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IP Journal of Diagnostic Pathology and Oncology

Journal homepage: https://www.jdpo.org/

Original Research Article

Histopathological study of salivary gland lesions-an institutional study

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ARTICLE INFO

Article history:
Received 09-01-2021
Accepted 10-02-2021
Available online 10-03-2021

Keywords:
Sialadenitis
Salivary gland lesions
Pleomorphic adenoma
Mucoepidermoid carcinoma

ABSTRACT

Background: The salivary glands are the site of origin of a variety of neoplasm and are also relatively uncommon accounting for <1% of all tumors. Histopathological examination/study plays a major role in the diagnosis of these neoplasms. The aim of the study is to recognize various histomorphological patterns of salivary gland lesions, their frequency, age, gender and site wise distribution

Materials and Methods: this study was conducted for two years (Nov 2018-Nov 2020) in the department of pathology KBNIMS, kalaburagi. Total number of salivary gland lesions included were 50. Specimens were processed and stained by hematoxylin and eosin stain followed by microscopic examination.

Results: out of total 50 cases 54% were non neoplastic and 46% were neoplastic. Predominantly salivary gland lesions were found in the 3rd -4th decade. Male predominance was seen in all salivary gland lesions. In non neoplastic lesions chronic sialadenitis was predominant (32%) followed by mucocele (10%). In neoplastic lesions, Pleomorphic adenoma was commonest benign tumor accounting for 22%. Mucoepidermoid carcinoma was most common malignant salivary gland tumor. Most of the salivary gland lesions were found in the submandibular gland.

Conclusion: Histopathological examination remains gold standard because of their varied histomorphological features

1. Introduction

Salivary glands are unique among the secretary glands with a more heterogenous group of tumors showing greatest histological diversity. Salivary gland system includes three pairs of major glands – Parotid, Submandibular and Sublingual and many minor glands in the mucosa of the oral cavity, lips, floor of mouth, gingival, cheek, hard and soft palate, tonsillar areas and oropharynx.[1] The spectrum of salivary gland lesions is wide and the relative incidence of neoplastic versus non neoplastic lesions is variable in different studies.[2] Salivary gland tumors account for 2% of all human neoplasm and relatively uncommon.[3] Salivary glands tumors are rare with annual incidence <1/100000 inhabitants. These tumors show wide range of morphological diversity between different tumor types and sometimes within an individual tumor mass.[4] About 65% to 80% arise within the parotid, 10% in the submandibular gland and the remainder in the minor salivary glands including the sublingual gland.[5] Tumors have the highest chance of malignancy if they arise from retromolar area(89.7%), floor of mouth(88.2%),tongue(85.7%)and sublingual gland(70.2%) whereas only 20% of all parotid tumors are malignant.[6]

The aim of the study is to recognize various histopathological patterns of salivary gland lesions, their frequency, age, gender and site wise distribution.

2. Materials and Methods

The present study "Histopathological study of salivary gland lesions" is carried out in the Department of Pathology, KBNIMS, Kalaburagi. It is a two year retrospective study from November 2018 to November 2020. The blocks

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https://doi.org/10.18231/j.jdpo.2021.007

were retrieved and sections were cut and stained with Haematoxylin and Eosin. Information regarding age, sex, site, complaints, clinical and radiological findings were recorded from requisitions received in the histopathological department. Special stain PAS was used when required. The tumors were classified into nonneoplastic and neoplastic lesions according to WHO histological typing of salivary gland tumors.

3. Results

Total 50 cases were included. Both gross specimens and biopsies which were received for histopathological examination, during the period of 2 years i.e from Nov 2018 to Nov 2020 were included. Out of these 50 cases, 27 cases (54%) were diagnosed as non-neoplastic lesions and 23 cases (46%) as neoplastic lesions.

Table 1: Age wise distribution of salivary gland lesions

Age group in years	Percentage
10-20	-
21-30	03(6%)
31-40	26(52%)
41-50	09(18%)
51-60	10(20%)
61-70	02(4%)

Table 2: Sex wise distribution ofsaliwary gland lesions

Male	35(70%)
Female	15 (30%)

Most of the cases showed male predominance and were commonly found between the age group 31-40.

Table 3: Site wise distribution of salivary gland lesions

Paroti D Gland	18(36%)
Submandibular Gland	27(54%)
Minor Saliwary Gland	05(10%)

Most common site involved was submandibular region.

Table 4: Spectrum of non-neoplastic salivary gland lesions

Chronic Sialadenitis	16(32%)
Granulomatous Sialadenitis	03(6%)
Mucocele	05(10%)
Retention cyst	03(6%)

Chronic Sialadenitis was the common non neoplastic salivary gland lesion accounting for32%

Pleomorphic adenoma was the most common benign tumor and Mucoepidermoid carcinoma was the most common malignant tumor found in the present study.

One case of mucoepidermoid carcinoma was found in 24 year male in the submandibular region. Rare malignant tumor, Epithelialmyoepithelial carcinoma was diagnosed in 50 year male in the parotid gland.

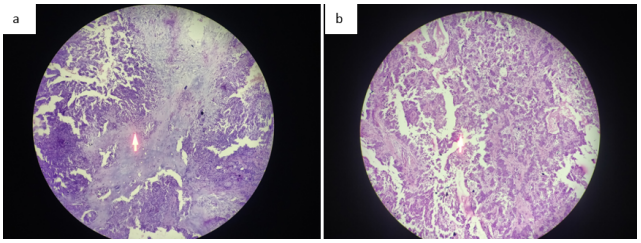

Fig. 1: a: Pleomorphic adenoma composed of chondroid matrix. **b :** Pleomorphic adenoma composed of epithelial element comprising of tubular, ductal andsquamoid differentiation

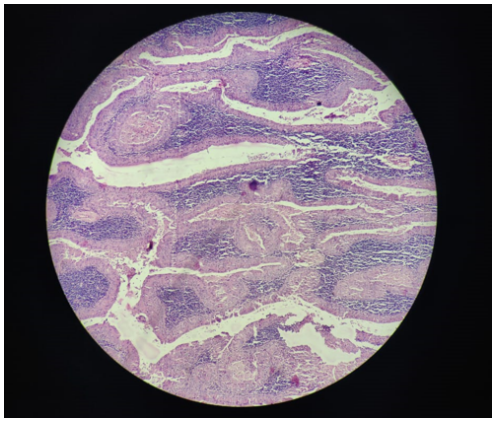

Fig. 2: Warthin's tumor: Blunt papillary projection exhibiting double layer of oncocytic lining cells and underlying lymphoid stroma.

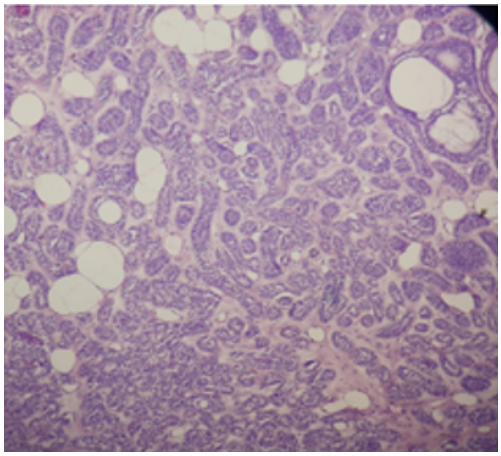

Fig. 3: Epithelialmyoepithelial carcinoma: Tumor cells are arranged in ducts with outer rim of myoepithelial cells and inner layer of ductal cells.

Table 5: Spectrum of neoplastic salivary gland lesions

Pleomorphic Adenoma	11(22%)
Warthins tumor	05(10%)
Mucoepidermoid carcinoma	03(6%)
Adenoidcystic carcinoma	02(4%)
Epithelial myoepithelial carcinoma	01(2%)
Acinic cell carcinoma	01(2%)

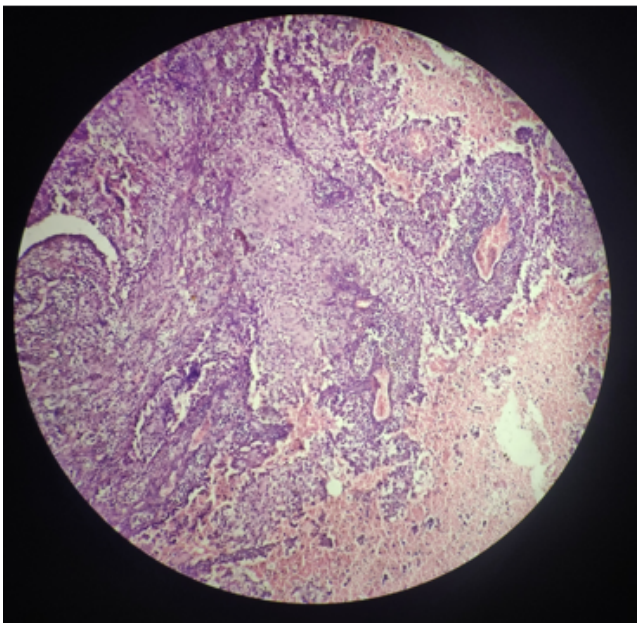

Fig. 4: Mucoepidermoid carcinoma: Clusters of mucous, squamous, intermediate and clear cells.

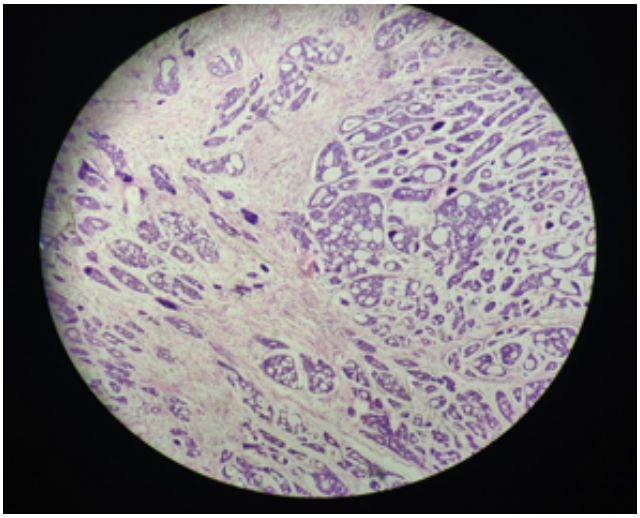

Fig. 5: Adenoid cystic carcinoma: Show cribriform pattern.

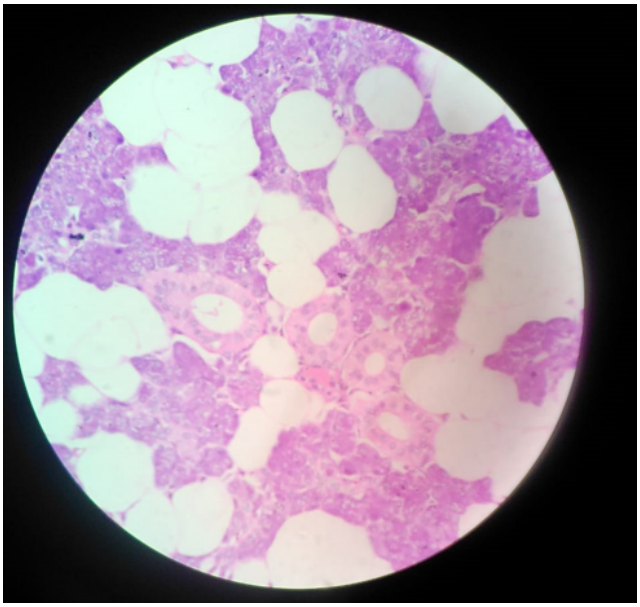

Fig. 6: Acinic Cell Carcinoma

4. Discussion

Total number of salivary gland lesions includes 50 cases. Predominantly the cases were found in the age group of 31-40 which was similar to Syed imtiyaz et al study.

The present study showed male predominance in both benign and malignant salivary gland lesions which was similar to other above mentioned studies

In the present study, non neoplastic lesions were 54% and it was more, compared to other above mentioned studies. Benign tumors were 32% and it was less, compared to other above mentioned studies. Malignant tumors were 14% and it was less, compared to above mentioned studies.

Most common site involved was Submandibular gland followed by Parotid and minor salivary gland in the present study while other studied showed Parotid gland as commonest site of involvement.

Among nonneoplastic lesions, most common lesion encountered was chronic sialadenitis and it was similar to Anita et al study.

Among neoplastic lesions, most common benign lesion encountered was Pleomorphic adenoma and it was similar to Anita et al study.

Table 6: Comparative analysis of age wise distribution of salivary gland lesions

Age group	Syed Imtiyaz Hussain et al[7]	Richa study[7]	Present Study
0-10	7%	6.32%	-
11-20		8.86%	-
21-30	21.0%	27.84%	06%
31-40	26.0%	18.98%	52%
41-50	22.0%	12.65%	18%
51-60	14.0%	15.2%	20%
61-70		8.86%	04%
71-80	10.0%		-
81-90		1.26%	-

Table 7: Comparative analysis of salivary gland lesions in males and females.

Study	M:F RATIO	
	Benign	Malignant
Dave P.N. et al[8]	1	1.42
Syed Imtiyaz Hussain et al	1.62	4.28
Kirti N. Jaiswal et al[9]	0.7	1.28
Present Study	1.54	1.21

Table 8: Comparative analysis of salivary gland lesions in different studies.

Characteristics	No of Cases			Percentage (%)		
	Non Neoplastic	Benign	Malignant	Non Neoplastic	Benign	Malignant
Mallepogu Anil Kumar et al[10]	15	30	10	27.27%	54.54%	18.18%
Dhanamjeya Rao Teeda et al[11]	12	31	10	22.64%	58.49%	18.86%
Malliga .S et al[12]	21	53	29	20.4%	51.45%	28.15%
Richa study[1]	28	34	17	35.44%	43.03%	21.51%
Present Study	27	16	07	54%	32%	14%

Table 9: Comparative analysis of site wise distribution of salivary gland lesions.

Site	Dhanamjeya Rao Teeda et al[11]	Anita Omhare et al[13]	Mallepogu Anil Kumar et al[10]	Malliga. S et Al[12]	Present Study
Parotid Gland	73.5%	48.3%	67.27%	58.25%	36%
Submandibular Gland	16.9%	41.2%	25.45%	29.12%	54%
Minor Salivary gland	9.4%	10.4%	7.27%	12.6%	10%

Table 10: Comparative analysis of non-neoplasic Salivary gland lesions

Type of Lesions	Dhanamjeya Rao Teeda et al[11]	Anita Omhare et al[13]	Mallepogu Anil Kumar et al[10]	Present study
Acute Inflammation	-	-	-	
Chronic Sialedenitis	5.66%	39.2%	16.36%	32%
Tuberculosis	-	3.33%	-	6%
Cystic Lesion	16.98%	9.2%	10.9%	-
Rannula	-	-	-	-
Retention Cyst	-	-	-	6%
Mucocele	-	-	-	10%

Table 11: Comparative analysis of Benign Salivary gland tumor

Type of Tumors	Dhanamjeya Rao Teeda et al [11]	Anita Omhare et al [13]	Mallepogu Anil Kumar et al [10]	Malliga. S et al [12]	Present Study
Pleomorphic Adenoma	45.25%	21.66%	43.63%	41.6%	22%
Warthin's Tumor	5.66%	0.8%	10.9%	2.1%	10%
Canalicular adenoma	-	-	-	-	-
Myoepithelioma	1.88%	-	-	-	-
Oncocyst adenoma	-	-	-	1%	-
Basal Cell Adenoma	-	-	-	-	-
Monomorphic Adenoma	5.66%	8.33%	-	-	-
Hemangioma	-	1.67%	-	-	-
Neurofibroma	-	-	-	1%	-

Table 12: Comparative analysis of malignant Salivary gland tumor

Type of Tumors	Dhanamjeya Rao Teeda et al [11]	Anita Omhare et al [13]	Mallepogu Anil Kumar et al [10]	Malliga. S et al [12]	Present study
Mucoepidermoid Carcinoma	9.43%	6.66%	7.27%	22.9%	06%
Acinic cell carcinoma	-	3.33%	-	-	02%
Adenocystic Carcinoma	3.77%	1.66%	3.63%	4.2%	04%
Myoepithelial Carcinoma	-	-	-	-	02%
Salivary duct Adenocarcinoma	1.88%	0.8%	-	-	-
Carcinoam ex pleomorphic adenoma	1.88%	3.33%	3.63%	6.25%	-
Mammary analog secretory carcinoma	-	-	-	-	-
High grade B cell extranodal Non Hodgkins Lymphoma	-	-	-	-	-
Poorly differentiated Carcinoma	1.88%	-	3.63%	-	-

Among neoplastic lesions, most common malignant lesion encountered in the present study was Mucoepidermoid carcinoma and it was similar to Anita et al study. Epithelial myoepithelial carcinoma, a rare tumor was also found in our study.

5. Conclusion

Histopathological examination remain gold standard for diagnosis of salivary gland lesions, it helps to differentiate between nonneoplastic and neoplastic lesions and deciding course of management. Hence the study was carried out.

6. Source of Funding

No financial support was received for the work within this manuscript.

7. Conflict of Interest

The authors declare they have no conflict of interest.

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Cite this article: Uploankar SV, Alvi U, Begum Z. Histopathological study of salivary gland lesions-an institutional study. *IP J Diagn Pathol Oncol* 2021;6(1):32-37.