

Descriptive pattern of salivary gland tumors in Jos University Teaching Hospital: A 10-year retrospective study

Dear Sir,

Salivary glands are mainly distributed in the head and neck region, with major ones comprising the paired parotid, submandibular and sublingual glands. The minor salivary glands are situated in the palate, lips, cheek and floor of the mouth. The major and minor glands are subject to the same tumor types. Etiology of salivary gland tumors is relatively unknown, and high-risk populations have not been identified.

Salivary gland tumors account for about 2% of tumors in humans;^[1] malignant tumors of the major salivary glands comprise about 10% of the cancers of intraoral and adjacent structures.^[2]

In general, tumors of the minor salivary glands are much less common than those of the major glands, accounting for some 15% to 20% of all salivary gland tumors.^[3,4] About 65% to 85% of salivary gland tumors arise within the parotid gland; 10%, in the submandibular gland; and the remaining, in the minor salivary glands. As many as 15% to 30% of tumors in the parotid are malignant, in contrast to about 40% in the submandibular gland, 70% in the sublingual gland and 50% in the minor salivary glands.^[5] The likelihood that a salivary gland tumor may be malignant is inversely proportional to the size of the gland.^[5]

In Africa, only few studies on salivary gland tumors have been reported, mainly in Kenya, Tanzania and

Nigeria. The prevalence of salivary gland tumors in these countries ranges from 2.8%- to 10% of all head and neck tumors.^[6,7] The parotid gland is the commonest site in 46.5%- to 60% of the cases.^[7] The commonest benign tumor is the pleomorphic adenoma,^[8] while the commonest malignant tumor is the adenoid cystic carcinoma.^[8-10]

This study is the first comprehensive study in Jos University Teaching Hospital (JUTH), and the findings will form the basis for health planning and further research.

This is a retrospective study of all histologically confirmed salivary gland tumors over a period of 10 years. The study was conducted in Jos University Teaching Hospital (JUTH), Jos, which is located in Jos city of Plateau State in north central region of Nigeria. It has a 530-bed capacity and serves as a referral center for most private, missionary and government hospitals in this region. The histopathology laboratory of the hospital receives about 30- to 40 salivary gland specimens annually.

Fresh sections of tissue blocks of all histologically confirmed salivary glands over the period of study were made. The tissues were mainly excisional and incisional biopsies of salivary gland lesions. The tissue sections were cut and made into slides and stained with hematoxylin and eosin (H and E) and periodic acid Schiff (PAS) stains.

The slides made were reported independently by 4 pathologists, and only those with common diagnosis

were included in this study. Those undifferentiated carcinomas requiring immunohistochemistry were excluded from this study. Classification done was according to the World Health Organization (WHO) classification of salivary gland tumors. Information such as age, sex and site was retrieved from patient case files.

The data was analyzed using statistical mean, chi-square and *P*-value. Deductions made were then discussed.

A total of 202 salivary gland tumors were reported during the study period, 86 of which were in males and 116 in females with overall male-to-female ratio of 1:1.4; while 128 (63%) were benign and 74 (34%) were malignant. Of the patients presenting with benign tumors, 69 (54%) were males and 59 (46%) were females, with a male-to-female ratio of 1.2:1; while of those presenting with malignant tumors, 17 (23%) were males and 57 (77%) were females, with a male-to-female ratio of 1.3:4. The overall age range was 4 to 69 years with a mean of 32 years. The age range for patients with benign tumors was 4- to 49 years; and 73 (57%) tumors occurred in the 31-40 years age group, accounting for the highest frequency [Table 1]. The age range for patients with malignant tumors was 40- to 69 years with a mean age of 58 years; majority [36 (49%)] of these tumors were found to occur in the sixth decade of life [Table 1].

The parotid gland was the commonest site for benign and malignant tumors, accounting for 101 (97%) and 43 (58%) tumors, respectively [Table

Table 1: Distribution of salivary gland tumors by age

Tumor Type	< 20	21-30	31-40	41-50	51-60	61-70
Benign						
PA (%)	0 (0.0)	40 (34.9)	65 (56.5)	10 (8.7)		
AL (%)	0 (0.0)	0 (0.0)	6 (100)	0 (0.0)		
ON (%)	0 (0.0)	0 (0.0)	1 (25.0)	3 (75.0)		
BA (%)	0 (0.0)	0 (0.0)	1 (100)	0 (0.0)		
BNET (%)	2 (100)	0 (0.0)	0 (0.0)	0 (0.0)		
Total	2	40	73	13		
Malignant						
ME (%)				5 (15.6)	12 (37.5)	15 (46.7)
ADC (%)				3 (12.5)	18 (75.0)	3 (12.5)
AC (%)				4 (22.2)	6 (33.3)	8 (44.4)
Total				12	36	26

Benign	Malignant
Mean age = 31	Mean age = 58
Peak age group = 31-40	Peak age group = 50-59
	chi-square (χ^2) = 39.8

PA- pleomorphic adenoma

KEY

AL- adenolymphoma

ON- oncocytoma

BA- basal cell adenoma

BNET- benign non-epithelial

Tumor, e.g., lipoma, hemangioma

AC- acinic cell carcinoma

Degree of freedom = 4

P = 0.00 (statistically significant)

KEY

ME- mucoepidermoid carcinoma

ACC- adenoid cystic carcinoma

2]. Pleomorphic adenoma [Figure 1] was the commonest salivary gland tumor; it accounted for 115 (90%) of all benign tumors. Only 1 case of basal cell adenoma was found. Of the 74 malignant salivary gland tumors, mucoepidermoid carcinoma was the commonest, accounting for 32 (43%) tumors; while acinic cell tumor (malignant) was the least common type, accounting for only 18 (24%) tumors. There were 6 (8%) malignant cases in the minor salivary glands [Table 2].

Of the 202 salivary gland tumors studied, benign tumors accounted for 128 (63%) tumors, while malignant tumors accounted for 74 (37%). This is similar to the report by Abiose *et al.*^[6] from Ibadan, who reported 71% benign tumors and 32% malignant tumors; and by Stell *et al.*^[11] from Britain, who documented 62% benign and 48% malignant lesions. Of the 128 benign salivary gland tumors studied, the distribution showed a slight male preponderance (1.2:1). This finding contrasts with the Ibadan and Lagos reports, which have documented a female preponderance.^[10,12] The higher male preponderance in this study might be attributed to the sample size; and some cultural factors that do not allow females to attend clinics alone and without the permission of their

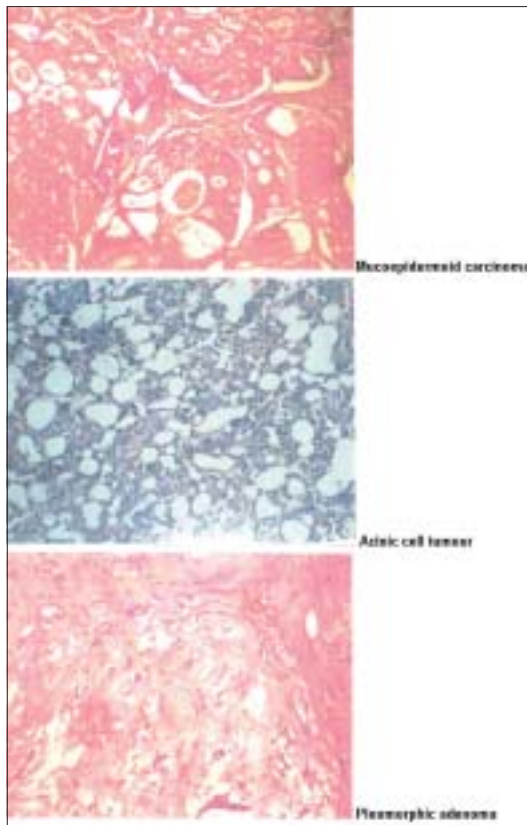


Figure 1: Histologic appearance of different types of salivary gland tumors (H and E, ×40)

Table 2: Distribution of salivary gland tumors by anatomic site

Tumor type	Parotid	Submandibular	Sublingual
Benign			
PA (%)	93 (80.9)	16 (13.9)	6 (5.2)
AL (%)	4 (66.7)	2 (33.3)	0 (0.0)
ON (%)	3 (75.0)	1 (25.0)	0 (0.0)
BA (%)	0 (0.0)	0 (0.0)	1 (100.0)
BNET (%)	1 (50.0)	1 (50.0)	0 (0.0)
Total	101	20	7
Malignant			
ME (%)	25 (78.1)	4 (12.5)	2 (6.3)
ACC (%)	6 (25.0)	8 (33.3)	5 (20.8)
AC (%)	12 (66.7)	5 (27.8)	1 (5.6)
Total	43	17	8

KEY:

Benign	Malignant
PA- pleomorphic adenoma	Minor- glands of palate, cheeks, lips
AL- adenolymphoma	ME- mucoepidermoid carcinoma
ON- oncocytoma	ACC- adenoid cystic carcinoma
BA- basal cell adenoma	AC- acinic cell carcinoma
BNET- benign non-epithelial Tumor, e.g., lipoma, hemangioma	

husbands, which restricted female attendance and thus inclusion in the study .

In this study, the highest percentage (57%) occurring in the age group 31-40 years confirms that benign tumors occur in patients of relatively younger age groups. Similar figures have been reported in other Nigerian studies.^[13] The occurrence of malignant salivary gland tumors in the older age group in this study is also consistent with other studies in Nigeria.^[14] In line with global reports, majority of the benign tumors were found in the parotid gland.^[13-15]

O. A. Silas, G. O. Echejoh, A. N. Menasseh, B. M. Mandong, E. C. Otoh¹

Department of Pathology, JUTH, Jos, ¹Regional Centre for Oral Health Research and Training Initiatives for Africa, Jos

Address for correspondence: Dr. Silas O. A, Department of Pathology, Jos University Teaching Hospital, PMB 2076, Jos, Plateau State, Nigeria. E-mail: drgbenga@yahoo.com

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