

# Histomorphological spectrum of salivary gland tumors in a tertiary care hospital: A retrospective study

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## Abstract

**Introduction:** There is a wide spectrum of salivary gland lesions with morphological and clinical diversity which is a difficult task for histopathological interpretation. There are three major salivary glands—parotid, submandibular, and sublingual as well as minor salivary glands distributed throughout the mucosa of the oral cavity. Neoplastic and non-neoplastic disease may develop within any of these.

**Aims:** (1) To study the histopathological features of salivary gland lesions, (2) To study the prevalence of salivary gland lesions in tertiary care hospital, (3) To evaluate the incidence, age at the occurrence, and sex ratio among the patients with salivary gland lesions, (4) To compare the result of our study with other studies.

**Material and Method:** It was a retrospective study of 29 cases of salivary gland tumors, diagnosed on histopathological examination over a period of 5 years (January 2017 to December 2021) in the Department of Pathology, GMERS Medical College & Hospital, Valsad. Histopathological examination was done on formalin fixed, paraffin embedded tissue sections stained with hematoxylin and eosin.

**Result:** In present study, out of 29 cases, 24 cases (82.76%) were benign and 05 cases (17.24%) were malignant. Most common benign tumor of salivary gland was pleomorphic adenoma followed by Basal Cell adenoma. Most common malignant tumor of salivary gland was mucoepidermoid carcinoma.

**Conclusion:** Histopathological study of salivary gland lesions is the most important method in establishing the final diagnosis and subtyping. Salivary gland tumors are relatively less common and they exhibit a wide variety of microscopic appearances even within one particular lesions.

**Keywords:** Mucoepidermoid carcinoma, pleomorphic adenoma, salivary gland

## Introduction

Salivary gland lesions constitute <1% of all tumors and about less than 4% of all epithelial neoplasms in head and neck region and are therefore relatively rare <sup>[1]</sup>. These comprise a wide variety of benign, malignant neoplasm and non-neoplastic lesions. Salivary gland tumors are 12 times more frequent in parotid gland than in submandibular gland. The majority are benign and largely represented by pleomorphic adenoma <sup>[2,3]</sup>. Mucoepidermoid carcinoma is

the most common salivary gland malignancy, most cases are found in parotid gland [5]. As a general rule in clinical practice, the smaller the salivary gland is, the more likely the tumor is malignant. Tumors of minor salivary glands can be found anywhere in oral cavity, including hard and soft palate, cheek, gingiva, tonsillar area and tongue [4]. Adenoid cystic carcinoma is the most common tumor in minor salivary gland. In the parotid glands, 20-25% of the tumors are malignant. This rises to 40% for the submandibular glands, and more than 90% of sublingual gland tumors are malignant [6, 7].

### Material and Methods

Retrospective study was done for 5 years from January 2017 to December 2021. The study was done on 29 specimens from patients with salivary gland lesions which were referred to the Department of Pathology, GMERS Medical College, Valsad, Gujarat. Salivary gland specimens were immediately fixed in 10% formalin and processed by paraffin embedding. Sections were stained by hematoxylin and eosin stain. Finally, microscopic examination was done for the further typing.

### Result

During the period of January- 2017 to December -2021; a total of 4448 specimens received for histopathological examination. Out of which 29 specimens were of salivary gland tumors, representing 0.65%. Thus, the Prevalence of salivary gland tumors in our study was 0.65%. In each case, detailed clinical history, physical examination and gross examination was recorded.

In present study of 29 cases, 15 cases (51.72%) were male and 14 cases (48.28%) were female. Out of 29 cases, 24 cases (82.76%) were benign, 05 cases (17.24%) were malignant. In both benign and malignant neoplasms, there was male predominance.

[Table-1]

**Table 1:** Distribution of salivary gland tumors according to sex and site

Sex	Total	Parotid gland		Submandibular gland		Minor salivary glands	
		Benign	Malignant	Benign	Malignant	Benign	Malignant
Male	15	10	02	01	00	01	01
Female	14	08	02	01	00	03	00
Total	29	18	04	02	00	04	01

The maximum number of cases were found in 21-30 years of age group, followed by 31-40 years and 41-50 years of age group. [Table-2]

**Table 2:** Age wise distribution of various lesions of salivary gland

Age group (years)	Benign tumors	Malignant tumors	No. of cases
< 20	4	0	4
21-30	8	0	8
31-40	3	2	5
41-50	3	2	5
51-60	3	1	4
61-70	3	0	3
71-80	0	0	0
Total	24	5	29

Out of 29 cases, 24 cases were Benign [Table 3] and 05 cases were malignant.[Table 4] Maximum number of benign cases were of Pleomorphic adenoma (54.5%) followed by basal cell adenoma (18.2%), while maximum number of malignant

cases were of low grade mucoepidermoid carcinoma (9.1%), followed by 02 cases of adenocarcinoma (NOS), 01 case malignant lymphoma.

Parotid was the commonest site of neoplasia (75.86%) in this series followed by minor salivary glands (17.24%) and submandibular gland (6.90%). In the present study, pleomorphic adenoma was the most common benign salivary gland tumor at all locations. Out of total 14 pleomorphic adenomas in our study, the majority occurred in the parotid gland (N=12; 85.71.%) followed by submandibular gland (N=1; 3.45.%) and minor salivary glands (N=1; 3.45%).

**Table 3:** Distribution of benign tumors in salivary glands

Tumor type	Parotid gland	Submandibular gland	Minor salivary glands	Total
Pleomorphic adenoma	12	01	01	14
Warthin's tumor	01	00	00	01
Clear cell adenoma	01	00	00	01
Basal cell adenoma	02	00	00	02
Sialadenitis	01	00	00	01
Renula	00	00	03	03
Benign cystic lesion of salivary gland	01	00	00	01
Schwannoma	01	00	00	01
Total	19	01	04	24

**Table 4:** Distribution of malignant tumors in salivary glands

Tumor type	Parotid gland	Submandibular gland	Minor salivary glands	Total
Low grade Mucoepidermoid carcinoma	02	00	01	02
Adenocarcinoma(NOS)	01	00	01	02
Malignant Lymphoma	01	00	00	01
Total	04	00	01	05

## Discussion

In the present study, there was predominance of benign tumors [24 cases (82.76%) over malignant tumors (17.24%) which was similar to Sando Z, *et al.*<sup>[8]</sup> There was highest incidence of benign tumors in 2nd and 3rd decades while highest incidence of malignant tumors was in 3<sup>rd</sup> and 4<sup>th</sup> decade.

The maximum number of cases 22 cases (75.86.3%) were found in parotid gland similar to Alpana *et al.*<sup>[9]</sup> followed by minor salivary gland 05 cases (17.24%) and 02 cases (6.90.%) submandibular gland.

In the present study, pleomorphic adenoma was the most common benign salivary gland tumor(75.86%) which was similar to Ito FA *et al.*<sup>[10]</sup> Out of total 14 pleomorphic adenomas in our study, the majority occurred in the parotid gland (N=12; 85.71.%) followed by submandibular gland (N=1; 3.45.%) and minor salivary glands (N=1; 3.45%).

**Table 5:** Comparison of site of salivary lesions

	T. Chatterjeet <i>et al.</i> <sup>[11]</sup>	AmitaChavda <i>et al.</i> <sup>[12]</sup>	Present study
Parotid Gland	77%	67.3%	75.86%
SubmandibularGland	09%	20.0%	6.90%
Minor salivary gland	14%	12.7%	17.24%

## Conclusion

Present study following conclusions are noted.

1. During the 5 years study, total 29 cases of salivary gland lesions were studied.
2. Prevalence of salivary gland tumors in our study was 0.65%.
3. There were 15 males (51.72%) and 14 females (48.28%) with an M:F ratio of 1.07:1
4. Parotid was the most common site of lesion (75.86.%)
5. Maximum cases were benign lesions - 24 cases (82.76.%) and the malignant lesions were 5 cases (17.24%)
6. Majority of cases among benign salivary gland tumors were pleomorphic adenoma
7. Majority of cases among malignant salivary gland tumors were low grade mucoepidermoid carcinoma

## Contribution from The Author

- **Dr. Kamini Patel:** Data collection, analysis and preparation of manuscript.
- **Dr. Sharad Gor:** Analysis and preparation of manuscript & critical revision.
- **Dr Mayur Kokani:** Analysis and preparation of manuscript & critical revision.

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