



1. MBBS, M.Phil, DipRCPath, FCPS (Histopathology)  
Faculty, Pathology Department  
Rak Medical & Health Sciences  
University, Ras Al Khaimah, UAE
2. MBBS, M.Phil (Histopathology)  
Professor Pathology  
Shalamar Medical & Dental College  
Lahore.
3. MBBS, FCPS (Histopathology)  
Assistant Professor Histopathology  
Shalamar Medical & Dental College  
Lahore.
4. MBBS, FCPS (Histopathology)  
Associate Professor Histopathology  
Shalamar Medical & Dental College  
Lahore.
5. MBBS  
PGR/Demonstrator Pathology  
Shalamar Medical & Dental College  
Lahore.
6. MBBS, FCPS (Anaesthesia)  
Specialist Anaesthesia  
Tawam Hospital, Al-Ain UAE.

**Correspondence Address:**

Dr. Nausheen Henna  
Department of Pathology  
Rak Medical & Health Sciences  
University, Ras Al Khaimah, UAE  
noshihenna2015@gmail.com

**Article received on:**

24/11/2020

**Accepted for publication:**

25/02/2021

## INTRODUCTION

Salivary glands are exocrine organs and are distributed in head and neck region. These are small structures in the head and neck, but can give rise to a wide variety of pathological conditions. Salivary gland disorders include a wide spectrum of non-neoplastic (infections, inflammatory, autoimmune) and neoplastic (benign and malignant) disorders. Salivary gland neoplasms are rare and they range from 3%<sup>1</sup> -6%<sup>2</sup> of all head and neck tumours. The clinical presentation of salivary gland tumour can be localized or diffused; mobile or fixed; may or may not be associated with pain. The complexity of the neoplasm depends on variety in the histological appearances.

Approximately more than 50% of salivary gland tumours are benign, and 80% of all salivary gland neoplasms arise from the parotid gland.<sup>3,4</sup> The frequency of malignant lesions varies according to site. Among the malignant tumours, majority arises in minor salivary glands followed by

## Clinicopathological study of Salivary gland disorders in a tertiary care hospital, Lahore.

**Nausheen Henna<sup>1</sup>, Farooq Aziz<sup>2</sup>, Uzma Aslam<sup>3</sup>, Urfa Shafi<sup>4</sup>, Tayyaba Rashid<sup>5</sup>, Shahzad Ahmed Fakhr<sup>6</sup>**

**ABSTRACT... Objective:** To describe the demographic and histological features of salivary gland pathologies at tertiary care hospital. **Study Design:** Retrospective Descriptive. **Setting:** Shalamar Institute of Health Sciences, Lahore. **Period:** February 2012 to February 2017. **Material & Method:** 17548 surgical specimens were received during this period. Among these, 50 cases were diagnosed as salivary gland disorders. Statistical analysis was carried out using SPSS version 22. **Results:** 50 cases were diagnosed as salivary gland disorders out of 17548 surgical resections. Salivary gland disorders were divided into non-neoplastic group (n= 15) and neoplastic group (n = 35), which was further divided into: (i) Benign tumors, (n= 26) and (ii) Malignant tumors, (n= 9). **Conclusion:** Salivary gland disorders are rare diseases to be encountered clinically. Chronic sialadenitis among non-neoplastic disorders, pleomorphic adenoma among benign tumor and mucoepidermoid carcinoma among malignant tumors were the commonest.

**Key words:** Pleomorphic Adenoma, Salivary Gland, Sialadenitis.

**Article Citation:** Henna N, Aziz F, Aslam U, Shafi U, Rashid T, Fakhr SA. Clinicopathological study of Salivary gland disorders in a tertiary care hospital, Lahore. Professional Med J 2021; 28(11):1557-1560.  
<https://doi.org/10.29309/TPMJ/2021.28.11.6269>

submandibular and parotid gland.<sup>3,5</sup> The objective of the study is to describe the demographic and histological features of salivary gland pathologies at tertiary care hospital. Rationale of the study is to document histological features of salivary gland pathologies and their distribution in salivary glands.

## MATERIAL & METHODS

A retrospective analysis of data of five years (February 2012 to February 2017) was retrieved from archives of Histopathology section, Shalamar Institute of Health Sciences, Lahore. Haematoxylin & Eosin stained slides of cases of salivary gland disorders were retrieved and reviewed by two Consultant Histopathologists independently. Statistical analysis was carried out using SPSS version 22. Ethical committee & Institutional Review Board of Shalamar Medical and Dental College & Hospital approved the study with reference no. SMDC/IRB/14-02/155 dated: 14-2-2019.

## RESULTS

Fifty cases were diagnosed as salivary gland disorders out of 17548 surgical biopsies presented to Pathology Laboratory, Shalamar Institute of Health Sciences over a period of five years (February 2012- February 2017). Salivary gland disorders were divided into: Non-neoplastic group, n=15 (30%) and neoplastic group, n=35 (70%). Neoplastic group was further divided into: Benign tumours, n=26 (52%) and malignant tumours, n=9 (18%).

In non-neoplastic group, 40% were females and 60% were males with M: F ratio 1:1.5, however, in neoplastic group, 54% were males and 46% were females with M: F ratio of 1:1.8. Maximum number of patients in non-neoplastic group was presented in less than 20 years of age, benign tumours was between 21-50 years and in malignant tumours was between 52-60 years of age with mean age  $\pm$  SD of  $33.6 \pm 19.6$ ,  $36 \pm 17.7$  and  $54.8 \pm 9.2$  years respectively. In neoplastic group (n=35), parotid gland involvement was present in 24 (68.8%) among which 13 were males and 11 were females; submandibular gland involvement was 8 (22.6%) among which 3 were males and 5 were females; and minor salivary glands were involved in 3 (8.7%) and all were present in males.

Pathological diagnosis in non-neoplastic group (n=15) was chronic sialadenitis (n=11), abscess (n=1), chronic sclerosing sialadenitis (n=1), benign epithelial cyst (=1) and lymphoepithelial cyst (n=1) whereas in neoplastic group, benign lesions (n=26) were pleomorphic adenoma (n=19), Warthin's tumour (n=5) oncocytoma (n=1) and schwannoma (n=1). Among malignant lesions (n=9), adenoid cystic carcinoma (ACC) was seen in two cases, mucoepidermoid carcinoma (MEC) in 3 cases, one case each of acinic cell carcinoma, polymorphous low grade adenocarcinoma (PLGA), salivary duct carcinoma (SDC) and non-Hodgkin's lymphoma (NHL).

## DISCUSSION

We observed male to female ratio of 1.2:1 which is in concordance with Kizil et al<sup>6</sup> and Adebiyi et al<sup>7</sup>, however, Fonseca et al<sup>8</sup> and Vasconcelos et al<sup>9</sup> observed slight increase in female group i.e.,

M: F ratio of 0.8:1 and 0.9:1 respectively. Majority of the research groups observed parotid gland being the most vulnerable to develop neoplastic lesions, similar to the present study.<sup>2,9,10</sup> In contrary to this, Taghavi et al. observed high frequency in minor salivary glands involvement (81%)<sup>11</sup>, that seems to be very unusual.

In the present study, benign neoplasm were present in 74.3% of patients and malignant in 25.7% of cases, making benign to malignant ratio of 3:1, which was almost consistent with a study conducted by Wang et al who observed 75.4% benign and 24.6% malignant cases.<sup>10</sup> Kizil et al made similar observations, as more benign neoplasms i.e., 69% as compared to malignant tumours i.e., 31%.<sup>6</sup> Omhare et al also reported as 67.2% benign tumours and 32.8% as malignant lesions.<sup>2</sup> However, Lawal et al. observed opposite ratio as more of malignant cases (53.5%) in comparison to benign tumours (46.5%)<sup>12</sup>, which is in concordance with Adebiyi et al as 57% and 43% respectively.<sup>7</sup>

In the present study, the frequency of pleomorphic adenoma was highest (73%) that is consistent with most of the literature i.e., Qureshi et al: 82.1%<sup>13</sup>, Fonseca et al: 85%<sup>8</sup>, Lawal et al: 88%<sup>12</sup>, Omhare et al: 66.6%<sup>2</sup>, Vasconcelos et al: 79.1%.<sup>9</sup> Warthin's tumor was second most common benign tumor with a frequency of 19% in present study and 6.8%, 9.7%, 2.5% and 18.6% in Qureshi et al, Fonseca et al, Omhare et al and Vasconcelos et al respectively.<sup>2,8,9,13</sup> Oncocytoma was observed in 2.8% by Qureshi et al<sup>13</sup> and 0.2% by Fonseca et al<sup>8</sup>, however, 4% was noted in our study group.

In our research, a single case of Schwannoma was diagnosed which was involving parotid gland. Literature shows that 0.8% of all schwannomas are facial nerve related. Most of the Schwannomas are intratemporal, only 9% are extratemporal.<sup>2,14</sup>

The most common malignant tumors in the present study is MEC (33%) followed by ACC (22%), PLGA (11%) & acinic cell carcinoma (11%). Mucoepidermoid carcinoma is considered as most common in various studies conducted by Qureshi et al (63.2%)<sup>13</sup>, Fonseca et al (31.4%)<sup>8</sup>,

To VSH et al (24.4%)<sup>15</sup>, Omhare et al (42.1%)<sup>2</sup>, and Taghavi et al (27.1%).<sup>11</sup> However, acinic cell carcinoma was seen the commonest by Tabatabas et al (35.8%)<sup>16</sup>, Lawal et al (42.1%)<sup>1</sup> and Vasconcelo et al (58.3%).<sup>9</sup> Salivary duct carcinoma comprised of 11% in the present study, 17.7 % by To VSH et al<sup>15</sup> and 2.1 % by Taghavi et al.<sup>11</sup> Acinic cell carcinoma was ranked third by most of the studies in literature<sup>8,11,16</sup> and so in the present study. Non-Hodgkin lymphoma comprise 3% of cases in study conducted by Qureshi et al<sup>13</sup> and 11% in the present study.

## CONCLUSION

Salivary gland disorders are rare diseases to be encountered clinically. Chronic sialadenitis among non-neoplastic disorders, Pleomorphic adenoma among benign tumour and Mucoepidermoid carcinoma among malignant tumours were the commonest.






Copyright© 25 Feb, 2021.

## REFERENCES

1. Lawal AO, Adisa AO, Kolude B and Adeyemi BF. **Malignant salivary gland tumours of the head and neck region: A single institutions review.** Pan African Medical Journal 2015; 20: 121. DOI: 10.11604/pamj.2015.20.121.3458.
2. Omhare A, Singh SK, Nigam JS and Sharma A. **Cytohistopathological study of salivary gland lesions in Bundelkhand region, Uttar Pardesh, India.** Pathology Research International 2014; 1-5. DOI: 10.1155/2014/804265.
3. Speight PM and Barrett AW. **Salivary gland tumours.** Oral Dis 2002; 8 (5): 229-40. DOI: 10.1034/j.1601-0825.2002.02870.x.
4. Mendenhall WM, Werning JW and Pfister DG. **Treatment of head and neck cancer.** In: DeVita VT Jr, Lawrence TS, Rosenberg SA: **Cancer: Principles and practice of oncology.** 9th ed. Philadelphia, Pa: Lippincott Williams & Wilkins, 2011, 729-80.
5. Auclair PL, Ellis GL, Gnepp DR, et al. Salivary gland neoplasms: general considerations. In: Ellis GL, Auclair PL, Gnepp DR, eds.: **Surgical pathology of the salivary glands.** Philadelphia, Pa: Saunders, 1991; 135-64. <https://doi.org/10.1016/S0194-59989570266-0>.
6. Kizil Y, Aydil U, Ekinic Ö, Dilici A, Köybaşıoğlu A, Düzlü M and İnal E. **Salivary gland tumors in Turkey: Demographic features and histopathological distribution of 510 patients.** Indian Journal of Otolaryngology and Head & Neck Surgery 2013; 65: 112-120. DOI: 10.1007/s12070-012-0594-6.
7. Adebisi KE and Emmanuel MM. **Neoplastic salivary gland lesions: A retrospective analysis of 135 cases from Lagos State University Teaching Hospital, Ikeja, Lagos, Nigeria.** West Afr J Med 2014; 33:206-10.
8. Fonseca AP, Carvalho MV, Almeida OP, Rangel ALCA, Takizawa MCH, Bueno AG and Vargas PA. **Clinicopathologic analysis of 493 cases of salivary gland tumors in a Southern Brazilian population.** Oral Surg Oral Med Oral Pathol Oral Radiol 2012; 114: 230-239. DOI: 10.1016/j.oooo.2012.04.008.
9. Vasconcelos AC, Nör F, Meurer I, Salvadori G, Souza LB, Vargas PA and Martins MD. **Clinicopathological analysis of salivary gland tumors over a 15 year period.** Braz Oral Res [online] 2016; 30: e2. DOI: 10.1590/1807-3107BOR-2016.vol30.0002.
10. Wang YL, Zhu YX, Chen TZ, Wang Y, Sun GH, Zhang L, Huang CP, Wang ZY, Shen Q, Li DS, Wu Y and Ji QH. **Clinicopathologic study of 1176 salivary gland tumours in a Chinese population: Experience of one cancer center 1997-2007.** Acta Oto-Laryngologica 2012; 132: 879-86. DOI: 10.3109/00016489.2012.66271.
11. Taghavi N, Sargolzae S, Mashhadiabbas F, Akbarzadeh A and Kardouni P. **Salivary gland tumors: A 15 year report from Iran.** Turk PatolojiDerg 2016; 32: 35-39. DOI: 10.5146/tjpath.2015.01336.
12. Lawal AO, Adisa AO, Kolude B, Adeyemi BF and Olajide MA. **A review of 413 salivary gland tumours in the head and neck region.** J ClinExp Dent 2013; 5: e218-22. DOI: 10.4317/jced.51143.
13. Qureshi A, Rehman KU, Husain S, Khawaja NUH, Qureshi GR and Naveed IA. **Salivary Gland tumours- A three years' experience at King Edward Medical College, Lahore.** Annals 2004; 10: 200-2. DOI: <https://doi.org/10.21649/akemu.v10i2.1207>.
14. Caughey RJ, May M and Schaitkin BM. **Intraparotid facial nerve schwannoma: Diagnosis and management.** Otolaryngology—Head and Neck Surgery 2004; 130: 586-592. DOI: 10.1016/j.otohns.2003.12.011.
15. To VSH, Chan JYW, Tsang RKY and Wei WI. **Review of salivary gland neoplasms.** ISRN Otolaryngology 2012;1-6. DOI: 10.5402/2012/872982.

16. Tabatabai SH, Tafti MA and Rafiei B. **Primary malignant epithelial salivary gland tumours in an Iranian population: A retrospective study of 81 cases.** J Oral Maxillofac Pathol 2015; 19: 47-52. DOI: 10.4103/0973-029X.157201.

### AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Nausheen Henna	Writer.	
2	Farooq Aziz	Supervision.	
3	Uzma Aslam	Review and editing.	
4	Urfa Shafi	Review and editing.	
5	Tayyaba Rashid	Co-helper for biostatistics.	
6	Shahzad Ahmed Fakhr	Proof reading.	