

THYROID CARCINOMA IN NORTH EASTERN NIGERIA: A REVIEW OF 26 CASES.

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ABSTRACT

Background: Thyroid gland specimens are commonly received for examination in Nigerian histopathology laboratories. However, not enough is known yet about the histopathology patterns of thyroid carcinoma that necessitates thyroidectomy in Nigeria.

Objective: This study was aimed at classifying the histological pattern of thyroid carcinoma and determine the role of FNAC in the diagnosis.

Materials and Methods: The study was carried out in the Department of Histopathology University of Maiduguri Teaching Hospital during a 15-year period between 1989 and 2004.

Result: An analysis showed that 21 (80.8%) were females and 5(19.2%) males giving a ration of 4.2:1. Their mean age was 37.8 years. Ten patients had fine needle aspiration cytology as an initial investigation, 9 of them were confirmed to be malignant. The commonest

histologic type was follicular carcinoma and accounted for 14(53.8%), medullary thyroid carcinoma 6(23.1%) and papillary and anaplastic carcinomas 3 (11.5%) each. Three patients presented with metastasis to the skull.

Conclusion: Thyroid malignancies are relatively uncommon and follicular carcinoma is the commonest histological type, which is in consonance with most studies in Nigeria. Therefore, the routine use of FNAC in preoperative investigation of thyroid malignancies cannot be overemphasized. There is need to educate our populace about the use of dietary iodinated salt. This will go a long way in reducing the incidence of goiter in our environment.

Key Words: Thyroid carcinoma; Histological pattern; Cytopathology; Thyroidectomy.

INTRODUCTION

The patterns of thyroid disorder are subject to geographical variation. The University of Maiduguri Teaching Hospital is the only

referral, tertiary institution in the Northeast sub-region of Nigeria where thyroid gland biopsy is commonly encountered in the Histopathology Department. However, most reports available on thyroid disorders in Nigeria have been from the South West^{1,2,3}, South East⁴ and North Central^{6,14} regions of Nigeria. There was no published study in our subregion, which is a goiter endemic region. The purpose of this study was to report the prevalence of thyroid malignancies, classify the histological patterns and determine the role of FNAC in the diagnosis of carcinoma of thyroid.

MATERIAL AND METHODS:

A retrospective study of 26 cases of malignant thyroid nodules in Maiduguri, diagnosed between January 1989 and December 2004 in the Department of Histopathology of the University of Maiduguri Teaching Hospital was carried out. The patient's clinical data which included:- age and sex and the cytopathological and histopathological diagnosis were obtained from the request forms and the hospital case notes. Some of the patient had blind percutaneous fine needle aspiration cytology as initial investigation. The Pathologists examine the patients and explained the procedure to them and a verbal consent was obtained. A fine-needle was then introduced to take the lesion aspirate. Each of the patients had one or two aspirates obtained using a 10ml plastic syringe fitted with a 21-gauge disposable needle. The procedure took fraction of a minute. The

contents of the needle were blown on to a glass slide. Four slide smears were made, two were immediately fixed in 95% ethyl alcohol for about 30 minutes and the remaining two were air-dried and then fixed. The slides were stained with Haematoxylin and Eosin (H&E), and Giemsa stains respectively and examined with light microscope.

All thyroid surgical specimens were routinely Formalin-fixed, paraffin embedded and cut as 2-3 μ m. Majority of the cut sections were routinely examined using Haematoxylin and Eosin stain, however special stains such as Congo red were used to demonstrate amyloid in medullary carcinoma and verhoeff's elastic stain to demonstrate vascular invasion by tumour cells. The result of our findings are presented in simple frequency tables.

RESULTS

Table 1 shows the age and sex distribution of thyroid malignancies of 26 cases. Thyroid malignancies are rarely seen before the first decade of life. The peak age incidence was the 3rd decade of life and accounted for 7 (26.9%) cases. The females are predominantly affected with 21 (80.8%) cases while males 5(19.2%) cases. The female, male ratio was 4.2:1. The males first presented at the 5th decade of life.

Table 2 shows 10 patients who initially had fine needle aspiration cytology diagnosis, nine out of the 10 cases were confirmed to be malignant. Three patients presented with skull

metastasis from follicular carcinomas, which were diagnosed by FNAC, but in the last case the thyroid tissue was not subjected to histopathology diagnosis.

Table 3 shows the histologic types and sex distribution of the 26 cases of thyroid

malignancies. Follicular carcinoma 6(23.1%) and Papillary and Anaplastic carcinoma 3 (11.5% cases each. All the three cases of papillary carcinoma were seen in females. The mean age of thyroid carcinoma was 37.8years.

Table 1.

Age and Sex distribution of Thyroid carcinoma of 26 cases

Age group (yrs)	Male	Female	Total (%)
0-9	-	-	-
10-19	0	2	2(7.7)
20-29	0	7	7(26.9)
30-39	0	5	5(19.2)
40-49	3	2	5(19.2)
50-59	2	3	5(19.2)
≥60	0	2	2(7.7)
TOTAL	5(19.2)	21(80.8)	26(100)

Table 2.

Summary of 10 cases with cytological and histological diagnosis.

S/No.	Age	Sex	Cytological Diagnosis.	Histopathological diag.
1.	40	M	Follicular Neoplasm	Follicular carcinoma
2.	70	F	Malignant	Anaplastic carcinoma
3.	45	M	Follicular Neoplasm	Follicular carcinoma*
4.	22	F	Suspicious	Follicular carcinoma
5.	35	F	Follicular Neoplasm	Follicular carcinoma
6.	48	M	Malignant	Anaplastic carcinoma
7.	50	F	Malignant	Medullary carcinoma
8.	44	F	Malignant	Papillary carcinoma
9.	52	F	Follicular Neoplasm	Follicular carcinoma*
10.	56	M	Follicular Neoplasm	Follicular carcinoma*

Patients also presented with metastasis to the skull*

Table 3

Sex distribution of histological types of 26 cases of Thyroid carcinoma

Histological type	No. of Males	No. of Females	Total (%)	Mean (yrs)
Follicular carcinoma	3	11	14(53.8)	38.1
Papillary carcinoma	0	3	3(11.5)	35.8
Medullary carcinoma	1	5	6(23.1)	34.0
Anaplastic carcinoma	1	2	3(11.5)	44.3
Total	5	21	26(100)	37.8

DISCUSSION

Thyroid carcinoma is the most frequently diagnosed endocrine malignancy⁸. The prevalence rate of thyroid carcinoma in this study is lower than the previous studies ranging from 8.1% by Amabib et al¹ in Lagos; 13.7% by Edino et al⁷ in Kano, Nigeria; and 5.0% in a Caucasian series⁹. The commonest age presentation was from the 3rd decade of life in this study while the 4th and 5th decades were reported in other studies^{2,3,4}. It has been noted that most of the cancers occurred a decade earlier among the Blacks in the tropics than the Whites in Europe¹⁰. This lower age may be related to the endemicity of nodular goiter. However, two of our patients were teenagers and each presented with Anaplastic and Follicular carcinomas. The diagnosis of all cases in this study was by histopathology, although, 10 patients had FNAC as initial investigation. All the FNAC diagnosis was confirmed by histology as shown in Table II. This shows that FNAC is

highly sensitive (90%) of thyroid malignancies. The Surgeons and Pathologists find it a very useful initial investigation for all thyroids swelling on our patients. Although distinguishing follicular adenoma from follicular carcinoma with cytology using Haematoxylin and Eosin stain may be difficult even with experienced Pathologists, this can be differentiated on smear stained for Argyrophilic Nucleolar Organiser Regions (AgNOR)¹¹. Follicular carcinoma is the commonest thyroid malignancy encountered in our study and this agreed with previous some reports^{3,5,7} and contrast to others^{2,4} in our environment. Follicular carcinoma represents a large proportion of thyroid malignancies in region with low dietary iodine². Patient with follicular carcinoma typically present at a more advanced age than those with papillary cancer. The mean age at diagnosis in this study was 38.1 years. Three of the patients presented with bone (skull) metastasis from follicular carcinoma. This is not

uncommon as Nggada¹¹ et al documented one of the patients presented with extensive bone involvement after 18 months post thyroidectomy, while the second case presented with both the thyroid cancer and skull metastasis. Follicular carcinoma spread early by haematogenous route.

Papillary carcinoma is considered the predominant type in areas without iodine deficiency¹³. A change in trend from predominant follicular papillary carcinoma is attributed to iodine supplementation^{2,3,4,14}. This means that there lack of dietary iodine supplementations from our study. However, there is campaign by the Federal Ministry of Health about iodine supplementation to our diet. The impact of this campaign is yet to be felt.

Medullary Thyroid Carcinoma (MTC) accounted for 23.1% of all the thyroid cases within the study period, however this finding is higher than other series^{2,15}. MTC is a tumour that arises from the parafollicular C cells of the thyroid gland and 75% of the cases occur sporadically while 25% occur familiarly. Therefore, MTC is associated with other syndromes consisting of Simple syndrome (MEN 2A), MEN 2B and Familial Medullary Thyroid Carcinoma (FMTC). However, none of the 6 cases had any of the associated syndromes at presentation. The serum calcitonin levels above the laboratory normal range are strongly suggestive of MTC. But it was not done and therefore the control will be difficult because of the nature of the study.

Anaplastic carcinoma is rare and occurs in elderly individuals. Anaplastic carcinoma is a poorly differentiated carcinoma that is very aggressive in its biological behaviour. However one of our patients was a 15-year old girl who presented with rapidly growing firm thyroid mass with hoarseness of voice and dyspnea and palpable cervical metastasis.

In conclusion, thyroid malignancies are relatively uncommon and follicular carcinoma is the commonest histological type, which is in consonance with most studies in Nigeria. Therefore, the routine use of FNAC in preoperative investigation of thyroid malignancies cannot be overemphasized.

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