

Histopathological Study of Salivary Gland Tumors

Dr.Anjali Saxena, Dr. Geetika Mathur, Dr.Mayank Mathur, Dr.Divya Mathur,

Dr.Naman Saxena

Corresponding author- Dr.Mayank Mathur

Abstract:

Background: Salivary gland tumors represent the most complex and diverse group of tumors encountered by the pathologist. Their diagnosis and management is complicated by their relative infrequency, the limited amount of pretreatment information available and the wide range of biologic behavior seen with the different pathologic lesions. It may vary from low grade tumour to high grade tumour and often fatal malignancy. These circumstances make this cancer a diagnostic and therapeutic challenge. This is a retrospective study till date done at Pathology Department, K.D. medical hospital and research centre, Mathura, India. All the cases of Salivary gland tumors, which had been recorded in a two and half year period from 2015 to 2018, were enrolled in the study.

Results: Total number of cases studied were 60. Out of which 37 were benign (61.67%) and 23 were malignant (38.33%). Among benign tumours, **Pleomorphic adenoma** was found to be the commonest tumour. The **Mucoepidermoid carcinoma** was the most common malignant tumor. Females are affected more commonly than males in both groups.

Conclusion: The histopathological study of salivary gland neoplasms is complex and diverse. Accurate diagnosis is essential as salivary gland neoplasms have diverse clinical and prognostic outcomes.

Date of Submission: 02-05-2018

Date of acceptance: 18-05-2018

I. Introduction

Salivary gland tumors (SGTs) are rare and their annual incidence is <1/100,000 inhabitants, without noticeable geographical gap, and they represent <5% of head and neck tumors.[1]

In India, overall incidence of SGTs can be ascertained from the cancer registry established by Indian Council of Medical Research.[2]Salivary gland tumors represent the most complex and diverse group of tumors encountered by the head and neck oncologist. Their diagnosis and management is complicated by their relative infrequency, the limited amount of pretreatment information available and the wide range of biologic behavior seen with the different pathologic lesions.^{3,4}They can show a striking range of morphological diversity between different tumour types and sometimes within an individual tumour mass. In addition, hybrid tumors, dedifferentiation and the propensity for some benign tumours to progress to malignancy can confound histopathological interpretation.^{3,4}However there are no reliable criteria to differentiate, on clinical grounds the benign from the malignant lesions and morphologic evaluation is necessary.⁵Hence the present study is undertaken to study the spectrum of histomorphological features of various salivary gland neoplasms.

Salivary gland tumors comprise 3-6% of all head and neck neoplasms in adults with the incidence being one to three per 1,00,000 people per year. The mean age at presentation for malignant salivary neoplasms is 55 to 65 years while benign lesions typically develop atleast a decade earlier, at a mean age of 45 years.³As a general of rule, the smaller the salivary gland in adults, the higher the probability that a neoplasm arising in such a gland will be malignant.(5)

II. Material & Method

To study the occurrence of tumors of salivary glands during a period of two and half years (Nov 2015 - May 2018),To study the histopathological types of salivary gland tumors,To determine the age and sex distribution and to correlate the clinical features with relation to histopathological diagnosis.The present histomorphological study of salivary gland neoplasm is a both prospective (from january2018 to May 2018) and retrospective study (from november 2015 to december 2018). The material for the study comprised of specimens received in the Department of Pathology, K.D.Medical college and research centre, during this two and half years.The details of the specimens noted in the proforma include dimensions, appearance of the external and cut surface and the presence of lymph nodes, their size and number. stained with H&E. Microscopic examination of the stained sections was performed. The tumours were classified employing the new WHO international classification as a guideline⁴.

III. Results

During the study period of two and half years 60 salivary gland neoplasms were studied. Out of this were 37 were benign (61.67%) and 23 were malignant (38.33%).

TABLE 1 : FREQUENCY OF BENIGN AND MALIGNANT SALIVARY TUMOURS :

Sl.no	Types of tumours	No. of cases	Percentage
1	Benign	37	61.67%
2	Malignant	23	38.33%
3	Total	60	100%

TABLE 2: SEX DISTRIBUTION OF SALIVARY GLAND TUMOURS

Tumours	Male	Female	Total
Benign	17	20	37
Malignant	11	12	23
Total	28	32	60

TABLE 3: PERCENTAGE DISTRIBUTION OF DIFFERENT TYPES OF TUMOURS

SL.NO	TYPE OF TUMOUR	NO.OF CASES	PERCENTAGE
I.	BENIGN		
	1.Pleomorphic adenoma	31	83.7%
	2.Warthin tumour	3	8.1%
	3.Basal cell adenoma	2	5.4%
	4.Myoepithelioma	1	2.7%
	TOTAL	37	100%
II.	MALIGNANT		
	1.Mucoepidermoid carcinoma	10	43.4%
	2.Adenoid cystic carcinoma	6	26%
	3.Acinic cell carcinoma	5	21.7%
	4.Carcinoma ex pleomorphic adenoma	1	4.34%
5.Adenocarcinoma otherwise specified	1	4.34%	
	TOTAL	23	100%

TABLE 4 : AGE DISTRIBUTION OF SALIVARY GLAND TUMOURS

Sl. No	Tumours	Age in Years								Total
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	
1.	Pleomorphic adenoma	1	7	10	2	2	3	2	4	31
2.	Warthin tumour	0	0	0	0	0	0	2	1	3
3.	Basal cell adenoma	0	0	0	0	1	0	1	0	2
4.	Myoepithelioma	0	0	0	0	0	0	1	0	1
5.	Mucoepidermoid carcinoma	2	1	1	1	2	2	1	0	10
6.	Adenoid cystic carcinoma	0	0	3	1	1	1	0	0	6
7.	Acinic cell carcinoma	0	0	1	0	0	1	1	2	5
8.	Carcinoma-ex pleomorphic adenoma	0	0	0	1	0	0	0	0	1
9.	Adenocarcinoma not otherwise specified	0	0	0	0	0	0	1	0	1
	Total	3	8	15	5	6	7	9	7	60

TABLE 5: SITE WISE FREQUENCY OF BENIGN AND MALIGNANT SALIVARY GLAND TUMOURS

Site of location	Benign No.	Malignant	Total	Percentage
I.Major salivary glands			41	
Parotid		8	34	82.9
Submandibular	3	3	6	14.63
Sublingual	0	1	1	2.4
II.Minor salivary glands			19	
Palate	4	4	8	42.1

Lip	2		1	3	5.7
Cheek	1		0	1	5.2
Nasal cavity	1		4	5	26.3
Tongue	0		2	2	10.5
	Total			60	100%

TABLE 6: CLINICAL PRESENTATION OF PATIENTS WITH SALIVARY GLAND TUMOURS

Presenting signs and symptoms	No. of cases (n=60)
Mass	30
Pain and tenderness	22
Rapid enlargement of the mass	5
Palpable cervical lymphnodes	3

IV. Discussion

The various benign and malignant neoplasms of the salivary glands encountered in this study have been compared with similar neoplasms in other studies conducted in India and abroad.

Table 7 : Frequency of benign and malignant neoplasms

Series	Total	Benign	Malignant
Amos et al ⁶	380	59 %	41 %
Vuhahula et al ⁷	268	53.36 %	46.64 %
Vargas et al ⁸	124	79.84 %	20.16 %
Present study	60	(61.67%)	(38.33%).

Thus benign tumours were more common than malignant tumours in our study. All authors agreed the same. Thus frequency of benign and malignant tumours observed by us is similar to that noted by Vuhahula et al³⁵.

Table 8 : Age Distribution Of Salivary Gland Neoplasms

Series	Mean Age (In years)	
	Benign	Malignant
Vuhahula et al ⁷	33.5	43.1
Budhreja et al ⁹	41	41
Present study	39.90	41.02

In accordance with other studies, our study also showed benign tumours occurring at a slightly lower age group than malignant tumours.

Table – 9 : Sex Distribution Of Salivary Gland Neoplasms

Series	M : F Ratio		
	Total	Benign	Malignant
Jones et al ¹⁰	1 : 1.32	1 : 1.2	1 : 1.6
Sengupta et al ¹¹	1.0 : 1.7	1.0 : 1.6	1.0 : 1.2
Sharkey F.E ¹²	1.0 : 1.3	1.0 : 1.2	1.0 : 1.3
Present study	1 : 1.14	1 : 1.17	1 : 1.09

Our study showed a female preponderance for overall salivary tumours and for benign tumours, similar to that recorded by , Jones et al⁴³, Sengupta et al⁴⁵, Sharkey F.E.⁸

Table 10 : Site Distribution of Tumour

Series	Parotid	Submandibular	Sublingual	Minor
Jones et al ¹⁰	31.2%	5.2%	1.7%	61.9%
Vuhahula et al ⁷	33.96%	33.20%	-	32.84%
Sharkey F.E ¹²	80.50%	6.00%	1.0%	8.0%
Present Study	56.7%	10%	1.7%	31.7%

The site distribution of the salivary gland tumours in the present study is in agreement with the results obtained in other series, with a predilection for the parotid gland. In general, tumours are less common in minor salivary glands than in the major salivary glands. Palate was the commonest site for minor salivary gland tumours.

V. Conclusion

The histopathological study of salivary gland neoplasms is complex and diverse. Accurate diagnosis is essential as salivary gland neoplasms have diverse clinical and prognostic outcomes. Benign tumours are common than malignant tumours. Major salivary glands are affected commonly than minor salivary glands. Parotid was the commonest site involved. Females were more commonly affected than males. Pleomorphic adenoma was the commonest tumour observed. Mucoepidermoid carcinoma was the commonest malignant tumour observed followed by Adenoid cystic carcinoma.

References

- [1]. Sando Z, Fokouo JV, Mebada AO, Djomou F, NDjolo A, Oyono JL. Epidemiological and histopathological patterns of salivary gland tumors in Cameroon. *Pan Afr Med J.* 2016;23:66.[PMC free article] [PubMed]
- [2]. Nandakumar A, Ramnath T, Roselind FS, Shobana B, Prabhu K. National Cancer Registry Programme, Indian Council of Medical Research. Bangalore: Co-ordinating unit, NCRP (ICMR); 2005. Two year report of population based cancer registries 1999-2000; pp. 160–95.
- [3]. Chan JK, Cheuk W. Salivary gland tumors. Chapter 7, In : Fletcher CDM, editor. *Diagnostic histopathology of tumors.* 3rd ed. china: Churchill Livingstone Elsevier; 2007. p. 239-325.
- [4]. Barnes L, Eveson JW, Reuichart P, Sidrawsky D. WHO classification of tumours. *Pathology and Genetics of Head and Neck Tumours* : Lyon : IARC Press; 2005. p. 209-281.
- [5]. Lingel MW, Kumar V. Head and Neck. Chapter 16, In : Kumar V, Abbas AK, Fausto N, editors. *Robbins and Cotran Pathologic basis of disease.* 7th ed, Philadelphia : Saunders; 2004. P. 790-91.
- [6]. Amos B, Philip WM, William MC. Relative frequency of intra-oral minor salivary gland tumours: a study of 380 cases from Northern California and comparison to reports from other parts of the world. *J Oral Pathol Med* 2007;36(4): 207-214.
- [7]. Vuhahula EAM. Salivary gland tumours in Uganda : Clinical pathological study. *African Health Sciences* 2004; 4(1):15-23.
- [8]. Vargas PA, Gerhard R, Filho JFA, Castro IV. Salivary gland tumours in a Brazilian population : A retrospective study of 124 cases. *Rev Hosp Clin Fac Med S. Paulo* 2002;57(6):271-276.
- [9]. Budhraja SN, Pasupathy, Perianayagam. Salivary gland tumours in Pondicherry. *Ind J Surg* 1974;36:235-239.
- [10]. Jones AV, Craig GT, Speight PM, Franklin CD. The range and demographics of salivary gland tumours diagnosed in a UK population. *Oral Oncology* 2007.
- [11]. Sengupta SK, Banerjee AK, Datta BN. Primary tumours of salivary glands : An analysis of 111 tumours. *Ind J Pathol Bacteriol* 1973;16:32.
- [12]. Sharkey FE. Clinicopathologic study of 366 salivary gland tumours. *Am J Clin Pathol* 1977;67:272-278.

Dr.Mayank Mathur "Histopathological Study of Salivary Gland Tumors." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 17, no. 5, 2018, pp 69-72.