

Histopathological pattern of thyroid diseases in Abuja, Nigeria capital city: a review of one hundred and one consecutive cases.

ABSTRACT

This study is a histopathological review of 101 consecutive thyroidectomy specimen processed and histologically diagnosed in Anatomic Pathology Department of Asokoro District Hospital, Abuja, Nigeria new capital city between 2010 and 2014. Nodular colloid goiter is the preponderance thyroid lesion seen constituting 75%, of all cases with a male to female ratio of 0.17:1. Neoplasms (11%) represent the second most common pathology with thyroid adenoma representing 8% of cases and thyroid carcinoma 3%, of cases. Seventy five percent of the adenoma was seen in females and all the carcinoma occurred in females. Other lesions are thyroglossal duct cyst (7%) and thyroiditis (7%).

The study reviewed a higher incidence of papillary carcinoma over follicular carcinoma and this represents a reversal to findings in most Africa population based study. There is also a high incidence of thyroiditis in comparison with other works in Africa.

Because of the small size of our sample population, accurate

inference on the gender division of various disorders may not be conclusive. There is a need for further study on the pathology of thyroid lesions in Abuja in order to elucidate the reasons for the disparity noted.

Key words: Abuja, thyroid pathology.

INTRODUCTION

The thyroid gland is one of the most responsive organs in the body and contains the largest store of hormones of any endocrine glands (1). Its gland responds to many stimuli and is in a constant state of adaptation. The diseases of the thyroid are manifested by alterations in hormone secretion, enlargement of the gland (goitre) or both (2). They are of great importance because most are amenable to medical or surgical management (1)

It has also been widely established that the pattern of the thyroid diseases are subject to geographical variations as well as etiological and predisposing factors inherent in such locales (3,4,5).

Thyroid disorders are common endocrine disorders encountered in the African continent (4). They are the second most common endocrine disorders in Nigeria (6). An histopathological study of thyroid diseases in southern Nigeria shows non-

neoplastic disorders constituting 68.45% and neoplastic disorders,31.6% of thyroid diseases in southern Nigeria(5).Work done in Ghana identified nontoxic multinodular goiter as the commonest thyroid disorder especially among females(7). This is in contrast to the south western Nigeria work that identified simple colloid goiter has the commonest non neoplastic pathology(5).The documented prevalence rate of thyroid carcinoma in the African continent are as follows:papillary-6.7-72.1%,follicular-4.9-68%,anaplastic-5-21.4% and medullary-2.6-13.8%(4).Data on the frequency of thyroid malignancies is not conclusive. Others have discovered follicular carcinoma to be the commonest (5,8).

Iodine deficiency has been identified as a significant public health problem in 129 countries and at least one third of world's population live in areas at risk of iodine deficiency (9).Nigeria is one of such countries and Abuja,its new Federal capital city has this attribute of a mountainous area.

Abuja, Nigeria is the new capital city of Nigeria. With a population of 776,298, (10) making it one of the most populous cites in Nigeria, it has witnessed a large influx of people into the city since it became Nigeria capital city.Its geography in defined by Aso Rock, a 400 meter monolith left by water erosion.

This study will help in illuminating thyroid pathology in the new capital city of Nigeria as it review the histopathologic pattern of thyroid disease seen in the city, their relationship with age and sex.

Materials and methods

A retrospective review of records was carried out on thyroidectomy specimen received in Department of Pathology, Asokoro District Hospital, Asokoro, Abuja Nigeria between January, 2010 and December, 2014. All the biopsies specimen were formalin fixed and paraffin embedded sections and stained using heamatoxylin and eosin. The reports, slides and blocks were kept in the department archives. All section were diagnosed and reported by the pathologists. Information collected included patient's age, sex and histopathological diagnosis. The slides were not retrieved for review; the index diagnosis was accepted as a final diagnosis. All the lesions were broadly classified into: nodular colloid goiter, including colloid and adenomatous goiter, adenoma (both follicular and hurtle cell type) all types of thyroiditis and carcinoma including all subtypes that are follicular, papillary, medullary and anaplastic carcinoma and thyroid-glossal cyst.

Results

85 A total of 101 cases were reviewed during the period of study.
86 Sixteen (15.8%) were specimens from male patients while 85(84.2%)
87 were from female patients, giving a male to female ratio of 0.17:1 of
88 thyroid lesions among the population studied. Nodular colloid
89 goiter represented the preponderant disorders in both sexes.

90 Nodular colloid goiter (NCG) was seen in 76(75%) (Figure 1) of
91 total cases in this study with 8(7.9%) of cases in male and 68
92 (67.3%) of cases in female respectively. These are predominantly
93 seen in age range 30-39 (28.7%). (Table 1).

94 The neoplasms found were namely adenoma. The adenoma
95 represents 8%(8) of total cases and carcinoma, 3%(3) of total
96 lesions studied respectively. The adenomas were predominantly
97 seen in age ranges 30-39 (38%) and 40-49 (25%). While 25% of
98 cases of adenoma were seen in male, 75%, of its occurrence was
99 seen in female given a male to female ratio of 1:3.

100 All the carcinoma were seen in the female patients and all were
101 papillary adenocarcinoma. There were 7(7%) cases of thyroglossal
102 duct cyst and 7 (7%) cases of thyroiditis. The thyroiditis were all
103 lymphocytic thyroiditis.

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105 **DISCUSSION**

106 Nodular colloid goiter (NCG) represent the commonest disease
107 in our study and was seen in 76(75%) of the cases. This is in
108 agreement with similar studies in other parts of Nigeria (3,5,) and
109 another study done in Ethiopian (11). While Ilorin reported 73.4%
110 of cases (3), the Ethiopian work reported 76.9% of total cases
111 studied. Our study was also in agreement with a retrospective
112 analysis of 1494 thyroid cases seen at the thyroid clinic of
113 Kenyatta National Hospital (12). They reported 75.2%. Most works
114 reported NCG as the commonest thyroid disorder with its incidence
115 and prevalence varying from place to place depending on
116 associated etiological factor(s) in such localities. A deficient in-
117 take of iodine is the dominant cause of the disease with the degree
118 of thyroid enlargement been proportional to the level and duration
119 of disease. Abuja, sited in a mountainous area may be a
120 contributing factor as NCG is extremely prevalent in mountainous
121 and hilly areas as a result of deficient iodine in surrounding soil.
122 Other implicated factors include goitrogens like drugs and
123 minerals which block thyroid hormones synthesis leading to its
124 enlargement (11). Zonana (13) postulated hereditary biosynthetic
125 defects in thyroid hormone synthesis transmitted as autosomal
126 recessive conditions.

127 Thyroid neoplasm account for the second (11%) most common
128 histopathologic disease in our study. This is in consonant with
129 similar studies in Nigeria and elsewhere in Africa (3,11). Our rate
130 of 11% is similar to that of Ilorin (15%)(3), but lower when
131 compared with two East-African studies in Ethiopia (11) and
132 Kungu (14). This is also in contrast to 31.6% found in southern
133 Nigeria(5) which concurred with the Ethiopian rate of 21% and al
134 Kungu's 43%. The difference may be partly explained by the
135 differences in indications for the thyroidectomy in the studied
136 population group i.e. medical or socio-economic reasons (14).
137 Thyroid adenoma in this study are predominantly seen within ages
138 30-49(63%) and 60-69(25%). These together with the sex, are in
139 constant with most other reports (3,5,11,15,16). Carcinomas of the
140 thyroid are relatively uncommon with only 3 cases accounting for
141 3% of the total population studied. All cases of carcinoma in our
142 work occurred in female with age distribution of 40-59 years (66%)
143 and 70-79 years (33%). Our findings concurred with similar
144 studies (3,8) but lower than the reported 23.3%, in Kungu and
145 southern Nigeria studies (5,14). The incidence sex and age
146 distribution of the thyroid carcinoma were consistent with other
147 observations (3,11,14,15,16). At the University College Hospital,
148 Ibadan, it accounted for 1.3% of all malignant conditions (17).

149 Carcinoma of the thyroid are thus uncommon accounting for well
150 under 1% of solitary thyroid nodules and representing about
151 15,000 new cancers cases each year (1). Papillary carcinoma is the
152 only thyroid cancer represented in this study. This is in contract to
153 most studies done in Nigeria where follicular carcinoma has, been
154 reported as the most predominant (3,5). Anidi et al,(18) also in
155 Nigeria reported higher incidence of papillary carcinoma over
156 follicular carcinoma. This is in keeping with some other African
157 studies (6,12,13), but Kungu(14) reported a preponderance of
158 follicular carcinoma in Kenya. Our studies of high papillary
159 carcinoma is in tandem with finding among Caucasians where
160 incidence of papillary carcinoma is higher than follicular
161 carcinoma (19,20). We submitted that there is a need for further
162 studies on this in Abuja in view of the size of our studied
163 population.

164 Thyroiditis seen in our study represents 7% of cases.
165 Compared with other studies within Africa (3,11,14,), this is rather
166 high. The Ilorin study reported 0.8 %(3), Ethiopian work,2.1 %(11)
167 and Kungu 3% (14). Though our study show a preponderance of
168 female cases(86%), which is in consonant with other studies
169 (11,14).There is also a need for further studies and evaluation of
170 this relative higher rate(7%) in Abuja.

171 **Thyroglossal** cysts represents 7% of cases of lesions found in
172 this study and are predominantly seen in male (71%).The cyst
173 represents a persistent sinus tract remaining as a vestigial
174 remnant of the tubular development of the thyroid gland, when
175 obliterated, leaving small segments to form cyst. They tend to
176 occur at any age and might not become evident until adult. The
177 male-female disparity in our study contrast the Ilorin study (3)
178 where equal numbers of **thyroglossal duct cyst** were found in both
179 sexes.

180 In conclusion this study has shown that nodular colloid goiter
181 is the preponderance thyroid pathology in thyroidectomy patients
182 seen in Abuja. **The conclusion regarding the incidence of thyroid**
183 **pathology on gender needs further work because of the limited size**
184 **of our study, there is also need for further study on the incidence**
185 **and histopathologic type of thyroid carcinoma seen in Abuja and**
186 **incidence and prevalence of thyroiditis.**

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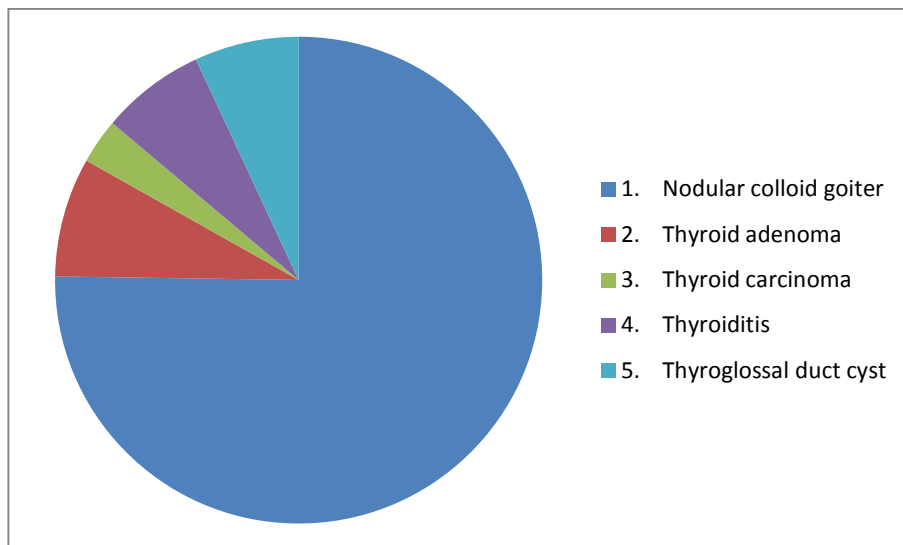
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251 **Fig.1.Pie chart showing histopathologic pattern of thyroid**
252 **disease in thyroidectomy specimens.**



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263 **Table 1.**

264 **Distribution of histopathologic thyroid diagnosis in relations**
265 **to age**

AGE	NCG%	TGC%	TA%	TC%	TD%	TOTAL
0-9	-	2(22%)	-	-	-	2(2%)
10-19	1(1%)	7(71%)	-	-	-	6(6%)
20-29	18(24%)	-	1(12%)	-	2(29%)	21(21%)
30-39	29(38%)	-	3(38%)	-	3(43%)	35(35%)
40-49	16(21%)	-	2(25%)	1(33%)	-	19(19%)
50-59	6(8%)	-	-	1(33%)	1(14%)	8(8%)
60-69	6(8%)	-	2(25%)	-	-	8(8%)
70-79	-	-	-	1(33%)	1(14%)	2(25)
Total	76	7	8	3	7	101

Key: NCG-Nodular colloid goiter, TGC-Thyroglossal-cyst,

TA-Thyroid adenoma, TC-Thyroid carcinoma,

TD-Thyroiditis.

