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SALIVARY GLAND TUMOURS;
FREQUENCY OF SALIVARY GLAND TUMOURS

Arifullah[1], Irfan Ul Islam Nasir[2], Syed Zafar Hassan[3], Ghulam Muhammad[4]

1. FCPS (ENT)
   Assistant Professor of ENT
   Kabir Medical College,
   Gandhara University, Peshawar
2. FCPS (Gen Surgery)
   Junior Instructor
   Shoukat Khanum Hospital
   Lahore
3. FCPS (ENT)
   District Specialist, DHQ, Kohat
4. FCPS (ENT)
   District Specialist
   DHQ, Bannu

Correspondence Address:
Dr. Arifullah
Assistant Professor of ENT
Kabir Medical College,
Gandhara University, Peshawar
drmrf@hotmail.com

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ABSTRACT… Objectives: The objective of the study was to find the frequency of salivary gland tumours. **Study Design:** A descriptive study. **Period:** 1st Jan 2008 to 31st Dec 2010 (of 3 years duration). **Setting:** ENT department Khyber Teaching Hospital and Surgical department Hayatabad Medical Complex, Peshawar. **Material and methods:** Total number of 108 patients having salivary gland tumours enrolled from admitted patients in ENT department Khyber Teaching Hospital and Surgical department Hayatabad Medical Complex Peshawar. The study was designed to find the frequency of salivary gland tumours. **Results:** In our study most of the patients were having benign tumours (80.6%) with malignant counterpart in about 19.4%. Overall the most common tumour was pleomorphic adenoma about 71.3% followed by Mucoepidermoid 6.5%, adenoid cystic carcinoma 4.6% and Warthin's tumour 4.6%. The most commonly involved salivary gland is parotid gland about 78.7% (85/108) with pleomorphic adenoma being the most common benign tumour and Mucoepidermoid the malignant variety. In submandibular gland/ sublingual glands the most common was pleomorphic adenoma and in minor salivary gland majority were malignant. **Conclusion:** Most of the salivary gland tumours are benign with majority of them are pleomorphic adenomas and parotid gland is the most common involved salivary gland.

Key words: Salivary gland tumours, Pleomorphic adenoma.

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INTRODUCTION

Human body consists of three pairs of major salivary glands and many minor salivary glands surrounding the oral cavity and upper aero-digestive tract. Three main pairs of salivary glands are parotid, submandibular and sublingual salivary glands. The salivary glands produce saliva which moisten the food to help with chewing and swallowing.[1]

Salivary gland tumours comprise about 6% of head and neck tumours. The benign salivary gland tumours are Pleomorphic adenoma, Warthin's tumour (also known papillary cyctadenoma lymphomatosm), Oncocytoma, Monomorphic adenoma and Myoepithelioma. The malignant salivary glands tumours include Mucoepidermoid carcinoma, Adenoid-cystic carcinoma, Acinic cell carcinoma, Carcinoma ex-pleomorphic adenoma, Squamous cell carcinoma and Adenocarcinoma. Lymphomas and metastatic tumours are rare salivary gland tumours.[2]

Most of the salivary gland tumours are benign with Pleomorphic adenoma being the most common and parotid gland is the most commonly involved salivary gland. The relative proportion of malignancy is increasing in the smaller glands. Pleomorphic adenoma is the most common in major salivary glands but relative frequency of malignancy increases in the minor salivary gland tumours. In parotid gland Mucoepidermoid carcinoma is the most common malignant tumour while in submandibular and sublingual glands the most common malignant tumour is adenoid cystic carcinoma.[3]

Benign salivary gland tumours usually occur in 4th decade while malignant tumours in 6th decade of life. Malignant tumours occur equally in both male and female while benign neoplasms are more common in female. The salivary gland tumours

are rare in children with hemangiomas and pleomorphic adenomas being the most common benign and mucoepidermoid carcinoma the most common malignant tumour.[4] The risk factors for salivary gland tumours include radiation, smoking, excess use of mobile phone and genetic or environmental factors.[5,6]

Clinically the salivary gland tumours present as firm, usually painless swelling in one of the salivary glands. Pain and nerve involvement indicates malignancy. The common investigations for salivary gland tumours include ultrasound, x-rays, CT and MRI. Salivary gland biopsy or fine needle aspiration is done for the histology to determine the nature of the lesion. Increase in size of the lesion, surrounding structures and lymph nodes involvement indicates malignancy.[7]

The standard treatment for the salivary gland tumours is surgery with removal of the involved salivary gland and preservation of the nerves (if not involved). Those patients with un-respectable tumours and who are unfit for anesthesia and surgery are primarily treated by radiotherapy. Postoperative radiotherapy is given to all patients with incompletely resected tumours and late stages. Newer techniques like gamma-knife stereotactic radiosurgery, neutron-based radiation therapy and brachytherapy (radioactive seeds or Iodine-125 seeds) are effective and provide excellent local and regional control of microscopic disease. Chemotherapy has little role in salivary gland tumours and currently indicated only for palliation.[8] Complications of treatment include facial nerve injury, hematoma, sialocele or salivary fistula, Frey syndrome or gustatory sweating and sensorineural hearing loss.[9]

Most of the salivary gland tumours are benign in which most are pleomorphic adenomas. We conducted this study to see the percentages of different salivary gland tumours in this part of the world.

METHODOLOGY

This was a descriptive study conducted from 1st Jan 2008 to 31st Dec 2010 (of 3 years duration) at ENT department Khyber Teaching Hospital and Surgical departments Hayatabad Medical Complex, Peshawar. The total number of patients in the study was 108 indoor patients who were diagnosed as having salivary gland tumours, using 95% confidence interval and 5.5% margin of error under WHO sample size calculator. Sampling technique was consecutive non-probability sampling. Patients with primary and secondary salivary gland tumours (biopsy/FNAC proven) of any age and either gender were included in the study after taking written informed consent. There was no exclusion criterion for the study.

After approval from the hospital ethical committee, all patients who fulfilled the inclusion and exclusion criteria admitted in the ENT and surgical departments were included in the study. Written informed consent was taken from all the patients.

Data were analyzed using SPSS 16. Results were described in terms of mean and standard deviation. Frequency and percentages were calculated for the categorical variables like gender, ages, types of tumours and salivary glands involvement. All the results were shown in tables.

RESULTS

In our study, out of 108 patients, salivary gland tumours were more common in females 62(57.4%) than males 46(42.6%) with female to male ratio of 1.3:1 (Table-I).

Sex	Number of patients	Percentage
Male	46	42.6%
Female	62	57.4%

Table-I. Gender distribution:

In 11-60 years age 86 (79.6%) patients were found to have tumour, followed by 19 (17.6%) patients in age group of more than 60 years and 3 (2.8%) patients in less than 10 years. In age groups of less than 10 years all tumours 3(100%) were benign, in age group of 11-60 years 81 (94.2%) benign and 5 (5.8%) malignant while in age group of more than 60 years 16 (84.2%) were malignant and 3 (15.8%) benign as given in Table-II.

Age of the patient	Benign tumours	Malignant tumours
Less than 10 years	100% (3/3)	0% (0/3)
11-60 years	94.2% (81/86)	5.8% (5/86)
More than 60 years	15.8% (3/19)	84.2% (16/19)

Table-II. benign vs malignant tumours in different age groups

Our study showed that parotid gland was the most commonly involved salivary gland 85 (78.7%) followed by submandibular/sublingual gland 18 (16.8%) and less common minor salivary glands 5 (4.6%). Most of the patients 87(80.6%) had benign tumours and 21(19.4%) patients malignant tumours (Table-III).

Salivary gland involvement	Benign Tumours	Malignant Tumours	Total No. of patients (n=108)	Percentage (%)
Parotid	72/85	13/85	85	78.7%
Submandibular/ Sublingual	14/18	4/18	18	16.7%
Minor	1/5	4/5	5	4.6%

Table-III. Frequency of salivary glands involvement

Overall the most common tumour was pleomorphic adenoma about 71.3% (77) patients followed by Mucoepidermoid 6.5% (7), adenoid cystic carcinoma 4.6% (5) patients, and Warthin's tumour 4.6% (5) patients. Other tumours like oncocytoma hemangiomas, acinic cell carcinoma and carcinoma ex-pleomorphic adenoma were given in Table-IV.

Salivary gland tumours	Number of patients	Percentages
Pleomorphic adenoma	77	71.3%
Mucoepidermoid carcinoma	7	6.5%
Adenoid cystic carcinoma	5	4.6%
Warthin's tumour	5	4.6%
Acinic cell carcinoma	2	1.9%
Oncocytoma	2	1.9%
Hemangiomas	2	1.9%
Carcinoma ex pleomorphic adenoma	2	1.9%
Squamous cell carcinoma	1	0.9%
Monomorphic adenoma	1	0.9%
Adenocarcinoma	1	0.9%
Melanomas	1	0.9%
Lymphoma	1	0.9%
Skin squamous cell carcinoma	1	0.9%

Table-IV. Salivary gland tumours, N=108

DISCUSSION

Salivary glands tumours are relatively rare; make up 6% of all head and neck tumours, yet they represent a wide variety of both benign and malignant histologic subtypes. A study conducted in Iran in 2010, the peak incidence age of all salivary gland tumours was the third to fifth decades, and malignant tumours mostly occurred in the sixth to eighth decades. Female predominance for all the tumours and slight male predominance in malignant tumours were observed[10] which is comparable to our study, in which most of the tumours were in female gender 57.4% as compared to 42.6% in males. The majority of tumours were found in age group of 11-60 years about 79.6%, followed by 17.6% in age group of more than 60 years and 2.8% in less than 10 years.

A study conducted in china showed 77.1% benign and 22.9% malignant tumours, with the most common benign tumour being pleomorphic adenomas and malignant being mucoepidermoid carcinomas[11] while our study showed 80.6% benign and 19.4% malignant with pleomorphic adenoma most common benign and mucoepidermoid the most common malignant tumour. Another study aleo showed that pleomorphic adenoma is the most common salivary gland tumour and mucoepidermoid carcinoma followed by adenoid cystic carcinoma are the most common malignancy of salivary gland tumours in Isfahan population.[12]

According to a study in the Southeastern Serbia population, the majority of tumours were localized in the parotid gland, in 84.17% patients. Among benign tumours there were 49.02% pleomorphic adenoma, 47.06% Warthin's tumour, 1.96% myoepithelioma, and 1.96% oncocytoma. In the group of malignant tumours the most common was mucoepidermoid carcinoma, in 32.43% patients, carcinoma ex pleomorphic adenoma in 16.22%, adenoid cystic carcinoma in 13.51%, and oncocytic carcinoma in 8.11% patients.[3]

CONCLUSION

Most of the salivary gland tumours are benign

with majority of them are pleomorphic adenomas and parotid gland is the most common involved salivary gland.

REFERENCES

1. Kontis TC, Johns ME (2001) **Anatomy and Physiology of the Salivary Glands. In: Bailey BJ (ed) Head and Neck Surgery – Otolaryngology.** Lippincott Williams & Wilkins, Philadelphia.

2. Calzada GG, Hanna EY. **Benign neoplasms of the salivary glands. In: Flint PW, Haughey BH, Lund VJ, et al., eds. Cummings Otolaryngology Head and Neck Surgery.** 5th ed. Philadelphia, Pa: Elsevier Mosby; 2010: chap 87.

3. TrenkićBožinović M, Krasić D, Katić V, Krstić M. **A retrospective review of 139 major and minor salivary gland tumours.** Med Glas (Zenica). 2015 Feb; 12(1):73-8.

4. Bradley P[1], McClelland L, Mehta D. **Paediatric salivary gland epithelial neoplasms.** ORL J OtorhinolaryngolRelat Spec. 2007; 69(3):137-45. Epub 2007 Jan 30.

5. Sadetzki S, Oberman B, Mandelzweig L, et al; **Smoking and risk of parotid gland tumours: a nationwide case-control study.** Cancer. 2008 May 1; 112(9):1974-82.

6. Sadetzki S, Chetrit A, Jarus-Hakak A, et al; **Cellular phone use and risk of benign and malignant parotid gland tumours--a nationwide case-control study.** Am J Epidemiol. 2008 Feb 15; 167(4):457-67.

7. Lee YY, Wong KT, King AD, et al; **Imaging of salivary gland tumours.** Eur J Radiol. 2008 Jun; 66(3):419-36. Epub 2008 Mar 11.

8. Zeidan YH, Pekelis L, An Y, Holsinger FC, Kong CS, Chang DT, Le QT. **Survival benefit for adjuvant radiation therapy in minor salivary gland cancers.** Oral Oncol. 2015 Mar 11. pii: S1368-8375(15)00127-X.

9. Nitzan D, Kronenberg J, Horowitz Z, et al; **Quality of life following parotidectomy for malignant and benign disease**. PlastReconstr Surg. 2004 Oct; 114(5):1060-7.

10. AtarbashiMoghadam S1, AtarbashiMoghadam F, Dadfar M. **Epithelial salivary gland tumours in ahvaz, southwest of iran.** J Dent Res Dent Clin Dent Prospects. 2010 Fall; 4(4):120-3.

11. Wang XD1, Meng LJ2, Hou TT1, Huang SH3. **Tumours of the salivary glands in northeastern China: a retrospective study of 2508 patients.** Br J Oral Maxillofac Surg. 2015 Feb; 53(2):132-7.

12. Torabinia N, Khalesi S. **Clinic pathological study of 229 cases of salivary gland tumours in Isfahan population.** Dent Res J (Isfahan). 2014 Sep; 11(5):559-63.

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Arifullah	Concept & Design, Data collection	
2	Irfan Ul Islam Nasir	Data collection, Analysis & Data interpretation	
3	Syed Zafar Hassan	Analysis & Drafting	
4	Ghulam Muhammad	Critical Review & Final Approval	