

Prevalence of Salivary Gland Tumors and Salivary Gland Diseases in Haryana Population – A clinicopathological study

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ABSTRACT

Salivary gland tumors are rare neoplasms accounting for 3 – 10% of all head and neck tumors. Salivary gland diseases are related to many causes. The most common are sialadenitis, sialolithiasis, cystic lesions and sialadenosis. Data of Salivary gland tumors and diseases diagnosed during 2008 to 2020 were collected from the archival files of the Oral Pathology Department for this research.

We found that malignant tumors were more common than benign tumors. Pleomorphic adenoma and Mucoepidermoid carcinoma were the most common benign and malignant tumors reported in the study. Salivary gland diseases are more common as compared to tumors and mucocele was the most common among the diseases.

Keywords: pleomorphic adenoma, mucoepidermoid carcinoma.

1. INTRODUCTION

Salivary gland tumors are rare neoplasms accounting for 3 – 10% of all head and neck tumors.^{1,2} Epidemiological studies across the world have shown differences in the incidence and distribution of salivary gland tumors with diverse demographic results in different regions.^{3,4} Uncertainty in the prevalence of salivary gland tumors can be attributed to their uncommon nature, their morphological heterogeneity, and the challenges encountered in classifying them consistently.^{5,6} Salivary gland diseases are related to many causes. The most common are sialadenitis, sialolithiasis, cystic lesions and sialadenosis.

Studies using histopathological data are important to characterize and establish the prevalence of oral and maxillofacial lesions in different age groups. In this respect, research based biopsy records are necessary to analyse the main types of lesions that occur in a given population and to provide data that can guide pathologists particularly in the diagnosis and management of these lesions.⁷

Therefore, the purpose of this study was to evaluate the prevalence of different types of Salivary gland tumors and salivary gland diseases diagnosed histopathologically over a period of 13 years in Mullana (Ambala) at the institutional level according to age, gender and site affected and to compare the results with findings in the literature.

2. MATERIALS AND METHODS:

Data of Salivary gland tumors and diseases diagnosed during 2008 to 2020 were collected from the archival files of the Oral Pathology Department. The data were collected according to the variables; age, gender and site.

3. RESULTS:

Total reported cases were - 34 cases of salivary gland tumors and 67 cases of salivary gland diseases. Out of 34 cases of salivary gland tumors, 11 were benign and 23 were malignant tumors. Among the benign tumors all were Pleomorphic adenoma (n=11, %= 100%). Most prevalent malignant tumors were found to be Mucoepidermoid carcinoma (n=9, %=39%), followed by Adenoid cystic carcinoma (n=3, %= 13%), Adenocarcinoma Not Otherwise Specified (n=1, %= 4%), Carcinoma Ex Pleomorphic adenoma (n=1, %= 4%), Acinic cell carcinoma (n=1, %= 4%) , High grade salivary gland carcinoma (n=1, %= 4%) and solid Basal cell adenocarcinoma (n=1, %= 4%). Out of reported 67 cases of salivary gland diseases, the most prevalent was Mucocele (n=52, %= 77%), followed by sialadenitis (n=7, %= 10%), Sialolithiasis (n=6, %= 8%), Necrotizing Sialometaplasia (n=1, %= 1%) and Hyperplasia of minor salivary gland (n=1, %= 1%).

The palate and the parotid gland were the most common sites for benign salivary gland tumors, whereas the palate and the Lip was the most common site for malignant salivary gland tumors. Lower lip was the most common site for Salivary gland diseases. The age group for benign salivary gland tumor ranged from 26 – 60 years, whereas for malignant tumor the age range was 16 – 75 years. Age range for salivary gland diseases was 9 – 70 years. The male to female ratio for benign tumors was 0.83, for malignant tumors it was 2.2 and for salivary gland diseases it was found to be 2.5.

4. DISCUSSION:

Salivary gland tumors account for 3 to 6% of all neoplasms of the head and neck region.⁸ The percentage of benign and malignant tumors in our study (33 and 67% respectively) are not similar to those of previously reported studies 54 -79% for benign and 21 -46% for malignant.^{8,9,10,11,12} Epidemiological studies across the world have shown differences in the incidence and distribution of salivary gland tumors with diverse demographic results in different regions.¹³

Pleomorphic adenoma is the most common benign tumor¹³, in our study all the benign tumors were of pleomorphic adenomas. The published prevalence of pleomorphic adenoma among all the salivary gland tumors ranges from 40 – 72%^{9,10,11,12,14} Warthins tumor is reported as the second most common benign tumor.¹³ Among the salivary gland malignancies, Mucoepidermoid carcinoma is widely reported to be the most common tumor followed by Adenoid cystic carcinoma,^{15,16,17} similarly found in our study. Few studies reported Adenoid cystic carcinoma to be the most common malignancy.^{18,19}

In our study the palate and the parotid gland were the most common sites for benign salivary gland tumors, whereas the palate and the lip were the most common site for malignant salivary gland tumors. In Asian countries the more frequency of salivary gland tumors was reported to be occurring in parotid gland, followed by the minor glands and submandibular glands.^{3,20,21} Few other studies reported higher tumor distribution in submandibular gland than minor glands.^{22,23}

The male to female ratio (M: F) for benign tumors was 0.83, for malignant tumors M: F was 2.2. Other studies reported a slight female preponderance in salivary gland tumors.^{20,24,25} In our findings the age group for benign salivary gland tumor ranged from 26 – 60 years. There is wide variation for age range in benign tumors 14- 94 years with a highest prevalence in 41.3 years.²⁶ Whereas for malignant tumor the age range was 16 – 75 years. Other studies found out the highest prevalence of malignant tumors in the 5th decade of life.

According to our findings salivary gland diseases are more common as compared to salivary gland tumors. Out of total 101 cases 67 cases were of salivary gland diseases and 34 were of salivary gland tumors. The incidence rate for salivary gland diseases is rarely mentioned in literature.

Most prevalent salivary gland disease was mucocele (n=52, %= 77%), followed by sialadenitis (n=7, %= 10%), Sialolithiasis (n=6, %= 8%), Necrotizing Sialometaplasia (n=1, %= 1%) and Hyperplasia of minor salivary gland (n=1, %= 1%). Incidence of Mucocele is generally high as reported 2.5 lesions per 1000 patients, more frequently occurring in second decade of life.^{27,28,29} There is no difference of occurrence in both genders.^{30,31,32,33} In our findings mucocele was most prevalent in males, with a male to female ratio of 2.5:1. We reported the most common site to be the lower lip, similar site was mentioned in other studies.^{27,31,32} The reason for the lower lip to be the most prevalent site is most prone site for trauma. There is wide variation in age range 6-70 years, rarely reported in children less than 1 year of age.³⁴ Began et al reported 95% cases of extravasation type and 5% were of retention type of mucocele, similar findings were observed in our study.³⁰

The present research showed 7 cases of sialadenitis, 3 each in submandibular gland and lower lip, and 1 in parotid gland. The exact frequency of sialadenitis is unclear. The submandibular gland accounts for 10% of all cases of sialadenitis of major

glands. No race, age and sex predilection per se exists. Sialadenitis as a whole tends to occur in the older, debilitated or dehydrated patients.³⁵ We also reported more cases in submandibular gland with a age range of 23 – 56 years, more commonly in males.

The incidence rate of sialolithiasis was found to be 2.9 and 5.5 per 100,000 persons – years in hospital data.³⁶ In Denmark it was between 7.3 and 14.1 per 100,000 person years.³⁷ We reported 6 cases, all were in the ductal system of submandibular gland. The reason could be for the more tendencies to form stones are -the long, tortuous upward path of submandibular duct, the thicker, Mucoïd secretions of this gland. Similarly, most of the cases were mentioned to be occurring in submandibular gland; rarely in parotid.³⁸ Necrotizing sialometaplasia (NSM) is an uncommon, self-limiting lesion with the most accepted theory suggests ischemia as the main etiological factor. Age range varies from 1.5 – 83 years with a peak among fourth and fifth decade of life, and a male to female ratio of 1.95 :1.^{39,40,41} The most common location is palate, although it has been reported in other intraoral sites; retromolar area, buccal mucosa and mucobuccal fold.^{39,42,43} We reported a single case of NSM in palate in a 65-year-old male patient.

Approximately 90 cases of Hyperplasia of minor salivary glands have been reported in the English literature so far.^{44,45,46,47,48} Palatal mucosa is the most common site followed by retromolar area, lips and floor of the mouth. Lesions are predominantly seen in males with no age predilection.^{44,45,48} We reported a single case of Hyperplasia of minor salivary gland in a 30-year-old male at the floor of the mouth.

5. CONCLUSION:

Salivary gland tumors are uncommon neoplasms that usually arise in palate and parotid glands. Malignant tumors are more common than benign tumors. Pleomorphic adenoma and Mucoepidermoid carcinoma were the most common benign and malignant tumors reported in the present series respectively. Salivary gland diseases are more common as compared to tumors, with the Mucocele as the most common lesion occurring mainly at lower lip. Further research with larger number of cases is required to know more about the distribution and the rate of incidence of both salivary gland diseases and tumors.

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