

## A CLINICOPATHOLOGICAL STUDY OF SALIVARY GLAND TUMORS

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**ABSTRACT:BACKGROUND:**Salivary gland tumors hold the interest of clinicians and pathologists due to their varied clinical presentation and histological diversity. We have studied the salivary gland tumors with correlation to clinical features, incidence, and histopathologic features.

**MATERIALS AND METHODS:** Salivary gland biopsies were studied histologically after staining the sections with hematoxylin and eosin, sometime with special stains. **OBSERVATION AND ANALYSIS:**Asymptomatic slow growing mass was the most common clinical presentation and pleomorphic adenoma was the most common benign salivary gland tumor.

**CONCLUSION:**Histopathologic examination of salivary gland lesions is the most important method, not only in establishing the diagnosis but also in predicting prognosis by typing, staging and grading in case of malignant neoplasms of the salivary glands.

**KEY WORDS:** Salivary gland tumor, benign, malignant.

**INTRODUCTION:**Neoplastic lesions of salivary gland present a confused subject matter, primarily because of the great histologic diversification which they exhibit and continue to hold the interest of many clinicians and pathologists. The complex histological picture exhibited by many of these tumors has in the past aroused considerable speculations concerning their histogenesis and this is largely responsible for the popular designation of the commonest forms as the mixed tumor. Though salivary glands are comparatively simple structurally, their ducts and acini give rise to considerable number of histologically distinct tumor types. Most of the tumors arising from these are benign and remain harmless for number of years. Malignant tumors, though occurring in a smaller number, continue to be a challenge to the surgeons and pathologists due to their proximity to the facial nerve and their varying degree of malignancy. Sometimes it is difficult to differentiate clinically between the benign and malignant tumors and to estimate the behavior of these tumors by their histological patterns. Tumors, apparently benign looking histologically, may show metastases.

In the present study, neoplastic lesions of salivary glands were undertaken with special emphasis on clinical correlation.

### AIMS AND OBJECTIVES:

1. To study the incidence of salivary gland tumors with respect to the age, sex, site, distribution and clinical presentation.
2. To determine the incidence of benign and malignant tumors.
3. To study the histomorphological appearance of these tumors.
4. To correlate the presenting clinical features with histopathological type of the tumor.

**MATERIALS AND METHODS:**50 salivary gland tumors were studied. The specimen consisted of biopsies, partial excision, and a total excision of the salivary gland with or without the draining lymph node. Due importance was given to record the detailed clinical history like age, presenting

# ORIGINAL ARTICLE

signs and symptoms, presence of facial nerve palsy, and evidence of metastases of each patient. Other associated symptoms were also taken into account. A thorough general and systemic examination was carried out.

Histopathologically, the gross examination was done carefully noting the size, shape, extent, configuration, nodularity and consistency. All the sections were stained routinely with hematoxylin and eosin and special stains like PAS, with and without diastase, mucicarmine, alcian blue and toluidine blue were employed wherever necessary. The histopathological examination included encapsulation, growth pattern, cell morphology, other epithelial change, stromal features, lymphocytic infiltration, perineurial invasion and invasion into surrounding tissue.

The tumors were grouped according to the revised WHO International classification of salivary gland tumors. The lymph nodes when present were also studied for evidence of metastases and reactive changes. The histological features were correlated with presenting clinical features.

**OBSERVATION AND ANALYSIS:** The results of present study are as in following table.

Sl no	Lesions	Total no of cases	Percentage
1	Inflammatory lesions	12	19.36
2	Neoplastic lesions	50	80.64
	Total	62	100

**Table 1: Showing incidence of inflammatory and neoplastic lesions.**

Sl no	Tumors	No of cases	Percentage
1	Benign tumors	37	74
2	Malignant tumors	13	26
	Total	50	100

**Table 2: Showing different types of salivary gland tumors and their incidence.**

Gland	Total No%		Benign%		Malignant%	
Parotid	36	76	29	78.37	7	53.84
Submandibular	9	18	7	18.8	2	15.38
Minor Salivary	5	10	1	2.7	4	30.76
Total	50	100	37	100	13	100

**Table 3: Showing percentage frequency and distribution site of the 50 salivary gland tumors.**

Age group	No of cases	Percentage	Male	Female
0 - 9	--	--	--	--
10 - 19	5	10	3	2
20 - 29	9	18	5	4
30 - 39	13	26	5	8
40 - 49	14	28	8	6
50 - 59	4	8	3	1

## ORIGINAL ARTICLE

60- 69	4	8	4	--
70- 79	1	2	--	1
Total	50	100%	28	22

Table 4: Showing age and sex distribution salivary gland tumors.

Site	Histological type	No of cases	Percentage
Hard palate	Pleomorphic adenoma	1	20
Hard palate	Mucoepidermoid carcinoma	2	40
Hard palate	Carcinoma ex-pleomorphic adenoma	1	20
Cheek	Adenoid Cystic Carcinoma	1	20
	Total	5	100 %

Table 5: Showing different site and histological types of tumors in minor salivary glands.

Histological type	Total	Parotid gland		Submandibular gland		Minor salivary gland	
		No	%	No	%	No	%
<b>I) Benign</b>							
Pleomorphic adenoma	29	22	75.86	6	20.68	1	34
Warthin's tumor	5	4	80.00	1	20.00	--	--
Myoepithelioma	1	1	100.0	--	--	--	--
Basal cell adenoma	2	2	100.0	--	--	--	--
<b>II) Malignant</b>							
Mucoepidermoid Carcinoma	8	5	62.5	1	12.5	2	25.0
Adenoid cystic Carcinoma	3	1	33.3	1	33.3	1	33.3
Carcinoma ex-pleomorphic adenoma	2	1	50	--	--	1	50.0

Table 6: showing histological types,site and percentage of salivary gland tumors

Tumors	Median age range	Median age total	Median age male	Median age female	No of male	No of female	Mif ratio
Pleomorphic adenoma	14 - 60	37	37	36	14 (48.17 %)	15 (51.85%)	1:1.07
Warthin's tumor	16 - 65	40.5	40.5	--	5 100 %	--	5:0
Myoepithelioma	30	--	--	--	1 100 %	--	1:0
Basal cell adenoma	45 - 50	47.5	50	45	1(50)	1(50)	1:1
Mucoepidermoid carcinoma	20 - 50	35	35	35.5	6(75 %)	2(25%)	3:1
Adenoid cystic carcinoma	30 - 70	50	37.5	50	2(65%)	1(35%)	2:1
Carcinoma ex-pleomorphic adenoma	24 - 40	32	24	40	1(50)	1(50)	1:1

Table 7: Showing Age (in years) and sex ratio of the tumors of salivary glands.

## ORIGINAL ARTICLE

Symptoms	Total		PA		WT		ME		BCA		MEC		ACC		CaPA	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Asymptomatic	37	74	22	75	3	60	1	00	2	100	6	75	266	66	1	50
Slow growing																
Recently rapidly growing	7	14	4	13.79	--	--	--	--	--	--	2	25	--	--	1	50
Rapidly growing	5	10	3	10.34	1	20	--	--	--	--	1	12.5	--	--	--	--
Pain	14	18	6	20.68	1	20	--	--	--	--	5	62.5	1	33.33	1	50
Cystic mass	2	4	1	3.44	--	--	--	--	--	--	1	12.5		--	--	--
Adherent to surrounding structure	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Recurrent swelling	1	2	1	6	--	--	--	--	--	--	--	--	--	--	--	--
Facial nerve involvement	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metastases	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 8: Showing clinical features of 50 salivary gland tumors.

(PA = Pleomorphic Adenoma, WT = Warthin's Tumor, ME = Myoepithelioma, BCA = Basal Cell Adenoma, MEC = Mucoepidermoid Carcinoma, ACC = Adenoid Cystic Carcinoma, CAPA = Carcinoma Ex- Pleomorphic Adenoma)

**DISCUSSION:**In the present study the incidence of salivary gland tumors has been found to be 20 per year which is comparable with the studies of other others<sup>1,2</sup>.

Majority of Salivary gland tumors commonly arise in the parotid gland. In the present study of 50 cases 72 % were seen in parotid gland. Other authors have reported 87.3%, 75% and 72.9% of salivary gland tumors in parotid gland<sup>3,4,5</sup>, 80.55 % of benign tumors were observed in parotid gland<sup>6</sup>.

There is literature of observation that malignant tumors (87.8 %) were more common than benign tumors in minor salivary glands<sup>7</sup>. In the present study 5 tumors were observed in minor salivary glands.All but one was malignant constituting 80%.

A majority of salivary gland tumors present as asymptomatic,slowly growing masses. It has been observed that a rapid growth and nerve palsy are more likely to be malignant<sup>8</sup>. In the present study majority presented as slowly growing painless masses.

The median age of presentation would be 35.7 years. In the present study the median age was 34 years with youngest patient being 14 years old and oldest patient was 60 years old, with a male to female ratio of 1.9: 1<sup>9</sup>. In the present study there was a male preponderance with the ratio being 1.78:1.

# ORIGINAL ARTICLE

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The majority of pleomorphic adenoma present as slowly growing painless swelling, the duration varying from 2 weeks to 7 years<sup>10,11,12</sup>.

Mucoepidermoid carcinoma was the commonest malignant tumor and the reported incidence range from 11%<sup>13</sup> to 35%<sup>14</sup> of malignant tumors.

Warthin's tumor can be associated with Hodgkin's disease or T/NK cell lymphoma<sup>15,16</sup>. Carcinomas of salivary glands<sup>17,18</sup> usually present as painless slowly enlarging mass and sometimes they may be rapidly growing with or without facial palsy<sup>19,20</sup>.

**SUMMARY AND CONCLUSION:** The average annual incidence of salivary gland tumor has been observed to be 20.0 per year and of the 50 salivary gland tumors, 37 were benign neoplasms (74%) and 13 were malignant neoplasms (26%). The age incidence of salivary gland tumors ranged from 14 to 70 years with a mean age of 38.85 years with male to female ratio of 2:1 for all salivary gland tumors except Warthin's tumor for which it was 5:0. The parotid gland was the commonest site of salivary gland tumors with 78.37 % of benign salivary gland tumors and 52.84 % of malignant tumors.

Pleomorphic adenoma was the commonest benign tumor and mucoepidermoid carcinoma was most common malignant tumor of the salivary gland with clinical presentation as slowly growing painless mass.

In conclusion it is clear from the present study that the histopathology examination of salivary gland tumors is the most important method, not only in establishing the diagnosis but also in predicting prognosis by typing, staging and grading in case of malignant neoplasm of the salivary glands.

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## ORIGINAL ARTICLE

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