Incidence of Salivary Gland Tumors: A Morphological Study at Pathology Department of King Edward Medical University/Mayo Hospital, Lahore

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This study was conducted to see the incidence of the lesions of Salivary Gland. All the cases of salivary tissues submitted to the Pathology Department of King Edward Medical University were taken at the end of year (Jan 2005-Dec2005) and reanalyzed. There were 42 cases of salivary glands, out of which 19(45%) were males and 23(55%) were females. Age range was 12-72 years. Major number of cases (17) were from parotid, whereas 15 were from submandibular, 04 and 06 were from sublingual and minor salivary glands like palate respectively. There were 25(59.52%) pleomorphic adenoma, 01(2.3%), 01(2.3%), 04(9.5%), 07(16.6%) were monomorphic adenoma, lymphoepithelioma, mucoepidermoid carcinoma, adenoid cystic carcinoma respectively. Only 04(9.5%) cases showed chronic sialadenitis.

Key words: Salivary gland tumours

The salivary glands found in and around mouth and throat are called as major salivary glands. These include parotid, submandibular, and sublingual glands. They all secrete saliva into mouth. The parotid secretes through salivary ducts near upper teeth, submandibular under tongue, and the sublingual through many ducts in the floor of mouth. Besides these glands, there are many tiny glands called minor salivary glands located in lips, inner cheek area (buccal mucosa), and extensively in other linings of mouth and throat. The saliva is used to moisten the mouth, initiate digestion, and helps to protect teeth from decay. As a good health measure, it is important to take lot of liquids daily. Dehydration is a risk factor for salivary gland disease[1].

Salivary gland tumors are quite uncommon, but they elicit considerable medical interest because of their multifaceted clinical presentation, varied histologic appearance, and difficulties in predicting prognosis. Benign lesions are common in females but malignant tumors are equally divided between both sexes. Among more than 2,700 patients with salivary gland tumors treated at Memorial Sloan-Kettering Cancer Center, the parotid gland was the most frequently involved (68%) whereas the minor salivary and the submandibular salivary glands were affected less commonly (23% versus 9%)[2].

The salivary glands are the site of origin of a wide variety of neoplasms. The histopathology of these tumors is said to be the most complex and diverse of any organ in the body. Salivary gland neoplasms are also relatively uncommon with an estimated annual incidence in the United States of 2.2 to 2.5 cases per 100,000 people. They constitute only about 2% of all head and neck neoplasms[3]. Nearly 80% of these tumors occur in the parotid glands, 15% in the submandibular glands and the remaining 5% in the sublingual and minor salivary glands. Benign neoplasms make up about 80% of parotid tumors, 50% of submandibular tumors and less than 40% of sublingual and minor salivary gland tumors.[4]

Pleomorphic adenomas are the most common neoplasm of salivary glands (45-74%). Average age is about 43 years. These are slowly growing and asymptomatic tumors which present as a single, nodular, firm and slightly compressible mass. In parotid gland the tumor is usually mobile. Palate tumors occurs as a mass lateral to the midline. Recurrent lesions occur as multiple nodules and are less mobile than the original tumors. A benign tumor is composed of cells exhibiting the ability to differentiate to epithelial (ductal and nonductal cells) and mesenchymal (Chondroid, myxoid and osseous) cells[5-7].

Materials and Methods:

All the cases of salivary tissues submitted to the Pathology Department of King Edward Medical University were taken at the end of year (Jan 2005-Dec 2005). Data was collected from the computerized record. Patient's identity (age, sex, date and ID number), clinical history, gross and microscopic examination of the tissues were taken as the parameters. All the blocks were reexamined and results were compared with previous reports.

Results:

A total number of 42 cases of salivary lesions received in a year (Jan 2005- Dec 2005). There were 19(45.23%) males and 23(54.77%) females. Age range was 12-72 years. 17 cases were from parotid, 15 were from submandibular, 04 and 06 were from sublingual and minor salivary glands.

Altogether there were 25(59.52%) pleomorphic adenoma, 01(2.3%), 01(2.3%), 04(9.5%), 07(16.6%) monomorphic adenoma, lymphoepithelioma, mucoepidermoid carcinoma, adenoid cystic carcinoma respectively and 04(9.5%) cases of chronic sialadenitis.

Out of 17 parotid specimens, 04 were of males and 13 of females, age range 16-60 years. There were 11(64%) cases of pleomorphic adenoma (FigI-II), 01(5.8%) monomorphic adenoma, 01(5.8%) lymphepithelioma,

02(16.6%) mucoepidermoid carcinoma (Fig III) and 01(5.8%) adenoid cystic carcinoma, while one (5.8%) case of chronic sialadenitis.

Similarly, out of 15 submandibular gland specimens 07 were of males and 08 of females. Age ranged from 20 to 70 years. There were 09(60%) cases of pleomorphic adenoma, 01(6.6%) mucoepidermoid carcinoma and 04(26.6%) adenoid cystic carcinoma while one case of chronic sialadenitis (6.6%).

Amongst 04 sublingual gland specimens, 03 were of males and 01 of female, age range was 12-45 years. There were 03(75%) cases of pleomorphic adenoma and 01(25%) case of chronic sialadenitis. 06 cases of minor salivary glands(palate) lesions were analyzed, age ranged between 30 to 72 years, there were 03 carcinoma, 01(16.6%) mucoepidermoid carcinoma and 02(33.2%) adenoid cystic carcinoma and 03 pleomorphic adenoma (Table I-II)

Table I. Distribution of lesions with patient's age, sex & site of lesion.

Site of Lesion	No of cases	Age	Gender		Diagnosis					
			M	F	PA	MA	LE	MEC	ADCC	Chronic Inflammation
Parotid	17	16-60	04	13	11	1	1	2	1	01
Submandibular	15	20-70	07	08	09	-	-	1	4	01
Sublingual	04	12-45	03	01	03	-	-	-	-	01
Minor salivary gland (Palate)	06	30-72	05	01	02	-	-	1	02	01
Total	42	12-72	19 (45.23%)	23 (54.77%)	25	01	01	04	07	04

Key: PA: Pleomorphic Adenoma.MA: Monomorphic Adenoma.LE: lymphoepithelioma. MEC: Mucoepidermoid Carcinoma.ADCC: Adenoid Cystic carcinoma

Table II. Distribution of neoplastic lesions in different salivary Glands.

Tumors	Parotid Gland (n=17)	Submadibular Gland (n=15)	Sublingual Gland (n=04)	Minor Salivary Glands (n=06)	Total (n=42)
Pleomorphic adenoma	11(64.7%)	09(60%)	03(75%)	02(33.3%)	25(59.52%)
Monomorphic adenoma	01(5.8%)	-	-	-	01(2.3%)
Lymphoepithelioma	01(5.8%)	-	-	-	01(2.3%)
Mucoepidermoid Ca	02(10.6%)	01(6.6%)	-	01(16.6)	04(9.5%)
Adenoid Cystic Ca	01(5.8%)	04(26.6%)	-	02(33.2%)	07(16.6)
Total	16(38%)	14(33.33%)	03(7.1%)	05(11.9%)	

Discussion

Salivary gland tumors are rare: as few as 3 out of 100,000 people develop salivary gland tumors per year. In a study, men were more likely to develop salivary gland tumors than women, and the peak incidence occurred between thirty and fifty years of age. Eighty percent of all salivary growth tumors were benign. The majority of salivary gland tumors occured in the parotid glands, the pair of major salivary glands located in front of the ears. Parotid gland tumors are usually *benign pleomorphic adenomas*. Although often benign, a parotid gland tumor can block the salivary gland and cause a dry mouth. Salivary gland tumors that develop in the submandibular, sublingual, and minor salivary glands are more likely to be malignant than parotid gland tumors. *Mucoepidermoid carcinoma* was the most common type of malignant salivary gland tumor. Other salivary gland tumors included *adenoid cystic carcinoma*, *acinic cell carcinoma*, *adenocarcinoma*, and *squamous cell carcinoma*.[8] Pleomorphic adenoma is the most common salivary gland neoplasm and infrequently undergoes malignant transformation.[9]

In this study salivary glands lesions are greater in females (54.77%) than in males (45.23%) and pleomorphic adenomas were the most common tumors, about 59.52%. These are more common in parotid than in other glands. Our study is consistent with Eisele et al (2001) while contradicts Salivary Gland Disease Study Group (2006).[8] In our study, submadibular glands showed higher incidence of adenoid cystic carcinoma than other glands but sex distribution was almost equal.

In minor glands, malignant tumors prevalence is more as compared to other glands. In our study no pleomorphic adenoma was seen with malignant transformation as observed by Ethunandan et al (2006).[9] This could be due to small number of cases in our data. No malignant tumor was seen in children as also observed by Whatley et al (2006).[10]

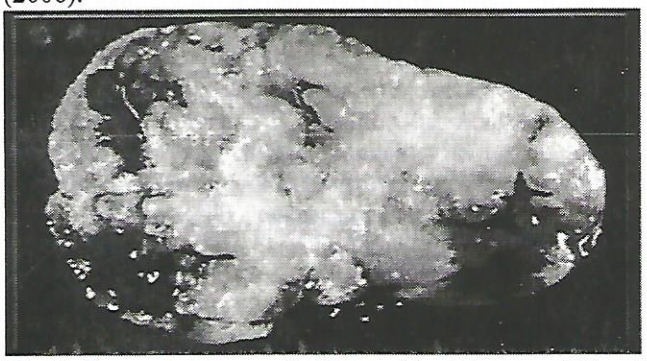

Fig: I: Gross appearance of pleomorphic Adenoma of Parotid Gland

Fig: II. Photomicrograph of Pleomorphic Adenoma of Parotid Gland. Area of cartilage differentiation is visible against epithelial and spindle cells background

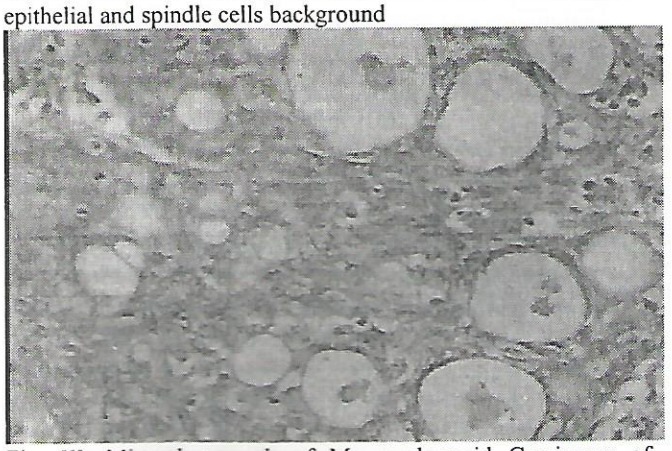

Fig. III. Microphotograph of Mucoepdermoid Carcinoma of parotid Gland. Mixed morphology of mucous secreting glands and squamous differentiation, without marked pleomorphism (Grade I)

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