



HISTOPATHOLOGICAL ANALYSIS OF SALIVARY GLAND LESIONS: A RETROSPECTIVE STUDY AT TERTIARY CARE HOSPITAL OF MIDDLE GUJARAT

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ABSTRACT

Background: Salivary glands are the site of origin of a variety of neoplasm, relatively uncommon and morphologically diverse group of lesions of head and neck region accounting for <1% of all tumours.

Due to its heterogenous histopathology, especially the malignant lesions with poor differentiation, there is a diagnostic challenge to pathologist. **Objectives:** To understand different histopathological types, common sites of occurrence, age and sex wise distribution of these tumours that were encountered in our institute. **Material and Methods:** This is a retrospective study of Salivary gland lesions (SGLs) diagnosed at Histopathology section, Department of Pathology, GMERS Medical College & hospital, Gotri, Vadodara from January 2017 to January 2023. The demographic details of the patients, tumour site, frequency and histopathological diagnosis were retrieved from the records. **Results:** Out of total 58 cases, 24 (41.38%) diagnosed as non-neoplastic lesions and 34 (58.62%) as neoplastic. Within neoplastic group 28 (48.28%) cases were benign and 6 (10.34%) cases were malignant. Most tumours occurred in the parotid gland 27 (46.55%). Mucocele was the commonest nonneoplastic condition with 22 (37.93%) cases, pleomorphic adenoma (PA) was the most common benign tumour with 18 (31.03%) cases and mucoepidermoid carcinoma was the most common malignant tumour with 3 (5.17%) cases. **Conclusions:** Histopathological study of salivary gland lesions is the gold standard method in establishing the final diagnosis because of their varied histomorphological features.

KEYWORDS : Salivary Gland Lesions (SGLs), Salivary gland tumours (SGTs), Pleomorphic adenoma

INTRODUCTION:

Salivary gland lesions are uncommon, especially neoplasms, which constitute less than 1% of all tumours and about 3-5 percent of all epithelial neoplasms encountered in the head and neck region.^[1] Benign neoplasms are more common with only 20% are malignant.^[2] Benign tumours are commonly seen in 30-40 years of age group and malignant tumours between 40 to 50 years.^[3] About 65% to 80% arise within the parotid, 10% in the submandibular gland and the remainder in the minor salivary glands including the sublingual gland.^[4]

In the present study, we have included the histopathological types of salivary gland lesions that were encountered in our institute for a period of 5 year and 1 month. (61 months)

MATERIALS AND METHODS:

It was a retrospective (January 2017 to January 2023) conducted at Department of Pathology at GMERS Medical College, Gotri, Vadodara. Total numbers of 58 cases with salivary gland lesions were included in the study. All the biopsy specimens were fixed in 10% formalin, then processed into paraffin embedded sections of 5 microns thickness and stained with haematoxylin and eosin (H & E) and special stains like Periodic Acid Schiff. Relevant clinical data, gross findings and histopathologic diagnoses were retrieved from histopathology request forms received at the department. Data were collected, stored and analysed in Microsoft Excel for common histological types, site of occurrence and age and gender wise distribution.

RESULTS

A total of 58 specimens of salivary gland lesions were received during the study period. Out of these 58 cases, 24 (41.38%) were diagnosed as non-neoplastic lesions and 34(58.62%) as neoplastic lesions of which 28 (48.28%) were benign and 6 (10.34%) were malignant. **[Table 1]**

Table 1. - Distribution Of Salivary Gland Lesions

Lesions	Number	Percentage
Non neoplastic	24	41.38
Neoplastic	34	58.62

	Benign	28	48.28
	Malignant	6	10.34
Total		58	100

The number of cases were slightly higher in males with 39 cases (63.93%) compared to females with 22 cases (36.07%). The male to female ratio was 1.77:1. **[Table 2]**

Table 2. - Gender Wise Distribution Of All Salivary Gland Lesions

Gender	Number	Percentage
Male	37	63.79
Female	21	36.21
Total	58	100.00

Age ranged from 9 years to 83 years. The most common incidence of tumours was among the age groups of 21-30 and 31-40 years with 14 cases detected in both groups, followed by the age group 11-20 with 11 cases. The salivary gland lesions were rare below the age of 10 and only 2 cases were detected. **[Table 3]**

Table 3. Age Wise Distribution Of All Salivary Gland Lesions

No	Tumours	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	Total
1	Mucocele	2	9	8	3						22
2	Chronic sialadenitis						1				1
3	Lymphoepithelial cyst			1							1
4	Pleomorphic Adenoma			3	7	4	2	2			18
5	Warthin Tumour					2	1	1			4
6	Basal Cell Adenoma		1	1		1		1			4
7	Myoepithelioma				1						1
8	Oncocytoma				1						1
9	Mucoepidermoid Carcinoma				1	1	1				3
10	Adenoid Cystic Carcinoma									1	1

11	Salivary duct carcinoma					1					1
12	Oncocytic carcinoma				1						1
	Total	2	10	13	14	8	6	4	0	1	58

Among the non-neoplastic lesions, mucocele was commonest with 22 cases (37.93%) and male to female ratio of 2.66:1. In benign lesions pleomorphic adenoma was the common diagnosis with 18 cases (31.03%) and male to female ratio of 1.57:1. In malignant neoplastic lesions mucoepidermoid carcinoma was more frequent with 3 cases (5.17%) and male to female ratio of 2:1. [Table 4] Parotid (46.55%) was the commonest gland involved followed by minor salivary glands (43.10%) and submandibular glands (10.34%). Pleomorphic adenoma was common in parotid gland with 15 cases. Mucoepidermoid carcinoma involved parotid in 2 cases and minor salivary gland with 1 case. 22 cases of mucocele were found only in minor salivary glands. [Table 5]

Table 4. Spectrum Of Salivary Gland Lesions

No	Tumour	M	F	Total	Percentage
1	Mucocele	16	6	22	37.93
3	Lymphoepithelial Cyst	0	1	1	1.72
4	chronic sialadenitis	1	0	1	1.72
Total - Non neoplastic conditions		17	7	24	41.38
5	Benign salivary gland tumour-pleomorphic adenoma	11	7	18	31.03
6	Benign salivary gland tumour- Warthin's tumour	3	1	4	6.90
7	Basal cell adenoma	1	3	4	6.90
8	Myoepithelioma	0	1	1	1.72
9	Oncocytoma	1	0	1	1.72
Total Benign lesions		16	12	28	48.28
10	Mucoepidermoid carcinoma	2	1	3	5.17
11	Adenoid cystic carcinoma of salivary gland	1	0	1	1.72
12	Oncocytic carcinoma	1	0	1	1.72
13	Salivary duct carcinoma	0	1	1	1.72
Total Malignant lesions		4	2	6	10.34
Grand Total		37	21	58	100.00
Percentage		63.79	36.21	100.00	

Table 5. Site Wise Distribution Of All Salivary Gland Lesions

No	Tumours	Numbers	Parotid	Submandibular	Minor salivary
1	Mucocele	22	0	0	22
2	Chronic sialadenitis	1	0	1	0
3	Lymphoepithelial cyst	1	1	0	0
Non neoplastic		24	1	1	22
5	Pleomorphic Adenoma	18	15	3	0
6	Warthin Tumour	4	4	0	0
7	Basal Cell Adenoma	4	2	1	1
8	Myoepithelioma	1	0	1	0
9	Oncocytoma	1	1	0	0
Benign		28	22	5	1
10	Mucoepidermoid Carcinoma	3	2	0	1
11	Adenoid Cystic Carcinoma	1	0	0	1
12	Salivary duct carcinoma	1	1	0	0
13	Oncocytic carcinoma	1	1	0	0
Malignant		6	4	0	2

Total	58	100.00	27	6
Percentage		46.55	10.34	43.10

DISCUSSION

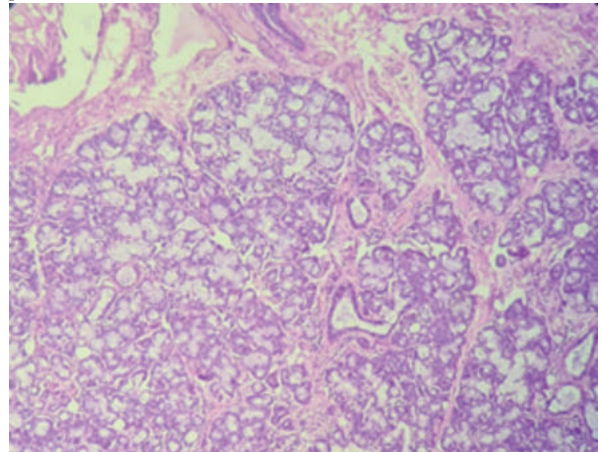
The classification of Salivary gland neoplasms (SGNs) is an evolving process because of their different histomorphological features, less uniformity and some overlapping features. So, this causes diagnostic dilemma in nature of SGNs.^[5]

Salivary gland carcinomas constitute only 3% - 10% of all head and neck malignancies, still they show a wide variety of morphology.^[6] Morphological typing and grading of salivary gland tumours plays a very crucial role in their management.^[7]

In this 5- year and 1 month duration retrospective study, 58 cases of salivary gland lesions were processed from January 2017 to January 2022. During this period, we also found rare cases of salivary gland lesions.

Salivary Gland Lesions were found in patients between the ages of 9 and 83 years (mean: 35.87 years) with some male predominance, male-to-female ratio of 1.76:1.^[8,9] This finding is not similar with the other studies in India, as they have reported a female preponderance.^[10,11]

Among the salivary gland lesions analysed, mucocele had the highest 22 (37.93%) cases. On further analysis these lesions mostly occurred in children and young adults where trauma plays an important role. Mucocele, on histopathology, showed mucinous glands and mucous filled cyst made up of histiocytes and lined by inflammatory granulation tissue or by fibrous connective tissue. These spaces were filled with mucin and numerous cyst macrophages.^[12] [Figure 1] Our results indicate the mucocele predominantly occurred in male patients with a male to female ratio of 2.66:1.^[13]



[Figure 1] – Histopathological picture of Mucocele. (40X)

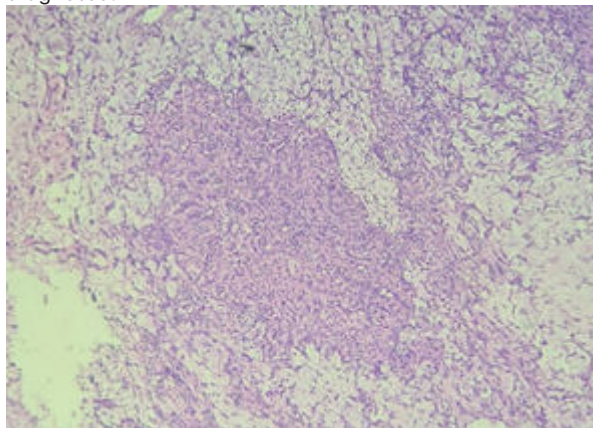
In present study we observed that neoplastic lesions (58.62%) outnumbered non-neoplastic lesions (41.38%) which was a similar finding seen in study done by Geethalakshmi U et al.^[14] In a study by Omhare et al. non-neoplastic lesions were more than the neoplastic lesions.^[15]

We found mucocele 22 (37.93%) as the most frequent lesion, followed by pleomorphic adenoma 18 (31.03%) among the salivary gland lesions in our study. These observations were comparable to the study done by Sajeewan TP In a study by Teeda DR et al.^[16] most common lesion was pleomorphic adenoma followed by cystic lesions and Pachori et al.^[17] found pleomorphic adenoma as most common lesion followed by sialadenitis and mucocele.

In our study 46.55% of cases involved the parotid gland and 43.10% in minor salivary gland. This finding is in contrast to the distribution of tumours reported by Lucas in which 43%

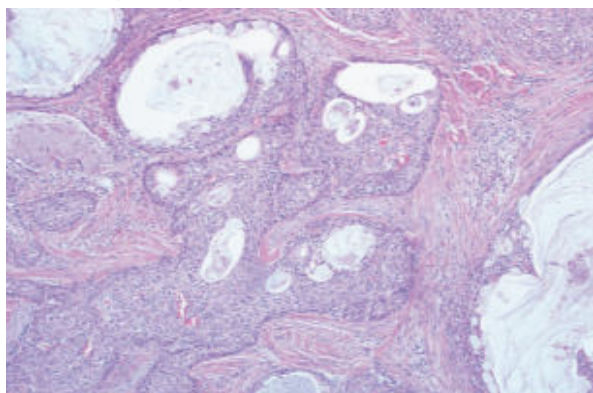
occurred in minor salivary glands and 60% in Submandibular gland.^[18] Uploankar SV et al observed also found parotid gland as commonest site in their study.^[19]

In neoplastic lesions we observed that benign lesions 28 (48.28%) predominate over the malignant 6 (10.34%), correlating with the findings of Venugopal M et al (2016).^[20] Pleomorphic adenoma with cases 18 (31.03%) was the commonest lesion in benign tumours as observed by Geethalakshmi et al.^[14] Pleomorphic adenoma, on histopathology shows biphasic appearance of epithelial and stromal component. The epithelial components are present in form of glands and solid sheets. This epithelial component is surrounded by abundant fibromyxoid stroma. Myoepithelial cells with spindle shaped appearance are present.^[12] [Figure 2] Results of the present study suggest that pleomorphic adenomas are more common in males, with a male to female ratio ranging from 1.56:1. This is in discordance with study by Deepak Soni et al. which shows female predominance in pleomorphic adenoma.^[21] Warthin's tumour, basal cell adenoma and myoepithelioma are the rest benign lesions we diagnosed.



[Figure 2] - Histopathological picture of Pleomorphic adenoma. (40X)

The results of the present study showed that malignant SGLs consist of 10.34% of all SGLs. The most common malignant tumour in our study was mucoepidermoid carcinoma (5.17%), on histopathology it shows.^[12] [Figure 3] Other malignant lesions are adenoid cystic carcinoma of salivary gland (1.72%), oncocytic carcinoma (1.72%) and salivary duct carcinoma (1.72%). Kalburge et al. and Ochicha et al. found the mucoepidermoid carcinoma as the most frequent malignant tumour (58.53% and 5.12%) ahead of adenoid cystic carcinoma (33.33% and 1.28%).^[22,23] However, Bobati SS et al. found Adenoid cystic carcinoma (14.94%) was the most common malignant SGT, followed by the mucoepidermoid carcinoma (5.08%).^[24]



[Figure 3] - Histopathological picture of Mucoepidermoid carcinoma. (40X)

CONCLUSION

Our study concluded that there was high frequency of non-neoplastic lesions in comparison to neoplastic lesions. Men are the most often affected sex. Mucocele and pleomorphic adenoma are most common lesions observed respectively. Mucoepidermoid carcinoma are the common malignant lesions seen. Histopathological examination of salivary gland lesions is the gold standard method in differential diagnosis of non-neoplastic and neoplastic lesions and in establishing the final diagnosis and deciding the final course of management.

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