Salivary gland neoplasms: an analysis of 74 cases

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Abstract Between 2006 and 2009, 74 cases of salivary gland neoplasms were analyzed retrospectively, of which 44 (60%) were benign and 30 (40%) malignant. 61 % percent of neoplasms were in the parotid gland, 22% in the minor salivary glands including sublingual salivary glands, and 17% in the submandibular glands. The most common benign neoplasm was pleomorphic adenoma (64%), and the most common malignant neoplasm were adenoid cystic carcinoma (17%) and mucoepidermoid carcinoma (23%). We analyze the incidence and distribution of all types of salivary gland neoplasms in our series, and provide data for comparison with other epidemiological studies from different geographical sites and races. Demographic data from these studies help us to a better understanding of the biological and clinical characteristics of the disease. Further epidemiological surveys should be encouraged for better understanding of the disease and to provide early and better treatment of salivary gland neoplasms

Keywords Pleomorphic adenoma · Parotid · Submandibular · Sublingual · mucoepidermoid carcinoma

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Introduction

Neoplasms of salivary gland neoplasms make up only about 3% of all neoplasms of the head and neck [1]. The neoplasms that commonly involve the major and minor salivary glands except for sublingual gland vary in histopathological appearance. There are numerous studies on the incidence and histological types of salivary gland neoplasms [1–6,8,10,11]. This study was undertaken to analyze the incidence and distribution of all types of salivary gland neoplasms.

Material and methods

74 cases of salivary gland neoplasms presented to our institution between 2006 and 2009 which is one of the largest teaching and tertiary care centre of our organization. In order to restrict the parameters of the study the treatment modalities were not included. The study was undertaken to evaluate the incidence and distribution of all salivary gland specimens received by the Department of Pathology of this hospital. The data was tabulated and neoplasms were classified.

Fig. 1 Pleomorphic adenoma

Fig. 3 Warthin's tumor

Fig. 2 Mucoepidermoid carcinoma

Fig. 4 Adenoid cystic carcinoma

Results

In the study period of 3 years, there were a total of 74 cases of salivary gland

neoplasms. Out of which 44 (60%) were benign and 30 (40%) malignant. It was noticed that benign neoplasms were found among people in the age group 41–50

Table 1 Age distribution of salivary gland neoplasms

Age (Years)	Benign			Malignant		
	Male	Female	Total	Male	Female	Total
21–30	-	02	02	-	-	-
31–40	02	04	06	-	02	02
41–50	06	12	18	04	04	08
51–60	02	03	05	06	-	06
61–70	02	04	06	03	04	07
71–80	01	06	07	05	02	07
Total	13	31	44	18	12	30

Table 2 Distribution of salivary gland neoplasms according to site

Site	Benign	Malignant	Total
Parotid	27	18	45 (61%)
Submandibular	10	06	16 (22%)
Sublingual & Minor salivary	07	06	13 (17%)
Total	44 (60%)	30 (40%)	74 (100%)

Table 3 Benign salivary gland neoplasms

Tumour	Parotid	Submandibular	Sublingual & other minor salivary glands	Total	%
Pleomorphic adenoma	18	06	04	28	64
Warthin tumour	05	-		05	11
Basal cell adenoma	01	-	01	02	5
Cystadenoma	-	01		01	2
Oncocystoma	01	01	01	03	7
Myoepithelioma	01	-		01	2
Ductal papilloma	01	-		01	2
Unclassified	-	02	01	03	7
Total	27	10	07	44	60

Table 4 Malignant salivary gland neoplasms

Tumour	Parotid	Submandibular	Sublingual & other minor salivary glands	Total	%
Mucoepidermoid carcinoma	04	02	01	07	23
Adenoid cystic carcinoma	02	01	02	05	17
Adenocarcinoma	01	01	01	03	10
Carcinoma ex-pleomorphic adenoma	01	-	-	01	3
Squamous cell carcinoma	02	01	01	04	13
Acinic cell carcinoma	04	01	01	06	20
Lymphoepithelial carcinoma	01	-	-	01	3
Myoepithelial carcinoma	01	-	-	01	3
Oncocytic carcinoma	01	-	-	01	3
Mucinous adenocarcinoma	01	-	-	01	3
Total	18	06	06	30	40

years whereas malignant lesions were more common after the 6th decade. (Table 1) The peak incidence was seen in the fifth decade in the case of women and in the sixth decade in men. There was a predominance of men for malignant and woman for benign neoplasms. Of the total number of salivary gland neoplasms seen in this study, the parotid gland was the most common site, followed by the submandibular salivary glands and the sublingual along with minor salivary glands (Table 2). All the cases were analyzed according to the site and the histological classification (Table 3 and 4).

Discussion

In this 3 years study, salivary gland neoplasms were found in patients from 3rd to 8th decade. There was a slight overall female predominance, with a male to female ratio of 1:1.14. This finding is different from other reports [4,8,10]. But the reports of our study is similar to others as far as an association between the male sex and malignant neoplasms and the female sex and benign neoplasms is concerned [4–7]. The incidence of benign neoplasms is more in fifth decade whereas malignant neoplasms are seen more common in sixth and seventh decade. Benign neoplasms were more common than malignant ones in all the salivary glands, which is similar to the findings in other countries [1–6,8,10,11]. The parotid gland followed by submandibular gland and the minor salivary gland including sublingual salivary glands was the most common site of salivary neoplasms [1,6,9]. However, in some studies the minor salivary gland was more likely to be involved than the submandibular gland [2,3,5] The most common benign and malignant neoplasms of the parotid gland and submandibular salivary glands were pleomorphic adenomas (Fig. 1) and mucoepidermoid carcinomas respectively (Fig. 2). Among the minor salivary glands, adenoid cystic carcinoma was more common.

Pleomorphic adenoma was the most common salivary gland neoplasms, accounting for 64 % of all benign neoplasms. Studies on the salivary gland neoplasms have shown a predominance of pleomorphic adenoma [10] The second most common benign neoplasm was Warthins tumor (Fig. 3), which was found only in the parotid gland. This is confirmed by all previously published reports, in which the incidence varies from 4%–13% of all benign salivary gland neoplasms [2–5]. Warthins tumor affects elderly people mostly, with a peak incidence in the sixth decade of life. [3,8] Adenoid cystic carcinoma (Fig. 4) was the second most common malignant salivary gland neoplasms, which confirm the findings in literature [5–9,11]. As seen in our study the parotid gland is a common sight for both benign and malignant neoplasms [2]. This study has also shown that malignant neoplasms were equally common in the submandibular glands and minor salivary glands including sublingual salivary glands, which is similar to the report from our subcontinent [12].

Conclusion

The results of this study show that many clinical characteristics of salivary gland neoplasms are similar to those found anywhere else in the world.

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