Afr. J. Med. med. Sci. (1990) 19, 195–200.

Salivary gland tumours in Ibadan, Nigeria: a study of 295 cases

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Summary

Over a period of 21 years 295 primary salivary gland epithelial tumours were collected and studied. These tumours constituted 2.8% of all head and neck tumours seen at the University College Hospital, Ibadan, over the same period. Two hundred and one (68.1%) were in the major glands and 94 (31.9%) were in the minor intra-oral glands, with the parotid and palatal glands being most frequently involved. There was no statistically significant difference in the sex ratio, and the incidence of tumour gradually increased with age to a peak during the 4th decade. Pleomorphic adenoma was the commonest benign lesion while mucoepidermoid and adenoid cystic carcinomas were the common malignant lesions seen, and were more prevalent in older males. Unlike in other African studies, adenolymphoma, acinic cell carcinoma, adenocarcinoma, and undifferentiated carcinoma types were all identified.

Résumé

Au cours des 21 dernières années on a étudié 295 tumeurs du niveau de l'épithélial primaire des glandes salivaires. Ces tumeurs constituaient 2.8% de tous les tumeurs qu'on a étudié à l'U.C.H. pendant ce temps. Deux cent et un tumeurs (68.1%) se trouvaient dans les glandes majeures et 94 tumeures (31.9%) se situaient dans les glandes mineures et intra-orales. Les glandes parotides et les glandes palatales étaient les plus fréquemment touchées. An niveau du rapport homme–femme, il n'y a aucune différence statistique qui soit significative et les cas de tumeurs se sont multipliés peu à peu avec l'âge, arrivant à une pointe pendant la quatrième décennie. La lésion bénigne, la plus fréquente était l'adénome pléomorphe tandisque les lésions malignes les plus fréquentes étaient le mucoépidermoïde et les adénoïdes carcinomes cystiques qui étaient plus répandu chez les hommes plus âgés. On a identifié l'adéno-lymphomie, le carcinome acine du cellule, l'adéno-carcinome et des autres types des carcinomes non-différenciés dans la population africaine.

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Introduction

Salivary gland tumours are generally considered uncommon, and form only about 3% of head and neck tumours [1]. There are very few large surveys of this spectrum of tumours in recent literature and only the survey of 59 cases conducted in 1966 exists for the environment [2].

The purpose of this larger study is to give an update of the situation in Ibadan, and to make a contribution from this sub-region to other African surveys. A comparison with recent large studies from other geographical regions is also undertaken.

Materials and methods

The data on occurrence of major and minor salivary gland tumours were extracted from the Cancer Registry, University College Hospital, Ibadan for the years between 1966 and 1986. During that 21 year period a total of 10,421 tumours of all sites and types in the head and neck region categories were diagnosed.

In all, 335 slides were retrieved and were examined by one of us (J.O.). Of these, 295 fulfilled the WHO histological criteria for the histo-diagnosing and typing of salivary gland tumours [3].

The variables abstracted for each case included the type, site, age, sex, and year of diagnosis. These data were then analysed on an Apple IIe micro computer, using STATPAK software.

The chi-square test for association and the Z-test for comparison of proportions were used to determine any significant associations between variables such as tumour type and sex, type and age, and type and site.

Results

Type of tumour

The majority (172; 58.3%) of the tumours were pleomorphic adenomas, followed by muco-epidermoid carcinomas (37; 12.5%) (Fig. 1).

One hundred and eighty-three (62.0%) of the tumours were benign while 112 (38.0%) were of the malignant variety. Malignant changes in pleomorphic adenoma occurred in 8 (2.7%) cases.

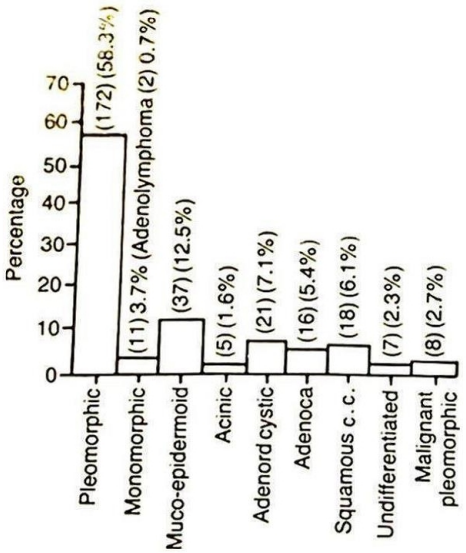

Fig. 1. Type of tumour.

Sex distribution

One hundred and forty-two (48.1%) of the tumours occurred in males while 151 (51.2%) occurred in females; in two cases (0.7%) the sex was not recorded (Table 1). A male:female ratio of 1:1.06 was found. There was no statistically significant difference ($P > 0.05$) between the occurrence of the tumours in the sexes.

Of the 172 pleomorphic adenomas, 97 (56.4%) occurred in females. This tumour also constituted 64.2% of all salivary gland tumours seen in female patients.

However, this apparent predominance of pleomorphic adenomas in females was not found to be statistically significant.

Type/site distribution

One hundred and fifty-four (52.2%) of these tumours occurred in the parotid gland, 47 (15.9%) were in the sub-mandibular gland and 28 (9.5%) were in the palate while in 56 (19.0%) patients the site was unspecified (Table 2).

Of the 112 malignant lesions, 63 (56.3%) were situated in the parotid gland out of which 26 (23.3%) and 12 (10.7%) were muco-epidermoid carcinoma and squamous cell carcinoma respectively.

The sub-mandibular (16.1%), unspecified (14.3%) and palate (8.9%) were the next most common sites for malignant lesions.

Type/age distribution

Results show that seven (2.4%) of these tumours occurred in patients below the age of 10 years, six (2.0%) were in patients between 71–80 years (Fig. 2) while the age of occurrence was not recorded in 34 (11.5%) patients.

The occurrence of salivary gland tumours as seen in Ibadan gradually increased with age until 40 years and then gradually dropped to its lowest level at 71 years and above.

Distribution of benign/malignant tumour by age

Benign tumours are more prevalent in the 2nd to 5th decades (Fig. 3). The incidence of

Table 1. Cell type/sex distribution

Cell type	Male		Female		Missing	Total
	n	%	*n*	%		
Pleomorphic adenoma	74	25.1	97	32.9	1	172
Monomorphic adenoma	3	1.0	6	2.0	—	9
Adenolymphoma	2	0.7	—	—	—	2
Mucoepidermoid carcinoma	19	6.4	18	6.1	0	37
Acinic cell carcinoma	3	1.0	2	0.7	0	5
Adenoid cystic carcinoma	12	4.1	8	2.7	1	21
Adenocarcinoma	9	3.0	7	2.4	0	16
Squamous cell carcinoma	12	4.1	6	2.0	0	18
Undifferentiated carcinoma	3	1.0	4	1.4	0	7
Malignant change in pleomorphic adenoma	5	1.7	3	1.0	0	8
Total number of patients	142	48.1	151	51.2	2	295

Table 2. Tumour cell type/site of origin

Tumour cell type	Major		Minor				
	Parotid	'Sub-mandibular'	Palate	'Lip'	'Cheek'	Unspecified	Total
Pleomorphic adenoma	84	28	18	3	2	38	172
Monomorphic adenoma	6	1	0	0	0	2	9
Adenolymphoma	2	0	0	0	0	0	2
Mucoepidermoid carcinoma	26	3	2	0	1	5	37
Acinic cell carcinoma	3	1	1	0	0	0	5
Adenocystic carcinoma	5	6	3	2	1	4	21
Adenocarcinoma	8	2	3	1	0	2	16
Squamous cell carcinoma	12	4	0	0	0	2	18
Undifferentiated carcinoma	5	1	0	0	0	1	7
Malignant change in pleomorphic adenoma	4	1	1	0	0	2	8
Total	154 (63)*	47 (18)	28 (10)	6 (3)	4 (2)	56 (16)	295 (112)

*Total malignant figures in parentheses.

malignant tumours rose gradually to become more prominent in the older age groups.

Comparison of percentage of tumour types in surveys

Pleomorphic adenoma is by far the commonest benign tumour while muco-epidermoid carcinoma, adenocystic carcinoma, adenocarcinoma and squamous cell carcinoma are the commonly occurring malignant varieties (Table 3).

The pattern of incidence of the spectrum of tumours within each individual survey appears similar.

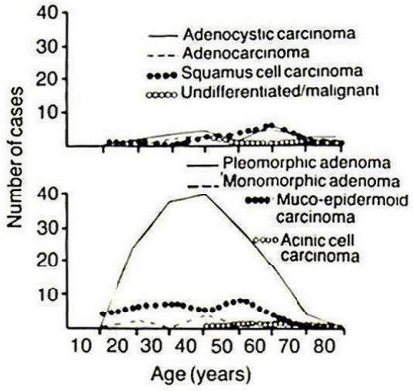

Fig. 2. Incidence of tumour types in the age ranges.

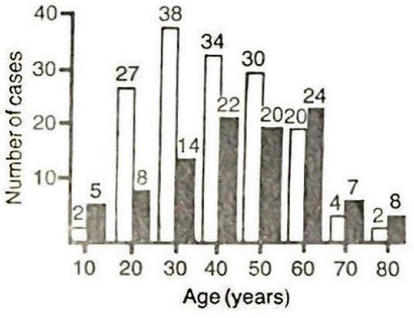

Fig. 3. Distribution of total benign (□) and malignant (■) salivary gland tumours by age.

Comparison of site distribution in surveys

The parotid, sub-mandibular, and palatal glands are more affected than the lip and cheek glands in all the surveys. Also, non-specificity of site of some tumours is common to all the surveys ranging in magnitude from 0.5 to 19.0%.

Discussion

The incidence of salivary gland tumours compared to that of other head and neck tumours in Ibadan is low at 2.8%, which conforms with the findings in other surveys [1,4,7]. This incidence has, however, not been related to the population, as the registry serves an undetermined population of a large geographical area covering Lagos, Ogun, Oyo, Ondo, Bendel and Kwara States of Nigeria.

The tumours occurred frequently in the major salivary glands, especially the parotid, while the palatal glands were the more common site of occurrence for minor gland lesions.

Primary epithelial tumours of salivary glands can be benign or malignant. In this survey, 62% of them were benign for all age groups, while 38% were of the malignant varieties and these appeared to occur more in the older age group and in males. Overall, both sexes are nearly equally affected by salivary gland tumours.

The pleomorphic adenoma and the muco-epidermoid carcinoma were the most fre-

Table 3. Comparison of percentage of tumour types in surveys

Tumour cell types	Ibadan [2]	Malawi [7]	Canadian figures [5]	Houston [6]	Tennessee [4]	Present survey
Pleomorphic adenoma	71.2	59.5	32.7	—	—	58.3
Monomorphic adenoma	6.8	3.7	2.9	—	—	3.0
Adenolymphoma	—	—	6.4	—	—	0.7
Mucoepidermoid carcinoma	1.7	6.8	17.9	29.3	27.5	12.5
Acinic cell carcinoma	—	—	5.2	8.0	7.5	1.6
Adenocystic carcinoma	5.1	7.4	16.0	20.1	15.0	7.1
Adenocarcinoma	—	—	12.2	20.5	13.0	5.4
Squamous cell carcinoma	5.1	16.3	1.3	6.0	8.0	6.1
Undifferentiated carcinoma	—	—	—	—	12.0	2.3
Malignant change in pleomorphic adenoma	10.2	3.7	1.6	12.9	12.0	2.7
No. of cases surveyed	59	190	312	498	188	295

Table 4. Comparison of site of distribution on percentage of salivary gland tumours in surveys

Site	Ibadan [2]	Malawi [7]	Canadian figures [5]	Tennessee [4]	Present survey
Parotid	67.7	43.7	64.4	58.5	52.2
Sub-mandibular	10.2	24.7	13.1	12.2	15.9
Palate	13.6	18.9	7.7	17.0	9.5
Lip	5.1	12.1	0.3	10.1	2.0
Cheek	—	—	1.6	—	1.4
Unspecified	3.4	0.5	1.9	2.12	19.0
No. of cases studied	59	190	312	188	295

quently encountered lesions of the benign and malignant series, respectively.

As this is a retrospective study, we have not investigated or attempted to comment on the controversial issues of the development of malignant changes in pleomorphic adenoma, or the unequivocal squamous cell carcinoma arising *de novo* in the salivary glands.

The adenolymphoma, acinic cell carcinoma, adenocarcinoma, and undifferentiated carcinoma were found to occur in this African community, in contrast to the previous local findings of Edington and Sheiham [2], and the Malawian study of Thomas *et al.* [7].

Although the male:female ratio is statistically insignificant at 1:1.06, there seems to be a greater number of lesions occurring in females than in males in nearly all the tumour types. The two cases of adenolymphomas occurred in the parotid glands of a 17-year-old boy and an adult male, which is in keeping with the generally accepted view of sex, age and site occurrence of the tumour.

Pleomorphic adenoma, monomorphic adenoma and the undifferentiated carcinoma lesions show a preference for females which is, however, not statistically significant.

The incidence, type, site, sex, and age distribution of salivary gland tumours in this survey appears essentially comparable with other large published surveys [4–7]. Unfortunately, it is distressing to observe that the non-recording of age of patient, and non-specification of site of tumour, which are important parameters in the assessment/prognosis of any tumour behaviour, are rather high.

Acknowledgments

The authors acknowledge the patient co-operation of Mrs B. O. Babalola of the Cancer Registry, University College Hospital, Ibadan, and Mr R. B. Adabale of the Department of Dentistry, University College Hospital, Ibadan for his secretarial assistance.

References

1. Eveson JW, Cawson RSA. Tumours of the minor (oro-pharyngeal) salivary glands: a demographic study of 336 cases. J Oral Pathol 1985;14:500–9.
2. Edington GM, Sheiham A. Salivary gland tumours and tumours of the oral cavity in Western Nigeria. Br J Cancer 1966;10:425–33.
3. Histological Typing of Salivary Gland Tumours — International Histological Classification of Tumours, No. 7. Geneva: World Health Organization, 1972.
4. Hunter RM, Davis BW, Gray GF, Rosenfeld L. Primary malignant tumours of salivary gland origin: a 52 year review. Am Surg 1983;2:82–9.
5. Main JHP, Orr JA, McGurk FM, McComb RJ, Mock D. Salivary gland tumours; review of 643 cases. J Oral Pathol 1976;5:88–102.
6. Spitz MR, Batsakis JG. Major salivary gland carcinoma: descriptive epidemiology and survival of 498 patients. Arch Otolaryngol 1984;110: 45–9.
7. Thomas KM, Hutt MSR, Borgstein J. Salivary gland tumours in Malawi. Cancer 1980;46:2328–34.

(*Accepted* 12 *June* 1989)