



**A REPORT ON A SERIES OF CASES OF SALIVARY GLAND LESIONS OVER A
PERIOD OF 10 YEARS**

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ABSTRACT

Background: Salivary gland lesions have been extensively studied for the purpose of accurate diagnosis, classification, and treatment. The incidence rates of salivary gland lesions in different geographical areas and study population are yet not published extensively. **Objective:** To calculate the incidence rates of salivary gland lesions and correlate them with the demographical and clinical data. **Study design and Setting:** Retrospective study design. **Materials and Methods:** Data of 117 salivary gland lesions were retrieved from the archives of the department from the year 2011–2020 and the lesions were categorized into cystic, neoplastic, and tumor-like lesions. The incidence rate of each of the lesions was calculated and correlated with the demographic and clinical data of the patients. **Results:** Most of the lesions were categorized as mucous extravasation phenomenon (76.69%), followed by mucous retention cyst (16.5%), basal cell adenoma (2.91%), pleomorphic adenoma (1.94%), and the least occurrence was seen for necrotizing granulomatous sialadenitis and sialoliths (0.97%). The age range of the patients with mucous extravasation phenomenon was 17–30 years, while of those with mucous retention cysts was 14–33 years; for basal cell adenoma was 45–50 years, while for pleomorphic adenoma was 30–35 years, and for necrotizing granulomatous sialadenitis and sialolith were 36 years and 45 years, respectively. Except for pleomorphic adenoma, all other salivary gland lesions were predominant in males. The cystic lesions had a predilection for lower lip, benign lesions for the parotid gland, and tumor-like lesions for the submandibular salivary gland. **Conclusion:** Over the study duration, 3.76% of the biopsies from the head and neck lesions were diagnosed as salivary gland lesions. The commonest salivary gland lesion was mucous extravasation phenomenon and all the lesions except the pleomorphic adenoma had a male predilection.

KEYWORDS: Sialadenitis and sialolith.

INTRODUCTION

Life without normal functioning salivary glands and saliva is unimaginable. Of all the human tissues, perhaps the salivary glands have the greatest diversity of morphologic features among their cells and tissues and the most histologically heterogeneous group of lesions. Although just like other glands such as the sweat, apocrine, and mammary glands, salivary glands have a similar phylogeny and cellular phenotypes, many lesions are unique to the salivary glands.^[1] Salivary glands are exocrine organs responsible for production and secretion of saliva and are divided as major, the parotid, submandibular, and sublingual, and the minor glands, that are numerous and widely distributed throughout the mouth and oropharynx.^[2]

Salivary gland lesions comprise a wide variety of benign and malignant neoplasms, non-neoplastic lesions, and tumor-like lesions, which exhibit significant differences in biological behavior. Salivary gland neoplasms account for 6% of all head and neck tumors.^[2] They represent an

uncommon heterogeneous group of neoplasms with complex clinicopathological characteristics.^[3] The prevalence of these tumors varies between studies, but has been estimated to be 3-6% of all head and neck tumors.^[4]

The glands most affected are the parotid and submandibular glands respectively, usually by benign tumors.^[6] When the minor salivary glands are affected, it is usually by malignant tumors and almost every tumor arising from the sublingual gland is malignant.^[5]

Many studies have been performed in order to describe the epidemiology of benign and malignant salivary gland tumors.^[3-7] The incidence, prevalence, age, gender, anatomical distribution and survival rates vary between different parts of the world^[5,6] and are not necessarily representative of the population of a particular geographical area. Moreover, not many studies have taken into consideration the non-neoplastic lesions of the salivary glands. To the best of our knowledge, there are

very few reliable studies in the literature performed in Indian populations quoting the incidence rates of salivary gland lesions and comparison with demographic factors, and thus this study was an attempt to add on a substantial data to the literature.

The study characterizes patients diagnosed with salivary gland lesions that were neoplastic as well as non-neoplastic, in the Vidarbha region of Maharashtra, presenting information on the incidence and prevalence in one of the most important geographical areas of India.

MATERIALS AND METHODS

The study was conducted by retrieving and retrospectively analyzing data from the archives of Department of Oral Pathology and Microbiology in our institute from the year 2011–2020. Data were selected from the records of the patients diagnosed with salivary gland lesions. The cases were included in the study irrespective of the age, gender, or social or economic status and only those where a final diagnosis based on histopathology was rendered. The site of occurrence of the lesion was carefully noted. Cases where the lesions were diagnosed clinically or radiologically but not histopathologically were excluded from the study. Cases with inadequate or incomplete demographic, clinical, and histological data were excluded from the study.

The frequency of each type of salivary gland lesion reported in the cases was calculated. The cases were further segregated as cystic, neoplastic (benign and malignant), and tumor-like lesions. Furthermore, a

correlation was attempted to be established with the demographic and site-specific details of the lesions.

RESULTS

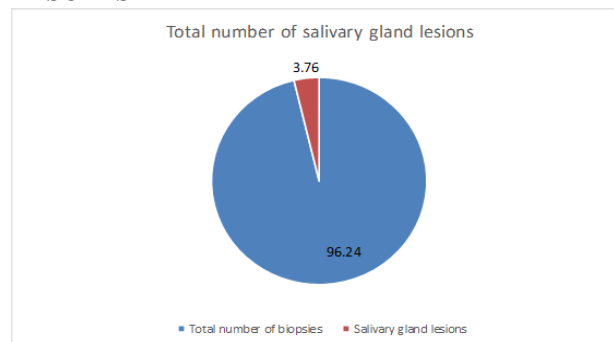


Figure 1: Proportion of salivary gland lesions out of all the biopsies from head and neck lesions received during the study period.

Of all the biopsies received by the Department of Oral Pathology and Microbiology at our institute, 3.76% of the biopsies were categorized as salivary gland lesions on histopathological diagnosis (Figure 1). A total of 117 salivary gland lesions were included in the study. Of these, most of the lesions were categorized as mucous extravasation phenomenon (76.69%), followed by mucous retention cyst (16.5%), basal cell adenoma (2.91%), pleomorphic adenoma (1.94%), and the least occurrence was seen for necrotizing granulomatous sialadenitis and sialoliths (0.97%) (Table 1).

Table 1: Frequency distribution of salivary gland lesions.

Sr. No.	Lesion	Frequency	Percentage
1.	Mucous extravasation phenomenon	85	76.69%
2.	Mucous retention cyst	18	16.50%
3.	Basal cell adenoma	3	2.91%
4.	Pleomorphic adenoma	2	1.94%
5.	Necrotizing sialadenitis	1	0.97%
6.	Sialolith	1	0.97%

Among all the salivary gland lesions recorded, 93.19% were categorized as cystic salivary gland lesions, the highest occurrence was observed for mucous extravasation phenomenon (76.69%), with a very low occurrence of mucous retention cyst (16.5%) (Table 2).

The neoplasm category of salivary gland lesions comprised 4.13% of all the salivary gland lesions, and

basal cell adenoma comprised 2.91% of them and pleomorphic adenoma 1.94% (Table 2). No cases of malignant salivary gland tumors were recorded.

The tumor-like lesions comprised 1.94% of all the salivary gland lesions, with necrotizing granulomatous sialadenitis and sialolith comprising equal proportions (0.97%) of them (Table 2).

Table 2: Frequency distribution of salivary gland lesions categorized as cystic, neoplastic, and tumor-like lesions.

Sr. No.	Lesion	Frequency	Percentage
Cyst			
1.	Mucous extravasation phenomenon	79	76.69%
2.	Mucous retention cyst	17	16.50%
Total		96	93.19%
Benign tumors			

3.	Basal cell adenoma	3	2.91%
4.	Pleomorphic adenoma	2	1.94%
Total		5	4.13%
Tumor-like lesions			
5.	Necrotizing sialadenitis	1	0.97%
6.	Sialolith	1	0.97%
Total		2	1.94%

Age-wise distribution of the salivary gland lesions

Cystic Salivary gland lesions

The age range of the patients with mucous extravasation phenomenon was 17–30 years, while of those with

mucous retention cysts was 14–33 years. Thus, mucous retention cyst was found to have wider age distribution as compared to the mucous extravasation phenomenon (Table 3).

Table 3: Distribution of lesions according to age, gender, and site of occurrence.

Sr. No.	Lesion	Mean age (years)	Gender	Site
Cyst				
1.	Mucous extravasation phenomenon	17–30	Male	Lower lip
2.	Mucous retention cyst	14–33	Male	Lower lip
Benign tumor				
3.	Basal cell adenoma	45–50	Male	Parotid gland
4.	Pleomorphic adenoma	30–35	Female	Parotid gland
Tumor-like lesion:				
5.	Necrotizing sialadenitis	36	Male	Submandibular salivary gland
6.	Sialolith	45	Male	Submandibular salivary gland

Benign salivary gland tumors

The age range of the patients with basal cell adenoma was 45–50 years, while of those with pleomorphic adenoma was 30–35 years. However, a generalized statement cannot be made regarding the difference in age distribution of both the lesions due to limited number of cases (Table 4).

Tumor-like salivary gland lesions

The ages of the patients with necrotizing granulomatous sialadenitis and sialolith were 36 years and 45 years, respectively (Table 5).

Sex-wise distribution of the salivary gland lesions

Cystic salivary gland lesions

Both the cystic salivary gland lesions, mucous extravasation phenomenon and mucous retention cyst, were predominantly observed in males (Table 3).

Benign salivary gland tumors

Basal cell adenomas were seen more in males, while pleomorphic adenomas were evident more in females (Table 4).

Tumor-like salivary gland lesions

Both the cases of tumor-like salivary gland lesions, necrotizing granulomatous sialadenitis and sialolith were present in males (Table 5).

Site-wise distribution of the salivary gland lesions

Cystic salivary gland lesions

Both the cystic salivary gland lesions, mucous extravasation phenomenon and mucous retention cyst, had a site predilection for lower lip (Table 3).

Benign salivary gland tumors

Both the benign salivary gland lesions reported in our study, basal cell adenoma and pleomorphic adenoma, had a site predilection for parotid gland (Table 4).

Tumor-like salivary gland lesions

Both the tumor-like salivary gland lesions reported in our study, necrotizing granulomatous sialadenitis and sialolith, were present in the submandibular salivary gland (Table 5).

DISCUSSION

Patients reporting discomfort and symptoms related to salivary glands is a common finding in the field of oral pathology. In our study, out of all the biopsies received in the department over a period of 10 years, 3.76% were diagnosed with salivary gland lesions. However, a similar study analyzing all the salivary gland lesions, i.e., irrespective of the type of lesions (cystic, neoplastic, tumor-like), has not been reported till date and thus the incidence of salivary gland lesions among other oral pathologies cannot be compared or discussed. In our study, all the salivary gland lesions were included, categorized as cystic, neoplastic, or tumor-like, and a relative frequency of each of them was presented, which was not evident in any other study.

Cystic salivary gland lesions were the most predominant lesions found in our study, and mucous extravasation phenomenon was reported to be 76.69% of all the reported salivary gland lesions, and predominantly seen on the lower lip of young adults. Bezerra T et al., in their

study, also proposed that mucus extravasation phenomenon was a lesion that primarily affected young patients (average age 20.8 years), affecting mainly the lower lip and commonly found in oral diagnostic services.^[8]

The annual incidence of salivary gland tumors varies around the world from approximately 0.4–13.5/100,000 people. Salivary gland neoplasms account for <3% of all the neoplasms occurring in the head and neck region and are therefore relatively rare. Various authors have studied the incidence rates of salivary gland tumors.^[9] According to Frazell,^[10] one of the first investigators, salivary gland tumors account for 5% of all tumors, while Spiro et al.^[11,12] and Leegard and Lindeman^[13] gave incidences of 6.5% and 2%, respectively. Loke^[14] studied the population of Malaysia which composed of three main racial groups and found that among the tumors at all sites, the proportion of salivary gland tumors was 4.1% among Malays, 2.3% among Chinese, and 1.7% among Indians. According to Uchendu et al., salivary gland tumors accounted for 1.43% of all neoplasm seen at the histopathology unit of the University of Benin Teaching Hospital.^[15] In our study, in the 9-year data on salivary gland lesions, we did not receive any lesion with malignant salivary gland neoplasm. Only, 4.13% of the lesions were neoplastic in nature, and that too, benign. This was in accordance with the study conducted by Nepal et al.,^[31] Ali et al.,^[32] and Atarbashi Moghadam et al.^[33] who also found a greater proportion of benign tumors than malignant tumors in case of salivary glands. Moreover, in our study, all these benign salivary gland lesions were in the parotid gland. This was in accordance with almost all the previous studies by Spiro,^[12] Eveson and Cawson,^[16] Seifert et al.,^[17] Thackray and Lucas,^[18] and Ellis et al.^[19] and Laishram et al.^[20] who found definitely higher percentage of major salivary gland tumors as compared to minor salivary gland tumors. However, in our study we found that basal cell adenoma was more common as compared to pleomorphic adenoma, which was in contrast to the above-mentioned five large case series on salivary gland neoplasms, where pleomorphic adenoma was much more common than any other benign salivary gland tumor.^[12,16-20] However, we cannot entirely contrast the findings from the earlier studies due to a smaller sample size of our study. The age predilection for benign salivary gland tumors was in accordance with the previous studies.^[21-23] However, the sex distribution in our study was evident as a male predilection in case of basal cell adenomas and female predilection in case of pleomorphic adenoma. As per the previous studies, a slight male predilection is evident for benign salivary gland tumors.^[20,24] However, there are also studies which found female preponderance in benign tumors^[21, 25-28] and few which found no significant difference in the sex distribution in benign tumors.^[29,30]

In our study, we considered the incidence of even the salivary gland lesions that are classified as tumor-like

lesions and found that necrotizing granulomatous sialadenitis and sialoliths were the only reported lesions in those 10 years. Both the lesions were found in males and in the submandibular salivary glands. However, a generalized comment on their incidence or relation to demographic or other parameters cannot be made due to inadequate number of cases in our study and inadequate number of studies analyzing these lesions.

The study had certain limitations. The sample size of the study was not large enough to help land up at specific conclusions regarding the incidence of some of the salivary gland lesions. Moreover, because of lack of similar studies in the given settings, adequate comparisons could not be made. However, the strength of the study lies in the fact that the incidence of all the salivary gland lesions was considered irrespective of the type of the lesion.

CONCLUSION

The incidence of salivary gland lesions was noted in this study over a period of 10 years. It was found that of all the biopsies 3.76% were diagnosed as salivary gland lesions and the commonest lesion encountered was mucous extravasation phenomenon followed by mucous retention cyst and basal cell adenoma. Further studies with larger sample size and in larger geographical areas are advocated to propose incidence rates of different salivary gland lesions.

CONFLICT OF INTEREST: None declared.

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