

HISTOPATHOLOGICAL STUDY OF SALIVARY GLAND LESION

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Received: 25 March 2023, Revised and Accepted: 04 May 2023

ABSTRACT

Objective: The objective of this study was to evaluate various histopathological patterns of salivary gland lesions.**Methods:** The hospital-based retro-prospective observational study was conducted at the Department of Pathology, Sardar Patel Medical College and associated group of hospitals, Bikaner. This study included salivary gland biopsies/tissue following surgical resection, submitted, processed routinely, and stained with H&E stain, histopathologically diagnosed salivary gland lesions in the department of pathology. Histopathological study was carried out as records available of the previous 5 years (2017–2022).**Results:** We observed the number of male patients was higher than the female patients. Most of the patients in this study enrolled in 2021 followed by 2018, 2019, 2017, 2020, and 2022. The proportion of patients with poor oral hygiene was significantly higher than the proportion of patients with good oral hygiene. Pleomorphic salivary gland adenoma was the most prevalent morphological spectrum of lesions, followed by chronic sialadenitis and Warthin tumor. The frequency of benign lesions was significantly higher than malignant lesions also, the majority of parotid gland and sub-mandible gland lesions were benign. The frequency of neoplastic lesions and non-neoplastic lesions was almost similar.**Conclusion:** Salivary gland tumors (SGTs) are relatively more in males. The principal site for SGTs is the parotid gland in both benign and malignant tumors. PA was the most common benign SGT, and adenoid cystic carcinoma was the most frequent malignant neoplasm.**Keywords:** Salivary glands, Histopathology, Cyst, Adenoma.© 2023 The Authors. Published by Innovare Academic Sciences Pvt Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>) DOI: <http://dx.doi.org/10.22159/ajpcr.2023v16i9.47939>. Journal homepage: <https://innovareacademics.in/journals/index.php/ajpcr>

INTRODUCTION

One of the crucial exocrine glands is the salivary gland. Saliva helps with chewing, deglutition, digestion, and the defense of teeth and soft tissues. It is produced, modified, and secreted by the salivary glands [1].

Salivary gland lesions are uncommon, particularly neoplasms, which account for 4% of all epithelial neoplasms found in the head-and-neck region and less than 1% of all tumors [2]. Because of the accompanying morbidity and mortality, and more specifically because crucial head-and-neck structures including the facial nerve cross these glands, salivary gland tumors (SGTs) are of great importance to pathologists and head-and-neck surgeons.

Lesions of the salivary glands can range from irritation to cancer. Various pathologic diseases, such as cystic, inflammatory, tumor-like, and neoplastic lesions, are frequently caused by salivary glands. Due to their diverse histologic characteristics and wide range of biological behavior, these tumors pose a special challenge for both histopathologists and surgeons. Malignant and benign tumors resemble one another not only visually but also microscopically. In addition, recurrence and repeated surgical failures are characteristics of some benign tumors, such as pleomorphic adenoma [3].

These tumors exhibit variable traits between nations, and it appears that racial and regional factors may have an impact on the clinicopathologic profile of these tumors [4,5]. Accurate diagnosis and management depend on clinical information such as patient age and gender, place of involvement, and relative incidence [6].

We found only limited information on the large group of cases in North West Rajasthan. Hence, this study planned to determine the

morphological appearance and prevalence of salivary gland lesions on a large group of North West Rajasthan.

Aim

The aim of this study was to evaluate various histopathological patterns of salivary gland lesions.

METHODS

This is a hospital-based retrospective descriptive study including salivary gland biopsies/tissue following surgical resection, submitted, processed routinely, and stained with H&E stain, histopathologically diagnosed salivary gland lesions in the department of pathology. Histopathological study was carried out on the records available from 2017 to 2022.

The previous 3 years' record of salivary glands diagnosed as salivary gland lesions, in the Department of Pathology and all the salivary gland tissue specimens submitted, diagnosed as salivary gland lesions irrespective of age and sex, were included in this study. Autolysed/necrosed tissue specimen and inadequate biopsy were excluded.

Clinical data were obtained from the hospital record of the patient and requisition form submitted along with tissue specimen received in the department of pathology. Sections were made from paraffin blocks and stained with H & E stain. Special stains were performed whenever necessary. Specimen obtained from eligible study populations were examined microscopically.

Statistical analysis

All collected data were entered in an Excel Sheet. Quantitative data were expressed as mean±standard deviation and qualitative data were

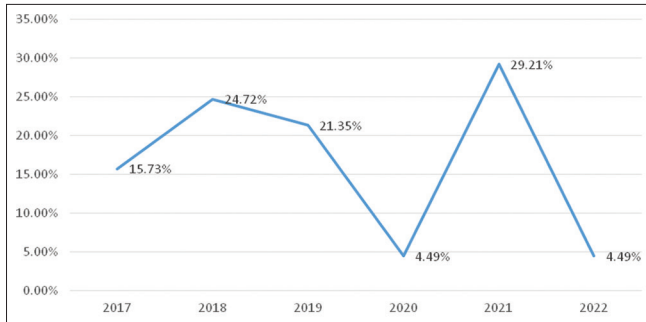


Fig. 1: Proportion of patients as per year of registration

Table 1: Sociodemography of study subjects

Gender	No	%
Male	50	56.17
Female	39	43.83
Oral hygiene		
Poor	68	76.4
Good	21	23.6
Residence		
Rural	49	55.1
Urban	40	44.9

Table 2: Morphological spectrum of lesions

Morphological spectrum of lesions	n	%
1. Epidermal cyst	5	5.62
2. Normal with non-specific inflammatory cells	2	2.25
3. Pleomorphic salivary gland adenoma	33	37.08
4. Chronic sialadenitis	22	24.72
5. Acute or chronic non-specific sialadenitis	1	1.12
6. Tubercular granulation	1	1.12
7. Acute or chronic non-specific granulation	2	2.25
8. Hyperplasia of lymphoid tissue	1	1.12
9. Acute or chronic inflammation	2	2.25
10. Basal cell adenoma	1	1.12
11. Benign spindle cell mesenchymal tumor with schwannoma	2	2.25
12. Ca of ductal type necrosis comedo pattern (ductal ca)	1	1.12
13. Fibrocollagenous tissue	2	2.25
14. Lymphoepithelial cyst	1	1.12
15. Malignant mesenchymal tumor	1	1.12
16. Malignant mixed tumor (ca ex pleomorphic adenoma)	1	1.12
17. Mucoepidermoid carcinoma	2	2.25
18. Parotid abscess	1	1.12
19. Sclerosing sialadenitis	2	2.25
20. TB lymphadenitis	1	1.12
21. Warthin tumor	5	5.62

Table 3: Type of lesion

Type	Male		Female		p-value
	No	%	No	%	
Neoplastic	26	52	20	51.3	<0.01
Non-neoplastic	24	48	19	48.7	
Benign	47	94	36	92.3	<0.01
Malignant	3	6	3	7.7	

Table 4: Lesion and nature of tissue

Nature of tissue	Benign		Malignant	
	No	%	No	%
Parotid	47	52.8	5	5.6
Sub-mandibular	36	40.44	1	1.1

expressed as frequency and percentage. Independent sample *t*-test of significance was used to compare two means (quantitative data). Chi-square test of significance was used to compare proportions between qualitative parameters. The confidence interval was set to 95%, and the margin of error was accepted at 5%. The $p \leq 0.05$ is considered a significant and $p > 0.05$ would be considered insignificant.

RESULTS

Male patients 50 (56.17%) are higher than female 39 (43.83%) participants with mean age in male were 36.54 ± 18.54 year and mean age of female age 40.9 ± 18.4 . The proportion of patients with poor oral hygiene (76.4%) was more than with good oral hygiene (Fig. 1).

Pleomorphic salivary gland adenoma (37.08%) is the most prevalent morphological spectrum of lesions, followed by chronic sialadenitis (24.72%) and Warthin tumor (5.62%).

The frequency of benign lesions (93.5%) is significantly higher than malignant lesions (6.5%). The frequency of neoplastic lesions is 51.68% and for non-neoplastic lesions, it is 48.31% (Tables 1-4).

The majority of parotid gland (52.8%) and sub-mandible gland (5.6%) lesions are benign.

DISCUSSION

In our study, number of male patients (56.17%) is higher than female (43.83%) participants. Our data correlates very well with the data of Ansari [7] who had observed lesion in 60% of women and men contributed to 40%.

The mean age of male are 36.54 ± 18.54 and the mean age of female are 40.9 ± 18.4 . Difference of mean age between both genders is not statistically significant. This is almost similar to the observation of others [8-10].

Parotid gland lesions (58.4%) are more common than the sub-mandibular gland lesions (41.6%). This is very similar to the observation of the Waldron *et al.* [9]. As per the study of Jude and Olu-Eddo (2021), the anatomical distributions of the tumors in their study were as follows, parotid gland (57%), submandibular gland (16%), and minor salivary glands (27%).

In our study, pleomorphic salivary gland adenoma (37.08%) was the most prevalent morphological spectrum of lesions, followed by chronic sialadenitis (24.72%) and Warthin tumor (5.62%).

Laishram *et al.* (2013) found that the majority of salivary gland lesions occurred in the major salivary glands (91.34%), especially, in the parotid gland (58.65%) followed by submandibular gland (31.73%). Among benign tumors, parotid (66.07%) was the most common gland affected followed by the submandibular gland (28.57%). In malignant tumors, again the parotid (59.09%) was the gland most affected followed by the submandibular (27.27%) and minor salivary gland (13.64%).

According to Zaman and Majid's study, PA was the most frequently diagnosed benign salivary gland tumor (47.2% of all cases and 81% of benign tumors), followed by basal cell adenoma (7.5%) and myoepithelioma (5.6%) of benign tumors. This is in contrast to the European and American Studies [10], which found that MEC is the most frequent malignant salivary gland tumor.

Malignant lesions are far less common (6.5%) compared to benign lesions (93.5%). The majority of lesions in the parotid gland (52.8%) and sub-mandible gland (5.6%) are benign, and the difference in the proportions is not statistically significant ($P > 0.05$) among all lesions.

Zaman and Majid found that majority (60.6%) of the major SGT were benign whereas almost equal frequency of benign and malignant tumors was seen in minor salivary glands.

However, in the study of Jude and Olu-Eddo (2021) report the benign-malignancy ratio for the parotid, minor salivary gland, and submandibular tumors were 1.3:1, 1.9:1, and 4.6:1, respectively.

The frequency of neoplastic lesions is 51.68% and for non-neoplastic lesions it is 48.31%. The difference in proportion is not statistically significant.

Higher percentages of malignant lesions were described by Laishram *et al.* (2013) [11], who included 78 (75%) cases. Benign lesions (53.85%) outnumbered malignant lesions (21.15%) among the neoplastic lesions. The most frequent benign neoplastic lesion was a pleomorphic adenoma, whereas the most frequent malignant tumor was a mucoepidermoid carcinoma.

CONCLUSION

Males tend to have more SGT than females. The parotid gland is the primary location for salivary gland cancers in both benign and malignant malignancies. The most frequent benign salivary gland tumor was PA, and the most common malignant neoplasm was adenoid cystic carcinoma. Larger investigations are urgently required to ascertain the prevalence.

ACKNOWLEDGMENT

We are thankful to everyone for the encouragement and support throughout the study.

AUTHORS' CONTRIBUTION

All the authors have contributed equally.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

AUTHOR'S FUNDING

The authors hereby declare that no financial support was taken from anyone for this research, authorship or publication of this article.

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