

HISTOPATHOLOGICAL STUDY OF SALIVARY GLAND TUMOURS WITH SPECIAL EMPHASIS ON CASES WITH DIAGNOSTIC DILEMMA

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ABSTRACT

BACKGROUND

Tumours of salivary glands constitute less than 5% of head and neck tumours and are diverse in nature. Some of the tumours pose diagnostic challenge to a pathologist, especially the malignant lesions with poor differentiation. In the present study, we aim to acknowledge the various histological types of salivary gland tumours that we encountered in our institute in a period of 5 years with special emphasis on a few cases posing as a diagnostic dilemma.

Aims and Objectives-

1. To study the histopathological spectrum of salivary gland tumours, identify tumours which pose a diagnostic dilemma and try to classify those tumours with the help of immunohistochemistry.
2. To compare and observe the results of this study with other studies in the contemporary literature.

MATERIALS AND METHODS

This is a retrospective descriptive study. The source of data is the specimen of salivary glands that were received at Department of Pathology, Indira Gandhi Institute of Medical Sciences, Patna from June 2012 to December 2016. Clinical data and H and E stained slides of sections were retrieved for all the patients undergoing resection of salivary gland tumour during the above mentioned 4.5 years in the hospital.

RESULTS

A total of 56 cases were diagnosed between June 2012 and 2017. Their ages ranged from 15 years to 85 years. There was a slight male preponderance in both benign and malignant lesions. The most common site was parotid followed by submandibular and minor salivary glands. The most common benign tumour was pleomorphic adenoma followed by Warthin's tumour, basal cell adenoma and oncocytoma. Among the malignant tumours, the most common was adenoid cystic carcinoma followed closely by mucoepidermoid carcinoma. Immunohistochemistry was needed in five cases to reach a diagnosis. The results were in concordance with other studies done on the subject in India.

CONCLUSION

Our study aims at studying the various types of salivary gland tumours prevalent in our region and the results conform to other studies done in this field in India.

KEY WORDS

Salivary Gland, Tumours, India.

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BACKGROUND

Salivary gland tumours are relatively uncommon. The major salivary glands consist of the parotid, submandibular and sublingual glands. The minor glands include small mucus-secreting glands located throughout the palate, nasal and oral cavity. The most common symptom of salivary gland tumours is a painless lump in the affected gland, sometimes accompanied by paralysis of the facial nerve. Tumours of salivary glands constitute less than 5% of head and neck

tumours^{1,2} and are diverse in nature. Most of the tumours arise in the major salivary glands.² Majority of salivary gland tumours are benign with only 20% accounting for malignant lesions.² Some of the tumours pose diagnostic challenge to a pathologist, especially the malignant lesions with poor differentiation. Owing to the complex features exhibited by salivary gland lesions, histopathological categorisation of tumour is essential for further management of the patient.³ In the present study, we aim to acknowledge the various histological types of salivary gland tumours that we encountered in our institute in a period of 5 years with special emphasis on a few cases posing as a diagnostic dilemma.

Aims and Objectives

1. This is a descriptive study which aims to study the histopathological spectrum of salivary gland tumours, identify tumours which pose as a diagnostic dilemma and try to classify those tumours with the help of immunohistochemistry.

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- Understanding the epidemiological pattern of these tumours and to compare our findings with reports done elsewhere.

MATERIALS AND METHODS

IGIMS is a multi-super-speciality government hospital with regional cancer centre. It caters to patients from Bihar, Jharkhand and adjoining parts of Bengal. The present study is a retrospective study of all salivary gland tumour specimens received at histopathology section of Department of Pathology, IGIMS within the above-mentioned time frame.

The Clinical Files, Slides and Blocks of the Patient were retrieved from the Lab Archives based on the following Criteria-

Study Design

Descriptive Study.

Inclusion Criteria

Benign malignant tumours of major and minor salivary glands.

Exclusion Criteria

Inadequate and improperly fixed tissue biopsies.

Age, sex and location of tumour were noted. Fresh sections were taken and reviewed by the authors. The tumours were classified according to the WHO 2005 histological type. Immunohistochemistry was required in 6 cases.

RESULTS

A total of 56 cases were diagnosed between June 2012 and 2017. Their ages ranged from 15 years to 85 years. There was a slight male preponderance in both benign and malignant lesions (M: F = 1.2: 1). Benign tumours with 35 cases (62.5%) outnumbered the malignant ones with 21 cases (37.5%). Pleomorphic adenoma was the most common benign tumour and adenoid cystic carcinoma was the most common malignancy (Table 1). The average age of patients with benign tumours was 33 years, while that of malignant lesions was 51 years (Table 2). The most common site was parotid followed by submandibular and minor salivary glands (Table-3).

Name of Tumour	No. of Cases	%	M: F Ratio
Benign	35	62.5	1.1:1
Pleomorphic adenoma	32	57	
Warthin's tumour	02	3.5	
Basal cell adenoma	01	1.7	
Oncocytoma	01	1.7	
Malignant	21	37.5	1.2:1
Adenoid cystic carcinoma	10	17.85	
Mucoepidermoid carcinoma	07	12.5	
Acinic cell carcinoma	01	1.7	
Epithelial Myoepithelial Carcinoma	01	1.7	
Salivary gland duct carcinoma (Ca ex-pleomorphic adenoma)	01	1.7	
Adenocarcinoma NOS (Ca ex-pleomorphic adenoma)	02	3.5	

Table 1. Frequency of Salivary Gland Tumours and their Sex Distribution

Tumour	<20	20-30	31-40	41-50	51-60	>60
Benign	3	5	5	13	04	06
Malignant	0	0	03	05	06	07

Table 2. Age distribution of Salivary Gland Tumours

Site	Benign	Malignant	Total
Parotid	27	16	43 (76.7%)
Submandibular	05	03	08 (14.2%)
Minor salivary gland	03	02	05 (8.9%)

Table 3. Site distribution of Salivary Gland Tumours

Among the benign tumours, pleomorphic adenoma was the most common group (57%), which comprised of well encapsulated tumours with variable interplay of epithelial and stromal elements. The epithelial elements comprised of trabeculae and aggregates of ductal and myoepithelial cells in a myxoid, cartilaginous or fibroblastic stroma. The second most common benign tumour was Warthin's tumour with its unique histology comprising of papillae of oncocytic epithelial cells covering a stroma with extensive lymphoid aggregates as well as well-developed follicles. There was one case of basal cell adenoma located in the submandibular gland of a 65-year-old female. The tumour was composed of basaloid cells arranged in tightly packed solid nests and tubules. It was diffusely positive for Pan-CK on immunohistochemistry and the Ki-67 index was < 5% (Fig. 1). Another benign tumour was oncocytoma in the parotid gland of a 50-year-old female. The tumour was composed of sheets and trabeculae of bland oncocytic cells in a myxoid stroma.

Among the malignant cases, the most common was adenoid cystic carcinoma (14%). Most of the tumours showed basaloid cells arranged in cribriform pattern. Mucoepidermoid carcinoma was found with slightly less frequency (12%). It comprised of multiple cell types with solid, cystic areas, small cluster of mucus cells partly lining the cysts and foci of squamous metaplasia. We received 3 cases of carcinoma- ex-pleomorphic adenoma, one of which had developed salivary gland duct carcinoma and the other two showed predominantly adenocarcinoma NOS. All the three cases were old males (> 60 yrs.) and had a history of long-standing tumour (pleomorphic adenoma). Features of pleomorphic were present in all three apart from the carcinomas. Salivary duct carcinoma showed a comedocarcinoma-like pattern resembling intraductal breast carcinoma. The tumour cells were positive for Her-2 with strong membranous staining in more than 20% cells on immunohistochemistry. Adenocarcinoma NOS had tumour cells arranged in organoid pattern as well as forming ducts and tubules at places. The morphology could not be ascertained to any specific type of salivary gland carcinomas. The tumour cells were diffusely positive for Pan-CK and negative for SMA and Her-2. Acinic cell carcinoma was seen in a 40-year-old male in the parotid. The tumour was composed of lobules of polygonal cells surrounded by hyalinised stroma with a prominent lymphoid infiltrate. The tumour cells have abundant cytoplasm and mild nuclear pleomorphism. At places, the tumour showed microcystic pattern. A differential diagnosis of mucoepidermoid carcinoma and acinic cell carcinoma was made. On IHC the tumour was strongly positive for DOG1 and thus was reported as acinic cell carcinoma (Fig. 2). We reported a rare case of epithelial myoepithelial carcinoma. The tumour was low grade, but

with a very non-specific morphology. On IHC the epithelial components were CK positive, while the myoepithelial components were positive for P63 and SMA (Fig. 3).

Two cases with diagnostic dilemma were that of mucoepidermoid carcinoma. One was an 85-year-old male with a mass on the palate. The tumour comprised of mild pleomorphic cells in chords and trabeculae in a myxoid stroma. These chords showed a cribriform pattern of arrangement of cells with the extracellular spaces filled with eosinophilic material. At places, a solid component with mucinous cells was also observed. A differential diagnosis of mucoepidermoid carcinoma and adenoid cystic carcinoma was made. On IHC the tumour was negative for CD117 and S100 and strongly positive for MUC1, thus we reported it as mucoepidermoid carcinoma of low grade. The other tumour showed high-grade mucoepidermoid carcinoma with solid growth pattern and few mucinous cells. This tumour on IHC showed MUC1 and CK positivity, while they were negative for myoepithelial markers like P63 and SMA.

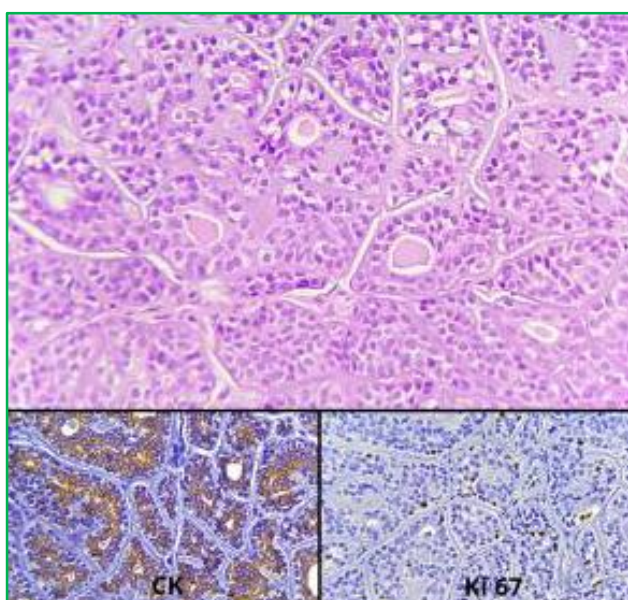


Figure 1. Basal Cell Adenoma

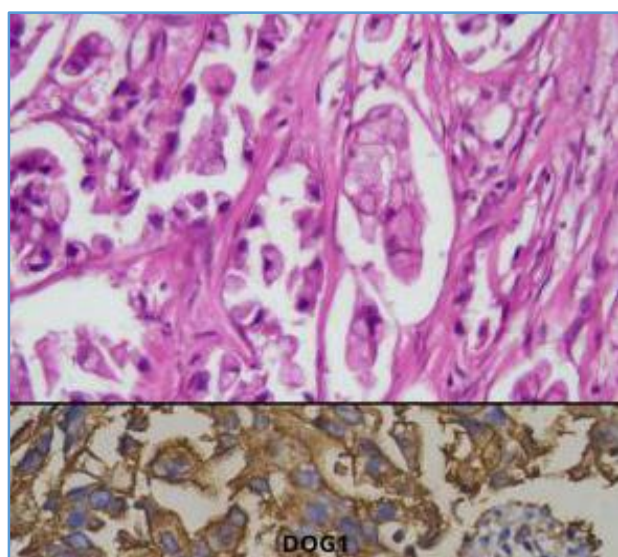


Figure 2. Acinic Cell Carcinoma

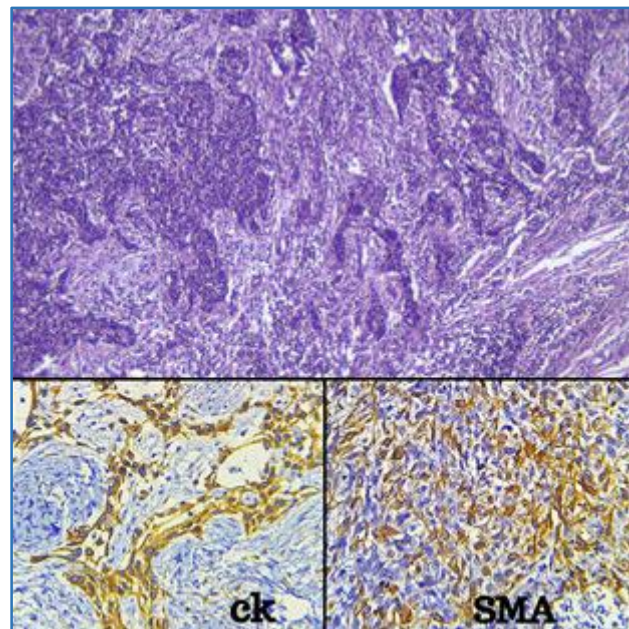


Figure 3. Epithelial Myoepithelial Carcinoma.

DISCUSSION

Salivary gland carcinomas constitute only 3% - 5% of all head and neck malignancies, still they show a wide variety of morphology so much so that WHO has classified them into at least 24 different types.⁴ In our study, we encountered 10 types of tumours.

Morphological typing and grading of salivary gland tumours plays a very important part in their management.⁵ Owing to the low incidence of salivary gland tumours, very few analysis of salivary gland tumours based on significantly large number of cases are published from India.² In this 5-year study, Salivary Gland Tumours were found in patients between the ages of 15 and 85 years (mean: 50 years) with slight overall male predominance, male-to-female ratio of 1.2:1. This finding is not similar with the other studies in India,^{6,7} as most of them have reported a female preponderance.

Furthermore, the results have shown that patients with malignant tumours are older than patients with benign tumours which agree with most published reports.^{6,7}

The most common benign tumour was pleomorphic adenoma. Warthin’s tumour, basal cell adenoma and myoepithelioma are the other tumours we diagnosed. The most common malignant tumour in our study was adenoid cystic carcinoma followed by mucoepidermoid carcinoma. This is in accordance with other studies in India. Some of the poorly differentiated tumours needed immunohistochemistry, which included myoepithelial markers like P63 and SMA and epithelial markers like CK and EMA. Other markers like CD-117 and DOG1 was also used whenever needed. It has been shown that acinic cell carcinomas are consistently positive for DOG1 and adenoid cystic carcinoma for CD-117.⁸

CONCLUSION

The salivary glands exhibit a variety of morphological types and proper histopathological categorisation is essential for further management of the patient. Our study aims at studying the various types of salivary gland tumours

prevalent in our region and the results conform to other studies done in this field in India.

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