International Journal of Research in Medical Sciences
Kasundra KN et al. Int J Res Med Sci. 2023 Oct;11(10):3706-3709
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20233023

Original Research Article

Histopathological spectrum of salivary gland lesions in a tertiary care hospital

Khushbu N. Kasundra[1]*, Pulkit J. Patel[2]

[1]Department of Pathology, Baroda Medical College, Vadodara, Gujarat, India
[2]Department of Gastroenterology, P. D. Hinduja Hospital and Medical Research Centre, Mumbai, Maharashtra, India

Received: 25 July 2023
Revised: 17 August 2023
Accepted: 18 August 2023

***Correspondence:**
Dr. Khushbu N. Kasundra,
E-mail: knk2595@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Salivary gland has a wide spectrum of neoplasms with diverse clinical and morphological features. These tumors are relatively rare. Histopathological examination plays an important role in diagnosis of these tumors. The aim of present study is to evaluate spectrum of salivary gland tumors and their frequency, age, gender and site wise distribution.
Methods: The present observational study included 53 cases of salivary gland lesions. Clinical details and histopathological findings were noted from records and obtained data were analyzed using proper statistical software.
Results: Out of 53 cases studied, 10 (19%) cases were non-neoplastic, 31 (58%) were benign and 12 (23%) cases were malignant. Benign salivary gland tumors were more common in 4th decade while malignant tumors were common in 5th-6th decade of life. Male to female ratio was 1.52:1. Most of the tumors were located in major salivary gland amongst which parotid gland is the most common one involved. Pleomorphic adenoma was the most common salivary gland tumor amongst all. Mucoepidermoid carcinoma was the most common malignant tumor.
Conclusions: Histopathological examination plays an important role in diagnosis and categorization of salivary gland tumors as these tumors are difficult to diagnose based only on morphology and clinical features.

Keywords: Parotid gland, Pleomorphic adenoma, Salivary gland tumor

INTRODUCTION

Salivary gland neoplasm accounts for less than 1% of all tumor and these lesions offer more diverse clinical and morphological spectrums hence difficult for histopathological interpretation. Hybrid tumors, dedifferentiation and propensity of benign tumors to convert into malignant forms can confound histopathological interpretation.[1]

There are three major salivary glands- parotid, submandibular and sublingual gland along with many minor salivary glands is also situated throughout mucosa of oral cavity. Salivary gland lesions can be divided into non-neoplastic, benign and malignant category.[2] Salivary gland tumors are more common in parotid gland than submandibular gland and they are largely represented by pleomorphic adenoma.[3]

Salivary gland lesions are not subjected to incisional biopsy or core needle biopsy due to fear of formation of fistula or implantation of tumor cells through needle tract.[4] As a general rule in clinical practice, the smaller the salivary gland is, the more likely the tumor is malignant.[5] Proper diagnosis and staging of tumor is very important for treatment of patient.

Aim of this study was to examine the histopathological pattern of salivary gland tumor and to understand its epidemiological patterns in various age groups.

METHODS

Present study was an observational retrospective study of all salivary gland tumor samples received in department of pathology, Medical College Baroda, Vadodara, Gujarat, India. The surgically resected salivary gland specimens between the periods of three years from January 2020 to December 2022 were studied in retrospective part. The study was approved by Institutional Ethics Committee of Human Research Medical College and SSG Hospital Baroda. A total of 53 specimens of salivary gland lesions were analyzed, this study included both the non-neoplastic and neoplastic lesions of the salivary gland. The specimens consisted of open biopsies, superficial and total parotidectomy with or without resection of the draining lymph nodes.

In the study clinical detail was collected from the histopathology entry register and requisition form, the blocks and slides were retrieved and studied. Data acquired from examination of each slides were tabulated using a proforma in a systematic sequence. Data obtained were tabulated and statistically analyzed using SPSS software version 20.

RESULTS

Out of total 53 cases, 10 (19%) non-neoplastic lesion, 31 (58%) benign and 12 (23%) malignant lesions were found. 32 (60%) male and 21 (40%) female patients were having salivary gland lesions. Non-neoplastic lesions were common in 2nd and 3rd decade of life, benign and malignant tumors were common in 4th decade and 5th-6th decade of life respectively.

All the patients presented with swelling in the region of salivary gland. Most of the tumors were located in major salivary gland (96.23%) among which parotid is the most common site (58%). Minor salivary glands were involved in 4% of cases. In present study, taking into account the laterality of salivary gland lesions, right side lesions were more common compared to left side lesions.

Table 1: Distribution of benign tumors in salivary gland.

Tumor type	Parotid gland	Submandibular gland	Total
Pleomorphic adenoma	18	8	26
Warthin's tumor	1	0	1
Basal cell adenoma	3	0	3
Canalicular adenoma	1	0	1
Total	23	8	31

Table 2: Distribution of malignant salivary gland tumors by histopathological diagnosis.

Histological variant	Number	Percentage
Mucoepidermoid carcinoma	7	58.33
Acinic cell carcinoma	1	8.33
Adenoid cystic carcinoma	1	8.33
Lymphoma	1	8.33
Carcinosarcoma	1	8.33
Salivary duct carcinoma	1	8.33
Total	12	100

Among non-neoplastic lesion, chronic sialadenitis lesions were more commonly observed. Male preponderance (8 in males and 2 in females) was observed in non neoplastic lesions. Pleomorphic adenoma was the most common benign tumor in both genders. Male and females were more or less equally affected (15 in females and 16 in males) among the benign neoplasms of salivary gland. Mucoepidermoid carcinoma was more common than other malignant tumors in both male and female. 3 cases of mucoepidermoid carcinoma were found in the submandibular gland. One case of each carcinosarcoma and follicular lymphoma, type 3B was found. Distribution of benign and malignant salivary gland tumors were as per Table 1 and Table 2.

Table 3: Age group distribution of benign salivary gland tumors.

Gender	Age group (in years)							
	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90
Male	2	2	3	5	2	2	0	0
Female	2	4	4	0	3	1	0	1

Table 4: Age group distribution of malignant salivary gland tumors.

Gender	Age group (in years)							
	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90
Male	0	0	0	4	1	3	0	0
Female	1	0	1	0	2	0	0	0

Age group distribution of benign and malignant salivary gland tumors were as per Tables 3 and 4.

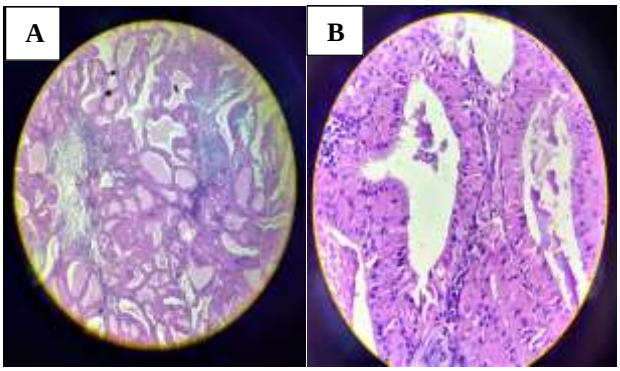

Figure 1: Warthin's tumor- blunt papillary projection exhibiting double layer of oncocytic cells and underlying lymphoid stroma (hematoxylin and eosin; A: 10x and B: 40x).

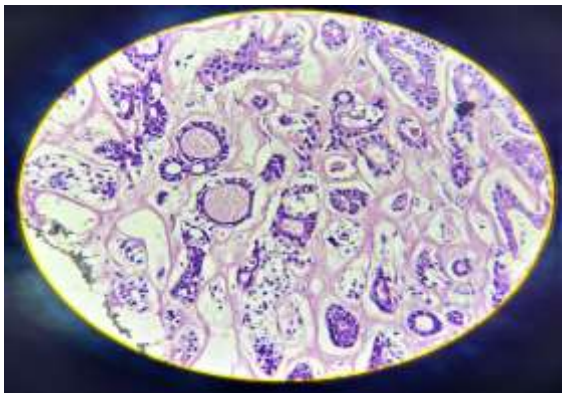

Figure 2: Adenoid cystic carcinoma- cribriform pattern (hematoxylin and eosin, 40x).

DISCUSSION

In the present study, there was predominance of benign tumors [31 cases (58%) over non-neoplastic lesion (19%) and malignant tumors (23%)] which was similar to study done by Patel et al.[5] In the present study, maximum numbers of cases were seen in 31-40 years which was similar to study done by Hussain et al.[6] The ratio of M:F of benign salivary gland tumors was 1.06 in present study while in study done by Hussain et al and Jaiswal et al it was 1.62 and 0.7 respectively.[6,7] The ration of M:F of malignant salivary gland tumors in present study was 2 compared to Dave et al, Hussain et al and Jaiswal et al it which showed M:F ration of 1.42, 4.28 and 1.28 respectively.[6-8]

Incidence rate of 58% of benign salivary gland tumors in present study was similar to study of Malliga et al and Mallepogu et al with the incidence rate of 51.45% and 54.54% respectively.[9,10] The incidence rate of malignant tumors was 23% in present study as compared to 21.51%, 18.86% and 28.15% in the study of Patel et al, Teeda et al and Malliga et al.[9,11,12] The most common site of salivary gland lesion was parotid gland in all studies. Involvement of submandibular gland was almost similar in present (38%) and Omrahe et al (41.2%).[13] Pleomorphic adenoma was the most common benign salivary gland tumor in all the studies. The incidence rate of Pleomorphic adenoma (49%) and Warthin tumor (2%) of present study was almost similar to Malliga et al study with incidence rate of 41.6% and 2.1% respectively.[9]

Mucoepidermoid carcinoma was most common malignant salivary gland tumor of all studies. Incidence rate of mucoepidermoid carcinoma of present study 13% was almost similar to Teeda et al with incidence of 9.43%.[12]

CONCLUSION

The present study descried the histopathological patterns of salivary gland tumors in central part of Gujarat. There is a wide spectrum of salivary gland tumors with morphological and clinical diversity. Our study concluded neoplastic lesions are more common than non-neoplastic lesion. Mucoepidermoid carcinoma is the most common malignant tumor seen. From our present study, it was evident that histopathological examination of salivary gland tumor is the most important method for establishing the final diagnosis and for accurate management of the patients.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Nayak R, Saldahna P, Upadhyaya K, Naik R. Morphological Spectrum of Salivary Gland Tumours. Int J Innov Res Med Sci. 2017;2(10):1360-4.
2. Mohan A, Dasgupta DP, Kumar A. Histopathological study of salivary gland tumours in a tertiary care hospital. Int J Clin Diagn Pathol. 2020;3(3):230-3.
3. Kokani MJ. Histomorphological spectrum of salivary gland tumors in a tertiary care hospital: a retrospective study. Eur J Mol Clin Med. 2022;09(08).
4. Geethalakshmi U, Rupashree S, Babu KR. Study of histopathological diversity in salivary gland lesions. J Med Sci Health. 2021;7(2):67-73.
5. Chavan Y, Patel N. Salivary gland lesions- a histopathological study in a tertiary care centre. Int J Allied Med Sci Clin Res. 2021;9(2):224-8.
6. Hussain SI, Akhter G, Sideeq F, Iqbal B, Reshi R, Farzana Manzoor F, et al. Histopathological spectrum of salivary gland tumours: a hospital based study. Int J Adv Res. 2017;5(2):1912-22.

7. Jaiswal KN, Johari SP, Shrivastav AC, Shirkhande AV. Study of salivary gland neoplasms. Indian Med Gazette. 2015:96-100
8. Dave PN, Parikh UR, Goswami HM, Jobanputra GP, Panchal NV, Shah AM. Histopathological study of salivary gland lesions. Int J Curr Res Rev. 2015;7(17):45-51
9. Malliga S, Sivaelangovan RA. Correlative cytological and histopathological study of lesions of salivary gland. Int J Sci Res. 2016;5(8):758-61.
10. Mallepogu A, Raghu CS. Histopathological study of neoplastic and nonneoplastic lesions of salivary gland: an institutional experience of 5 years. Int J Sci Stud. 2017;4(12):69-72.
11. Patel RD. Histopathological study of salivarygland lesions. Nat J Integr Res Med. 2019;10(5):67-74.
12. Teeda DR, Akarsh MP, Sindhura P, Swathi V. Histopathological study of salivary gland lesions. IOSR J Dent Med Sci. 2016;15(6):80-6.
13. Omhare A, Singh SK Nigam JS, and Sharma A. Cytohistopathological study of salivary gland lesions in Bundelkhand Region, Uttar Pradesh, India. Pathol Res Int. 2014;(804265):1- 5.

Cite this article as: Kasundra KN, Patel PJ. Histopathological spectrum of salivary gland lesions in a tertiary care hospital. Int J Res Med Sci 2023;11:3706-9.