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Salivary Gland Histomorphological Spectrum Analysis at Tertiary Care Center

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Abstract

Introduction: Histologically, salivary gland tumors represent the most heterogeneous group of tumors of any tissue in the body. **Aims:** To study various salivary gland lesions, differentiate benign from malignant and compare with findings of other previous published studies. **Materials and Methods:** The material required for the study was collected from January 2010 to December 2012 from tertiary care center for 3 years. **Results:** Among the all salivary gland lesions, pleomorphic adenoma is commonest, and comprises of 30% of all lesions. Of the non neoplastic lesions, sialadenitis is commonest and of malignant neoplastic lesions mucoepidermoid carcinoma is more frequent. **Conclusions:** Salivary gland lesions histomorphological examination is the most important method in establishing the final diagnosis as well as in predicting prognosis, typing, staging and grading of all salivary neoplasms.

Keywords: Salivary gland lesions, Pleomorphic adenoma, Histopathological.

INTRODUCTION

Salivary glands are the site of origin of many non neoplastic and neoplastic lesions. Salivary gland tumors are a morphologically and clinically diverse group of neoplasms, which may present significant diagnostic and management challenges.

Histologically, salivary gland tumors represent the most heterogeneous group of tumors of any tissue in the body [1]. Although almost 40 histologic types of epithelial tumors of the salivary glands exist, some are exceedingly rare and may be the subject of only a few case reports [2].

MATERIALS AND METHODS

The material required for the study was collected from January 2010 to December 2012 from tertiary care center for 3 years.

A total of 60 specimens of salivary gland lesions were analyzed, this study includes non neoplastic and neoplastic lesions of the salivary glands. In the study patient's history and clinical details were noted from the original request forms, specimens were fixed in formalin and the sections were taken from the lesion, its margins, surrounding tissues and lymph nodes if any. These sections were stained with hematoxylin and eosin, and in selected cases special stains like PAS was done after mounting on a slide.

The tumors were classified according to world Health Organization's histologic typing of salivary gland tumors.

RESULTS

During the period from January 2010 to December 2012, a total of 12587 specimens were received for histopathological examinations, of which 60 specimens were of salivary gland lesions, representing 0.47%.

Of the total 60 cases, 21 were diagnosed as non neoplastic lesions and 39 as neoplastic lesions of which 24 were benign and 15 were malignant as shown in table 1.

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Table 1: Incidence of neoplastic & non neoplastic lesions

Total cases	Non neoplastic	Neoplastic benign	Neoplastic malignant
60	21	24	15
100%	25	40	15

In our study, among the all salivary gland lesions, pleomorphic adenoma is commonest, and comprises of 30% of all lesions. Of the non neoplastic lesions, sialadenitis is commonest and of malignant neoplastic lesions mucoepidermoid carcinoma is more frequent as shown in table 2.

Table 2: Incidence of all Salivary gland lesions and their percentage

Lesions	No.	Percentage
Sialadenitis	10	16.66
Mucocele	7	11.67
Lymphoepithelial cyst	1	1.67
Hydatid cyst	1	1.67
Parotid fistula	1	1.67
Necrotising Sialometaplasia	1	1.67
Pleomorphic adenoma	18	30
Warthin's tumour	4	6.66
Myoepithelioma	1	1.67
Lymphangioma	1	1.67
Mucoepidermoid carcinoma	5	8.33
Adenoid cystic carcinoma	3	5
Acinic cell carcinoma	1	1.67
Malignant mixed tumor	2	3.33
Squamous cell carcinoma	2	3.33
Malignant lymphoma	1	1.67
Sarcoma	1	1.67
Total	60	100

Table 3: Age wise distribution of salivary gland lesions

Lesions	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79
Sialadenitis	0	0	2	3	4	1	0	0
Mucocele	0	3	3	1	0	0	0	0
Lymphoepithelial cyst	0	0	1	0	0	0	0	0
Necrotising Sialometaplasia	0	0	0	0	1	0	0	0
Hydatid cyst	1	0	0	0	0	0	0	0
Parotid fistula	0	0	0	0	1	0	0	0
Non neoplastic lesions	1	3	6	4	6	1	0	0
Pleomorphic adenoma	0	3	4	6	3	2	0	0
Warthin's tumour	0	0	0	1	2	1	0	0
Myoepithelioma	0	0	0	0	0	1	0	0
Lymphangioma	1	0	0	0	0	0	0	0
Benign neoplastic lesions	1	3	4	7	5	4	0	0
Mucoepidermoid carcinoma	0	1	0	0	1	2	1	0
Adenoid cystic carcinoma	0	0	0	0	2	1	0	0
Acinic cell carcinoma	0	0	0	0	0	1	0	0
Malignant mixed tumor	0	0	0	0	1	0	0	1
Squamous cell carcinoma	0	0	0	0	1	0	0	1
Malignant lymphoma	0	0	0	0	0	0	1	0
Sarcoma	0	0	1	0	0	0	0	0
Malignant neoplastic lesions	0	1	1	0	5	4	2	2
Total	2	7	11	11	16	9	2	2

From age wise distribution, it is noted that non neoplastic lesions were commonest in 3rd decade of life, benign tumors were common in 4th decade and malignant tumors were common from 5th decade onwards.

Table 4: Site wise distribution of cases

Sr. No.	Site	Total	Non neo plastic	Neoplastic				% of all lesions
				Benign	Malignant	Total	% of all tumors	
1	Parotid gland	37	6	20	11	31	79.5	61.6
2	Submandibular gland	13	9	3	1	4	10.25	21.6
3	Minor salivary gland	10	6	1	3	4	10.25	16.6
4	Total	60	21	24	15	39	100.00	100.0

From above result, it is evident that common sites of all lesions are parotid (61.67%), submandibular (21.66%) and minor salivary glands (16.67%) in order of frequency. Of all salivary gland tumors parotid gland is commonest (79.5%) whereas non neoplastic lesions are more common in submandibular and minor salivary glands.

DISCUSSION

The results obtained were compared with those of previous studies of well known workers in this field and the significant differences and similarities in results are discussed below.

Among Non neoplastic lesions, chronic sialadenitis is the commonest, among benign tumors, pleomorphic adenoma was common and mucoepidermoid was the commonest in malignant conditions as comparable to G C Fernanes *et al* [3].

Table 5: Frequency of benign and malignant tumors

Series	Total	Benign	Malignant
Ito et al[4]	335	67.5	32.5
Edda et al[5]	125	53.4	46.6
Ahmed et al[6]	100	86	14
Nagarkar et al[7]	36	75	25
Present study	39	62	38

Benign tumors are more common over the malignant tumors as observed in present as well previous studies. In terms of relative proportions, present study correlates with the Ito *et al* [4] study.

Table 6: Age distribution in different series

Series	Benign	Malignant
Thomas et al[8]	39	47
Ahmed et al[6]	35.7	42.4
Edda et al[5]	38	44
Rewusuwan et al[9]	72	49
Agarwal et al[10]	35	42
Present study	37.25	48.2

Benign tumors are seen at lower age than malignant tumors. Present study correlates with most of the Indian studies.

Table 7: Sex distribution in different series

Series	M:F
Das DK et al[11]	1.28:1
Erik G et al[12]	1.18:1
Ahmed et al[6]	1.17:1
Edda et al[5]	1:1.3
Present study	1.04:1

In our study, male to female ratio in all salivary gland tumor is 1.04:1 suggesting slight male preponderance. These findings are consistent with other studies.

Table 8: Sex distribution in benign and malignant tumors in various studies

Series	Benign (M:F)	Malignant (M:F)
Ahmed *et al* [6]	1.1:1	1.1:1
Edda *et al* [5]	1:1.4	1:1.1
Mohd Ayub [13]	1.9:1	1:3.3
Present study	1:1	1.1:1

In benign conditions there is equql sex distribution while male were slightly more affected in malignant conditions. Our study is comparable with other studies.

In pleomorphic adenoma M:F ratio is 1:1.57, similar to the findings of Masanja *et al* (2003) [14] and in Warhins tumor all the cases were noted in males.

In mucoepidermoid carcinoma, M:F ratio is 1:1.5, comparable to findings of Ethunandan M *et al* [15], and in adenoid cystic carcinoma M:F ratio is 1:2, similar to Ethunandan M *et al* [15].

Table 9: Site distribution of tumors in different series

Series	Parotid gland	Submandibular gland	Minor salivary glands
Rewusuwan *et al* [9]	79%	18%	2%
Edda *et al* [5]	34.0%	33.2%	32.8%
Ahmed *et al* [6]	70%	18%	12%
Tanaka *et al* [16]	75%	25%	-
Buddhraj *et al* [17]	82.8%	13.8%	3.4%
Our study	79.5%	10.25%	10.25%

Among the salivary gland tumors, parotid gland was the most commonly involved in 79.5% of cases, consistent with the study of Rewusuwan *et al* [9].

CONCLUSION

Histopathological examination of salivary gland lesions is the most important method in differential diagnosis of nonneoplastic and neoplastic lesions and in establishing the final diagnosis as well as in predicting prognosis, typing, staging and grading of all salivary neoplasms. Our study shows the site age sex and morphological distribution of salivary gland lesions which is helpful as a future reference and research.

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