ORIGINAL ARTICLE

SALIVARY GLAND TUMOURS: A REVIEW OF 91 CASES

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Background: Salivary gland tumours constitute heterogeneous group of tumours with different biological behaviour and account for 3% of all head and neck tumours. This study was conducted to study the clinico-pathological spectrum of salivary gland tumours. **Methods:** The study is a review of 91 cases of salivary gland tumours reported at Chugtai's Lahore Laboratory from 2009-2011. The clinical data of the patients was obtained from their respective files. **Results:** Age range of the patients was from 8–92 years. These tumours were slightly more common in females with female to male ratio of 1.1:1. Parotid gland (51.6%) was the commonest site for the occurrence followed by minor salivary glands (27.4%). Majority (58.2%) of them were benign. Of all the benign and malignant tumours pleomorphic adenoma (47.2%) was commonest tumour followed by adenoid cystic (17.5%) and mucoepidermoid tumours (16.4%). **Conclusion:** These tumours are more common in females with wide range of age distribution. Parotid gland is the most common site of involvement with pleomorphic adenoma being the commonest tumour type.

Keywords: Salivary gland tumours, pleomorphic adenoma, adenoid cystic carcinoma, mucoepidermoid carcinoma

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INTRODUCTION

Salivary gland tumours account for 3% of all head and neck tumours.[1] They constitute heterogeneous group of tumours with different biological behavior.[2] Salivary glands are further subdivided into major and minor types. Parotid, submandibular and sublingual glands are major salivary glands whereas minor salivary glands are widely distributed in upper aero digestive tract.[3]

Majority of these tumours occur in parotid gland and pleomorphic adenoma (PA), also known as benign mixed tumour, is the most common type of salivary gland tumour.[1,4,5]

These tumours are particularly challenging for both histopathologists and surgeons because of their varied histologic characters and wide range of biologic behaviour. Benign and malignant tumours resemble each other not only grossly but also at microscopic examination. Moreover, certain benign tumours like pleomorphic adenoma are characterized by recurrence and repeated surgical failures.[6] This study was undertaken to analyze the clinico-pathologic features of 91 salivary gland tumour patients to develop a better understanding of these tumours.

MATERIAL AND METHODS

This study analyzed records of 91 consecutive cases of salivary gland tumours diagnosed during 3 year period from 2009–2011 received at Chugtais Lahore Laboratory. This laboratory receives biopsy material from public and private sector hospitals in Punjab. Hematoxylin and eosinophil stained slides were retrieved and re-examined. Data analysis included the age, gender, site of tumour and histologic pattern. Immunohistochemistry was done wherever needed. Tumours from lacrimal glands were excluded.

RESULTS

A total of 91 cases of salivary gland tumours were reviewed retrospectively which were diagnosed in 3 year period from 2009–2011 at Chugtais Lahore laboratory. There were 42 (46.15%) males and 49 (53.38%) females with male to female ratio of 1:1.1 for all tumours. The age at initial histological diagnosis of 91 patients, ranged from 8 to 92 years. The mean age of patients with malignant tumours (59.77 years) was much higher than the mean age (45.58 years) of patients with benign tumours.

The anatomic distribution of salivary gland tumours showed that 47 tumours originated in parotid gland (PG), 18 in submandibular (SMG), 1 in sublingual gland (SLG) and 25 in minor salivary glands (MSG). Among the MSG tumours about 44% (11 tumours) arose from the palate. Other locations of minor glands included, cheek (4), tongue (3), lip (2), maxillary sinus (2) and 1 each in retro molar region, floor of mouth and oropharynx. The percentage frequency of total salivary gland tumours in various sites is illustrated in table-1.

The malignant status of the tumours showed that 53 were benign and 38 were malignant tumours. Majority (60.6%) of major salivary gland tumours were benign whereas almost equal frequency of benign and malignant tumours was seen in minor salivary glands as shown in table-1.

PA was the most frequently diagnosed benign salivary gland tumour (47.2% of all cases and 81% of benign tumours) followed by basal cell adenoma (7.5%) and myoepithelioma (5.6%) of benign tumours (Table-2). PA had wide range of age distribution (8–92 years) with mean age of 37.78 years. Majority of them occurred in females with male to female ratio of 16:27. Parotid gland was the most common site of involvement in case of PA. Similarly mean age, gender distribution and site of tumour in benign salivary gland tumours is analyzed in table-3.

Out of 38 malignant salivary gland tumours 24 (63%) were males and 14 (36.8%). The age ranged from 8–86 years.

Regarding site of malignancy, it was observed that 44.7% tumours developed in parotid glands followed by minor salivary glands 31.5%, submandibular gland 21% and sublingual gland 2.6%.

Adenoid cystic carcinoma was the commonest malignant tumour (42% among malignant tumours) in our series with equal distribution in males and females. Majority of them (62.5%) developed in minor salivary glands. This is closely followed by Mucoepidermoid carcinoma, MEC, (39.5% among malignant tumours). MEC was predominantly observed in males with male to female ratio of 4:1, seen mainly in parotid gland. There were 3(7.8%) cases of acinic cell carcinoma with 1 (2.6%) case each of Carcinoma ex pleomorphic adenoma (CAXPA), epithelial myoepithelial carcinoma, polymorphous low grade adenocarcinoma (PLGA) and squamous cell carcinoma (SCC) table-2. Age, gender and site distribution of all malignant tumours is analyzed in table-3.

Table-1: Distribution of benign and malignant tumours with regard to site

Site	Benign	Malignant	Total (n)	%
Parotid gland	30	17	47	51.6
Submandibular gland	10	8	18	19.7
Sublingual gland	0	1	1	1.1
Minor salivary glands	13	12	25	27.47

Table-2: Distribution of histologic subtypes of various salivary gland tumours

Histologic subtypes	n (%)
Benign	**53 (58.2%)**
PA	43 (47.2%)
Basal cell adenoma	4 (4.4%)
Myoepithelioma	3 (3.2%)
Warthin tumour	2 (2.9%)
Oxyphilic adenoma	1 (1.1%)
Malignant	**38 (41.7%)**
Adenoid cystic ca	16 (17.5%)
MEC	15 (16.5%)
Acinic cell carcinoma	3 (3.2%)
CAXPA	1 (1.1%)
SCC	1 (1.1%)
PLGA	1 (1.1%)%
Epithelial Myoepithelial carcinoma	1 (1.1%)

Table-3: Mean age, gender distribution and site of tumour in benign and malignant salivary gland tumours

Benign	Mean Age(yr)	Gender M:F	Site			
			PG	SMG	MSG	SLG
PA	37.78	16:27	26	9	8	-
Basal cell adenoma	44.5	1:1	2	-	2	-
Myoepithelioma	43.66	1:2	-	-	3	-
Warthin tumour	50	1:1	2	-	-	-
Oxyphilic adenoma	52	0:1	-	1	-	-
Malignant						
Adenoid Cystic Ca	54.4	1:1	2	3	10	1
MEC	36.33	4:1	10	4	1	-
Acinic cell carcinoma	46.66	0:3	2	1	-	-
CAXPA	56	1:0	1	-	-	-
SCC	86	1:0	1	-	-	-
PLGA	83	0:1	-	-	1	-
Epithelial Myoepithelial carcinoma	56	1:0	1	-	-	-

DISCUSSION

Salivary glands give rise to wide variety of neoplasm, nearly 40 different entities, having complex and diverse histopathology.[3,7] In majority of cases, tumour diagnosis is straightforward but can be changeling particularly on small incisional biopsies where careful consideration of clinical features is also essential.[7]

We studied 91 cases of salivary gland tumours which presented in three years time period (2009–2011). In the present study, the tumours of the salivary glands were more common in females. This finding is similar to the overall female predominance reported in Western Literature[8] but in contrast to findings of Gill *et al*[9] in Karachi who found male dominance.

Traditionally, the distribution of salivary neoplasms between sites has followed a rule of 1:0.1:0.1:0.01 ratio for parotid, submandibular, minor salivary glands and sublingual tumours, respectively.[6] In this study there was nearly a 2.6:1:1.3:0.05 ratio of tumours from the parotid (51.6%), submandibular (19.7%), and minor salivary glands (27.4%), and sublingual gland (1%) in that order. Similar to our observation, Edda also found low incidence in parotid and relatively high incidence in submandibular and minor salivary glands. The parotid gland was the commonest site of occurrence followed by minor salivary glands. Among minor salivary glands palate was the commonest site similar to observations by Gbotolorun[10] in Nigeria and Lopes in Brazil[11]. Sublingual gland is an unusual site for tumours with reported incidence of less than 0.5%. We diagnosed only one case occurring in it. This is in accordance with both Western and African studies.[6]

Of all the tumours of salivary glands, PA was the commonest diagnosed tumour (47.2%) followed by adenoid cystic carcinoma (17.5%), MEC (16.4%) and basal cell adenoma (4.3%). Among the benign tumours, PA dominated (81.1%), followed by basal cell adenoma (7.5%). Among malignant tumours, adenoid cystic carcinoma occurred in 42.1% followed closely by MEC (39.4%) which is contrary to European and American studies[12] where MEC constitute the most common malignant salivary gland tumour. But Rahman in Pakistan[13], Edda in Uganda[6] and Ladeinde in Nigeria[14] also found adenoid cystic carcinoma to be the most common malignant tumour.

After adenoid cystic carcinoma and MEC, the next in frequency was acinic cell carcinoma (7.8%) followed by PLGA (2.6%), epithelial myoepithelial carcinoma (2.6%), CAXPA (2.6%), and SCC (2.6%).

CONCLUSION

Salivary gland tumours are relatively more in females. Parotid gland was the most common site of origin in both benign and malignant tumours. PA was the most common benign salivary gland tumour and adenoid cystic carcinoma was the most frequent malignant neoplasm. The overall relative frequency of salivary gland tumours in this series correlates with that reported in the national and international literature except that adenoid cystic carcinoma was the most frequently occurring malignant salivary gland tumour in present study.

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