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Histomorphological Study of Salivary Gland Tumours

Reena Banerjee¹, R. K. Chandrakar²

¹Associate Professor Dept. of Pathology Chandulal Chandrakar Memorial Medical College, Kachandur, Durg, Chhattisgarh, India; ²Associate Professor Dept. of Pathology Chandulal Chandrakar Memorial Medical College, Kachandur, Durg, Chhattisgarh, India.

ABSTRACT

Introduction: Tumours of the salivary glands are an uncommon phenomenon. A heterogeneous community of pathologies includes around 3–10 % of carcinomas of the head and neck and just 0.5 % of all malignant tumours suit these forms. Although most other cancers of the head and neck are closely linked to smoking and alcohol, the salivary glands do not play a role in these. Some studies have found that a diet rich in vitamin C and low in cholesterol can help prevent salivary cancer of the gland. An increased risk of salivary gland cancers was found to be associated with HIV infection.

Objective: To identify different salivary gland histomorphological trends tumours, age, frequency and distribution of sites.

Material & Methods: Present study was at Chandulal Chandrakar Memorial Medical College and hospital. A total of 63 samples were studied. Demographic information was collected with information on location of tumor and size of tumor was determined for each salivary gland tumor. In both major and minor glands of malignant salivary gland tumours, frequency of benign and malignant tumor was determined.

Results: There were total 23 malignant tumor and 40 benign tumours. It has been observed that out of total 23 malignant tumours, 17(73.9%) were parotid glands, 4(17.4%) were submandibular glands while 2(8.7%) were minor salivary gland. Among mucoepidermoid carcinoma, the parotid gland was found to be most common (N=8, 34.8%). Among all 40 benign tumours, 1(2.5%) was minor salivary gland, 5(12.5%) were submandibular gland and 34(85%) parotid glands. In warthins tumour (N=9, 22.5%) and pleomorphic adenoma (N=13, 32.5%) parotid gland was more frequent compared to minor salivary gland and submandibular gland.

Conclusion: The most common carcinoma of mucoepidermoid is widely known malignant tumour of the parotid and salivary glands is a common site to the same. The histopathological checkup is mandatory for salivary gland tumour diagnosis as they occur to have a vast range of morphological patterns.

Key Words: Malignant, Tumour, Salivary glands, Carcinomas, Heterogeneous community

INTRODUCTION

Tumours of the salivary glands are an uncommon phenomenon. A heterogeneous community of pathologies includes around 3–10% of carcinomas of the head and neck and just 0.5 % of all malignant tumours suit these forms^{1,2}. Annually around 0.4 – 13.5 per 1 lakh population are affected by salivary gland tumours globally^{3,4,5}. The etiologic causes of cancers of the salivary gland remain unknown. Although most other cancers of the head and neck are closely linked to smoking and alcohol, the salivary glands do not play a role in these. Some studies have found that a diet rich in vitamin C and low in cholesterol can help prevent salivary

cancer of the gland⁶. There is equal distribution of salivary gland cancers in both sexes and generally occurs in sixth decade of life⁷.

History of prior cancers linked to Epstein-Barr virus, immunosuppression and radiation was also associated with an increased risk of cancer of the salivary glands. The risk of salivary gland cancer for Hodgkin's lymphoma patients was increased four-folds as reported in a Swedish study⁸. Both major and minor salivary glands are affected of which 80% of the tumour are seen in parotid gland while most minor tumours are located in the palate⁹. The smaller the salivary gland is, the more likely the tumour is malignant,

Corresponding Author:

Dr. R. K. Chandrakar, Associate Professor Dept. of Pathology, Chandulal Chandrakar Memorial Medical College, Kachandur, Durg, Chhattisgarh, 490024, India; Email: ambad.sawan@gmail.com

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20–25% of tumours in the parotid glands are malignant. Of the submandibular glands, this increases to 40%, and more than 90% of sublingual gland tumours are malignant^{10,11}. An increased risk of salivary gland cancers was found to be associated with HIV infection¹¹.

Tumours of the salivary glands may be shocking Morphological diversity vary among different types of tumours and even inside a single mass of tumours. So, it is important to identify various histomorphological patterns and classify them accordingly. The objectives of the present study were to identify different salivary gland histomorphological trends tumours, age, frequency and distribution of sites.

RESULTS

Table 1: Gender wise distribution of salivary gland tomours and their site

Sex	Minor Salivary gland		Submandibular gland		Parotid gland		Total
	Benign	Malignant	Benign	Malignant	Benign	Malignant	
Female	1	1	2	3	12	6	25
Male	0	1	3	1	22	11	38

Table no 1 Showed: there were 25 females and 38 males included in this study.

Table 2: Distribution of salivary gland tomours according to age

Age groups (in years)	Malignant Tumor	Benign Tumor	Total no. of cases
<20	1	4	5
21-40	4	9	13
41-60	10	14	24
61-80	6	10	16
>80	2	3	5
Total	23	40	63

Table no 2 shows It was observed that the cases ranged from 13 years to 81 years with a mean age of 45.2 years. A maximum number of malignant cases was found in the age group 41-60 years followed by 61-80 years. A benign tumour was common in the age group of 41-60 years. There were a total of 23 malignant tumours and 40 benign tumours.

MATERIAL & METHODS

The present study was at Chandulal Chandrakar Memorial Medical College and hospital. A total of 63 samples were studied. Demographic information was collected with information on the location of the tumour and the size of the tumour was determined for each salivary gland tumour. In both major and minor glands of malignant salivary gland tumours, frequency of benign and malignant tumour was determined. The specimens for biopsy were fixed in 10% formalin where they were further processed into paraffin-embedded sections and stained with hematoxylin and eosin (HE). The classification of histopathology of all tumours was done according to the World Health Organization (WHO) histological typing of salivary glands.

Table 3: Distribution of malignant tumour in salivary glands.

Type of tumour	Minor salivary gland	Submandibular gland	Parotid gland	Total
Polymorphous low-grade adenocarcinoma	0	0	0	0
Acinic cell carcinoma	0	0	0	0
Metastatic undifferentiated carcinoma	0	0	0	0
Squamous cell carcinoma	0	0	0	0
Basal cell carcinoma	0	0	1	1
Unclassified malignant tumor	0	0	1	1
Adenocarcinoma NOS	0	0	1	1
Carcinoma Eex- pleomorphic adenoma	0	1	2	3
Adenoid cystic carcinoma	1	1	4	6
Mucoepidermoid carcinoma	1	2	8	11
Total	2	4	17	23

Table no 3 shows: It has been observed that out of total 23 malignant tumours, 17(73.9%) were parotid glands, 4(17.4%) were submandibular glands while 2(8.7%) were minor salivary gland. Among mucoepidermoid carcinoma, the parotid gland was found to be most common (N=8, 34.8%).

Table 4: Distribution of Benign tumor glands

Type of tumor	Minor salivary gland	Submandibular gland	Parotid gland	Total
Lipoma	0	0	0	0
Schwannoma	0	0	1	1
Basal cell adenoma	0	0	3	3
Myoepithelioma	0	0	3	3
Monomorphic adenoma	0	1	5	6
Warthins tumor	0	2	9	11
Pleomorphic adenoma	1	2	13	16
Total	1	5	34	40

Among all 40 benign tumours, 1(2.5%) was minor salivary gland, 5(12.5%) were submandibular gland and 34(85%) parotid glands. In warthins tumour (N=9, 22.5%) and pleomorphic adenoma (N=13, 32.5%) parotid gland was more frequent compared to minor salivary gland and submandibular gland.

DISCUSSION

The etiologic causes of cancers of the salivary gland remain unknown. Whereas most other cancers of the head and neck are closely linked to smoking and alcohol, the salivary glands do not play a role in these. Some studies have found that a diet rich in vitamin C and low in cholesterol can help prevent salivary cancer of the gland. The most common form overall for the malignant salivary tumour is mucoepidermoid carcinoma. In the present study parotid was the most frequent site of cancer 80.9% in agreement with the study done by Amin NS et. Al. which reported parotid as most common 77.1%. Parotid was followed by the submandibular gland (14.3%) in our study compared to 17.7% in the study by Amin NS et al.¹² whereas the minor salivary gland was the least common site noted at 4.78% in our study.

In this study, the mucoepidermoid carcinoma was the most common malignant salivary gland tumour constituting 36.5% cases (N=23) which is similar to study of the histomorphological spectrum of salivary gland reporting 36.1% of cases^{5, 12}. The commonest type overall is mucoepidermoid carcinoma for malignant salivary tumour. However, if in turn each salivary gland is looked upon, it can be seen that

mucoepidermoid carcinoma is the only commonest cancer in the parotid glands comprising about 33% as shown in some studies^{13, 14}. In our study mucoepidermoid carcinoma in parotid gland was found to be most common (N=8, 34.8%). A large number of malignant cases were observed in the fourth decade followed by the Fifth decade in the present study. A study by Chatterjee et al. and Amin NS reported a large number of malignant cases in 3rd decade followed by the fourth decade^{12, 15}. Tumours with salivary glands may display a remarkable range of Morphological variation of the various types of tumours and even within the mass of a single tumour. In such instances, they are hard to accurately identify on histopathological grounds only.

CONCLUSION

Tumours of the salivary gland are extremely rare. Benign salivary Gland tumours are more commonly identified than malignant ones. The Parotid gland is the most frequent site for the development of tumours in the salivary gland. Adenoma with pleomorphic impact is the tumour detected most commonly in all salivary gland tumours. The most common carcinoma of mucoepidermoid is widely known malignant tumour of the parotid and salivary glands is a common site to the same. A histopathological checkup is mandatory for salivary gland tumour diagnosis as they occur to have a vast range of morphological patterns.

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REFERENCES

1. Jones AV, Craig GT, Speight PM, Franklin CD. The range and demographics of salivary gland tumours diagnosed in a UK population. *Oral Oncol* 2008; 44:407-17.
2. Lawal AO, Adisa AO, Kolude B, Adeyemi BF. Malignant salivary gland tumours of the head and neck region: a single institutions review. *Pan Afr Med J*. 2015; 20:121.
3. Ma'aita JK, Al-Kaisi N, Al-Tamimi S, and Wraikat A. Salivary gland tumours in Jordan: a retrospective study of 221 patients. *Croat Med J* 1999;40:539-42
4. Tian Z, Li L, Wang L, Hu Y, and Li J. Salivary gland neoplasms in oral and maxillofacial regions: a 23-year retrospective study of 6982 cases in an eastern Chinese population. *Int J Oral Maxillofac Surg* 2010;39:235-42
5. Pratibha Dawande, Neha Bhatt, Obaid Noman, Sweta Bahadure, Arvind Bhake. Correlation Between Cytological and Histological Grading of Breast Cancer and its Utility in Patient's Management. *International Journal of Current Research and Review. Modern Therapeutics Applications*, July, 2020, 71-76
6. Horn-Ross PL, Morrow M, Ljung BM. Diet and the risk of salivary gland cancer. *Am J Epidemiol*. 1997 Jul 15; 146(2):171-6.
7. Licitra L, Grandi C, Prott FJ, Schornagel JH, Bruzzi P, Molinari R. Major and minor salivary glands tumours. *Crit Rev Oncol Hematol*. 2003 Feb; 45(2):215-25.

8. Dong C, Hemminki K. Second primary neoplasms among 53 159 haematolymphoproliferative malignancy patients in Sweden, 1958-1996: a search for common mechanisms. *Br J Cancer*. 2001 Sep 28; 85(7):997-1005.
9. Speight PM, Barrett AW. Salivary gland tumours. *Oral Dis*. 2002 Sep; 8(5):229-40.
10. Loyola AM, de Araújo VC, de Sousa SO, de Araújo NS. Minor salivary gland tumours. A retrospective study of 164 cases in a Brazilian population. *Eur J Cancer B Oral Oncol*. 1995 May; 31B(3):197-201.
11. Meghavi R. Joshi, Dhaval Jetly, Mital Kundariya. The Malignant Round Cell Tumours: Histopathological Study and Immunohistochemistry. *International Journal of Current Research and Review*. Vol 11 Issue 08, April, 01-07
12. Amin NS, Shah SA, Prajapati SG, Goswami HM. Histomorphological spectrum of salivary gland tumours in a tertiary care hospital—A retrospective study. *Int J Med Sci Public Health* 2017;6:299-302
13. Lukšić I, Virag M, Manojlović S, Macan D. Salivary gland tumours: 25 years of experience from a single institution in Croatia. *J Craniomaxillofac Surg*. 2012 Apr; 40(3):e75-81.
14. Agulnik M, McGann C, Mittal B, Gordon S, Epstein J. Management of salivary gland malignancies: current and developing therapies. *Oncology Reviews*. 2008;2(2):86–94.
15. Chatterjee MT and Panda PK. A Pathological study of benign and malignant tumours of salivary glands; *MJAFI* 2000; 56:282-6.