tumour. The most common presentation of salivary gland tumour is painless swelling around the salivary gland. The mainstay of diagnosis is histopathological examination. Pleomorphic adenoma and Acinic cell carcinoma were the most common benign and malignant lesion respectively in this series.

Key words: Parotid, Pleomorphic, Neoplasm, Salivary Gland Tumour (SGTs).

INTRODUCTION

The salivary glands consist of three major paired glands (the parotid, submandibular and sublingual) as well as numerous minor salivary glands, situated mostly in the oral cavity.¹ Salivary gland tumours represent an uncommon heterogeneous group of neoplasms with complex clinicopathological characteristics. The prevalence of these tumours varies between studies, but has been estimated to be 3-6% of all head and neck tumours.² The World Health Organisation (WHO) proposed the first histological classification of salivary gland tumours in 1972. Due to advances in the understanding of the aetiology and behaviour of these tumours as well as their wide morphological diversity, the WHO published the third and last edition of this classification in 2005.² About 65-80% of SGTs arise within the parotid, 10% in the submandibular gland and the remainder in sublingual and minor salivary glands.¹ The glands most commonly affected are the parotid and submandibular glands respectively, usually by benign

tumours.² Unlike parotid and submandibular salivary gland tumours, the majority of tumours arising from the minor salivary glands are malignant.³ As with the majority of benign tumors, benign salivary gland tumors largely appear to be symptomless. However, the most common symptom of major salivary gland cancer is also a painless lump in the affected gland.⁴ In view of the fact that these tumors are treated on the basis of their histological and local findings, correct histological diagnosis is obligatory.⁵ Many factors have been implicated in the development of SGTs, among which is low dose radiation and ultraviolet radiation. Other factors implicated include: occupational exposure to wood and wood dust, alcohol and hair dyes in women and Epstein-Barr virus.⁶ In this retrospective study, hospital records of patients with salivary gland tumors were documented over a three year period, covering aspects of clinical presentation, age distribution and histopathological diagnosis of the tumors after surgical resection.

MATERIAL AND METHODS

Data for this study was obtained from retrospective survey of case notes and histopathology results of all patients with salivary gland tumors who attended the Department of Otolaryngology and Head and Neck Surgery, Assam medical college and hospital, Dibrugarh, between June 2012 to June 2015. Patients with SGTs were selected for recording of age distribution, clinical history and diagnosis. The WHO classification (2005) was the basis for histopathological diagnosis of SGTs. Patients with primary salivary gland tumours who underwent surgical treatment were included. The exclusion criteria were as follows: patients who did not undergo surgical treatment; patients with inconclusive pathology results; patients who underwent surgical treatment with resection of the salivary gland due to extension of a primary skin cancer into the salivary gland, and patients who underwent resection of the salivary gland as part of an *en bloc* resection for oral or oropharyngeal carcinoma (Commando

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procedure). Cases were excluded if the histopathological diagnosis, gender, age and/or site of the tumour were missing. Squamous cell carcinomas and non-epithelial tumours arising in minor salivary glands were excluded because of the uncertainty of the origin of those tumours. The independent t test was used for the comparison of variables. A p-value of 0.05 or less was considered significant.

RESULTS

Out of 60 patients who had SGTs 25 were males and 35

Tumour type	Number (n = 60)	Percentage of total
Benign		
Pleomorphic adenoma	46	76.66
Haemangioma	03	5
Benign lymphoepithelial lesion	01	1.66
Oncocytoma	01	1.66
Cystadenoma	01	1.66
Lipoma	01	1.66
Malignant		
Acinic cell carcinoma	03	5
Squamous cell carcinoma	01	1.66
Non hodgkin's lymphoma	01	1.66
Lymphoma large cell type	01	1.66
Metastatic Squamous cell carcinoma	01	1.66

Table-1: Prevalence of various sgt seen in this study

Site	Benign		Malignant	
	No.	Percentage	No.	Percentage
Parotid	34	91.89	03	8.10
Submandibular	14	77.77	04	22.22
Buccal mucosa	05	100	00	00
Total (n = 60)	53		07	

Table-2: Anatomical site distribution of salivary gland tumor

were females, male to female ratio was 1:1.4. The age range was 12 to 60 years (mean 35.4 years). Benign tumour (n = 53, 88.33%) were more common than malignant (n = 7, 11.66%). The most common benign SGT was pleomorphic adenoma with a relative prevalence of 76.66% and most common malignant SGT was acinic cell carcinoma with relative prevalence of 5%. The relative prevalence of various SGTs seen in this study is shown in [Table 1]. The major salivary glands (parotid and submandibular) accounted for 55 SGTs (91.66%) while the rest 5 (8.33%) occurred in minor salivary glands. There was no tumor recorded in the sublingual salivary gland. Site distribution of 60 SGTs is shown in [Table 2]. All patients with benign SGTs presented with complain of swelling (100%) while the malignant cases presented with swelling (100%) and 2 cases presented with deviation of mouth to one side. Details of clinical features of SGTs seen in this study are shown in [Table 3]. The age range of patients with benign SGTs was from 12 to 60 years while for patients with malignant tumors, the age range was 18 to 55 years. From the descriptive [Table 4], people with benign tumors had an average age of 35.26 years. On the other hand, people with malignant tumors had an average

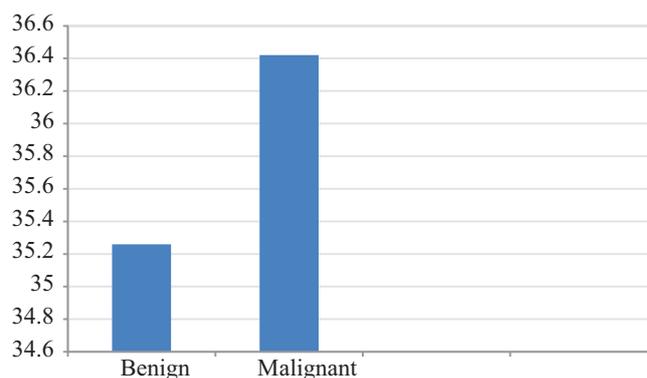


Figure-1:

SGT	Male	Female	Mean age(yrs)	Major gland	Minor Gland
Benign					
Pleomorphic adenoma	17	29	35.80	41	05
Haemangioma	03	00	38.66	03	00
Benign lymphoepithelial lesion	00	01	15	01	00
Oncocytoma	01	00	30	01	00
Cystadenoma	00	01	31	01	00
Lipoma	00	01	30	01	00
Malignant					
Acinic cell carcinoma	02	01	30.66	03	00
Squamous cell carcinoma	00	01	50	01	00
Non hodgkin's lymphoma	01	00	20	01	00
Lymphoma large cell type	01	00	50	01	00
Metastatic Squamous cell carcinoma	00	01	38	01	00

Table-3: Clinical details of SGTS

SGT	Numbers	Mean age(yrs)	SD	SE
Benign	53	35.26	13.06	1.94
Malignant	07	36.42	14.95	5.65

SD-Standard deviation; SE- Standard error

Table-4: Description of ages of benign and malignant cases

Age(yrs)	Tumour type			
	Benign		Malignant	
	Male	Female	Male	Female
0-10	0	0	0	0
11-20	04	06	02	00
21-30	03	06	00	01
31-40	10	09	00	01
41-50	02	05	01	01
51-60	02	06	01	00

Table-5: Age group distribution of SGTS

t	Df	p value	Mean difference	SE difference
0.21817	58	0.8281	1.16	4.71
SE= Standard of error				

Table-6: t-test of ages of benign and malignant cases

age of 36.42 years. Distribution of SGTs on basis of age groups is shown in [Table5].

From the independent sample t-test [Table 6] above, since $p = 0.8281 > 0.05$, it was, therefore, found that there was no significant difference in the mean ages between patients with benign and malignant tumors. The mean age of presentation of benign tumours was found to be 35.26 yrs and that of malignant tumour was found to be 36.42 yrs.

This is further depicted by the following bar chart [Figure 1]

DISCUSSION

Salivary gland tumors probably are the most complex human neoplasia, accounting for 2-10% of head and neck or maxillofacial tumors.¹ Between 2012 and 2015, 60 SGTs were recorded. In this study, the incidence was more common in females with male to female ratio of 1:1.4 which was similar to other studies. Equal ratio of male to female was found by Luksic et al³ and Mahmoud et al⁹ and slight male preponderance by Kucuk et al.⁷

In this study, the age range of patients with SGTs was 12 to 60 yrs with mean age of 35.4 yrs. Majority of the salivary gland tumors presents during the 3rd to 4th decade¹⁰, similar to the findings in our study. The mean age of presentation for benign and malignant tumour was found to be 35.26 yrs and 36.42 yrs respectively in our study with no significant difference between the two groups ($p > 0.05$).

Majority of the salivary gland neoplasms present as asymptomatic, slowly growing masses. All patients with SGTs presented with complain of swelling (100%) and 2 cases presented with facial deviation to one side in our study. Majority of the major salivary gland neoplasms arise in the parotid gland. In the present study, also the majority of the tumours are arising in the parotid gland (61.66%), which correlates well with the above mentioned studies.

The percentage of the submandibular salivary gland tumors is next to that of the parotid. As seen in the table in the present study also the submandibular gland is the second common site of the major salivary gland neoplasms (30%). Luksic et al³ found minor salivary gland to be the second common site. No involvement of sublingual salivary gland was seen in our study probably due to sample size. Similar results were

found in study done by Benjamin et al¹, Juan et al² and Flavia et al.¹¹

Benign tumour are more common than malignant tumours of the SGTs and similar results were found in above study. Benjamin et al¹ and Lawal et al⁶ found malignant to be more common. Pleomorphic adenoma is the commonest benign tumour in SGTs. In the present study also, pleomorphic adenoma accounted for a majority of the benign neoplasms (76.66%). Warthin's tumour is the second commonest benign tumour occurring in the parotid gland. But no case of Warthin's tumour was reported in the above study.

Mucoepidermoid carcinoma is the commonest malignant tumour among SGTs. In our study we found Acinic cell carcinoma to be the most common malignant tumour of the salivary gland similar to Wei Han Lee et al.⁴ Adenoid cystic carcinoma was found to be the most common malignant tumour in some studies.^{1,6,7,8,9,11,12}

CONCLUSION

Parotid gland is the most common gland involved in salivary gland tumour. The most common presentation of salivary gland tumour is painless swelling around the salivary gland. No difference in age distribution for benign and malignant tumour was found in this series ($p > 0.05$). Malignancy should always be suspected if patient presents late, with deviation of face to one side at presentation or sudden increase in size of swelling. The mainstay of diagnosis is histopathological examination. Pleomorphic adenoma and Acinic cell carcinoma were the most common benign and malignant lesion respectively in this series.

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