

**Histopathologic 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 include thyroido-glossal 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 African population based study. There is also a high incidence of thyroiditis in comparison with other works in Africa. There is a need for further study on the pathology of thyroid

22 lesions in Abuja in order to elucidate the reasons for the disparity
23 noted.

24 **KEY WORDS: ABUJA, THYROID-DISEASES, NODULAR-**
25 **COLLOID GOITER.**

26 **INTRODUCTION**

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

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

37 With this mind, this study set to review the histopathology
38 pattern of thyroidectomy specimens submitted to the Department
39 of Pathology, Asokoro District Hospital, Abuja, Nigeria.

40  Abuja, Nigeria is the new capital city of Nigeria. With a
41 population of 776,298, (4) making it one of the most populous

42 cites in Nigeria, it has witnessed a large influx of people into the
43 city since it became Nigeria capital city on 12th of December, 1991.

44 Its geography is defined by Aso Rock, a 400 meter monolith left by
45 water erosion.

46 Since little or no study has been done on thyroid pathology
47 especially as it concerns Abuja with its peculiarities, we hope this
48 study will help in illuminating thyroid pathology in the new capital
49 city of Nigeria. The study will review the histopathologic pattern of
50 thyroid disease seen in the city, their relationship with age and
51 sex.

52 **Materials and methods**

53 A retrospective review of records was carried out on
54 thyroidectomy specimen received in Department of Pathology,
55 Asokoro District Hospital, Asokoro, Abuja Nigeria between
56 January, 2010 and December, 2014. All biopsies specimen were
57 formalin fixed and paraffin embedded sections and stained using
58 hematoxylin and eosin. The reports, slides and blocks were kept
59 in the department archives. All sections were diagnosed and
60 reported by pathologists. Information collected included patient's
61 age, sex and histopathologic diagnosis. The slides were not
62 retrieved for review; the index diagnosis was accepted as a final

63 diagnosis. All the lessons were broadly classified into: nodular
64 colloid goiter, including colloid and adenomatous goiter, adenoma
65 (both follicular and hurtle cell type) all types of thyroiditis and
66 carcinoma including all subtypes that are follicular, papillary,
67 medullary and anaplastic carcinoma and thyroido-glossal duct
68 cyst.

69 **Results**

70 A total of 101 cases were reviewed during the period of study.
71 Sixteen (15.8%) were specimen from male patients while 85(84.2%)
72 were from female patents (Table 1), giving a male to female ratio of
73 0.17:1 of thyroid lessons among the population studied. Nodular
74 colloid goiter represented the preponderant disorders in both
75 sexes.

76 Nodular colloid goiter (NCG) was seen in 76(75%) of total
77 cases in this study with 8(7.9%) of cases in male and 68 (67.3%) of
78 cases in female respectively. These are predominantly seen in age
79 range 30-39 (28.7%). (Table 2).

80 The neoplasms found were namely adenoma. The adenoma
81 represents 8%(8) of total cases and carcinoma, 3%(3) of total
82 lesions studied respectively. (Table 1). The adenomas were
83 predominantly seen in age ranges 30-39 (38%) and 40-49 (25%).

84 While 25% of cases of adenoma were seen in male, 75%, of its
85 occurrence was seen in female given a male to female ratio of 1:3.

86 All the carcinoma were seen in the female patients and all were
87 papillary adenocarcinoma (Table 3). There were 7(7%) cases of
88 thyroid-glossal duct cyst and 7 (7%) cases of thyroiditis. The
89 thyroiditis were all lymphocytic thyroiditis.

90 Table 4 shows specific thyroid disease entities in relation with sex.

91  Females were most commonly affected by thyroid disease.

92 **DISCUSSION**

93 Nodular colloid goiter (NCG) represent the commonest disease
94 in our study and was seen in 76(75%) of the cases. This is in
95 agreement with similar studies in other parts of Nigeria (3,5) and
96 another study done in Ethiopia (6). While Ilorin reported 73.4% of
97 cases (3), the Ethiopian work reported 76.9% of total cases studied.
98 Our study was also in agreement with a retrospective analysis of
99 1494 thyroid cases seen  at the thyroid clinic of lengthy national
100 hospital (7). They reported 75.2% . Most works reported NCG as the
101 commonest thyroid disorder with its incidence and prevalence
102 varying from place to place depending on associated etiological
103 factor(s) in such localities. A deficient intake of iodine is the
104 dominant cause of the disease with the degree of thyroid

105 enlargement been proportional to the level and duration of disease.
106 Abuja , been cited in a mountainous area may be a contributing
107 factor as NCG a extremely prevalent in mountainous and hilly
108 areas as a result of deficient iodine in surrounding soil. Other
109 implicated factors include giotrogenes like drugs and minerals
110 which block thyroid hormones synthesis leading to its enlargement
111 (6). Zonanal (8) postulated hereditary biosynthetic defects in
112 thyroid hormone synthesis transmitted as autosomal recessive
113 conditions.

114 Thyroid neoplasm account for the second (11%) most common
115 histopathologic disease in our study. This is a consonant with
116 similar studies in Nigeria and elsewhere in Africa (3.6). Our rate of
117 11%, is similar to that of Ilorin (15%) but lower when compared
118 with two East-African studies in Ethiopia (6) and Kungu (9). The
119 Ethiopian rate was 21%, while that of Kungu was 43%. The
120 difference may be partly explained especially with the Kungu study
121 by the differences in indications for the thyroidectomy in the
122 studied population group i.e. medical or socio-economic reasons
123 (6). Thyroid adenoma in this study are predominantly seen within
124 ages 30-49(63%) and 60-69(25%). These together with the sex, are
125 in constant with most other reports (3.6,10,11). Carcinomas of the
126 thyroid are relatively uncommon with only 3 cases accounting for

127 3% of the total population studied. All cases of carcinoma in our
128 work occurred in female with age distribution of 40-59 years (66%)
129 and 70-79 years (33%). Our findings concurred with similar
130 studies (3,6) but lower than the reported 23.3%, in Kungu study
131 (9). The incidence sex and age distribution of the thyroid
132 carcinoma were consistent with other observations (3,6,9,10,11).
133 At the University College Hospital, Ibadan, it accounted for 1.3% of
134 all malignant conditions (12). Carcinoma of the thyroid are thus
135 uncommon accounting for well under 1% of solitary thyroid
136 nodules and representing about 15,000 new cancers cases each
137 year (1). Papillary carcinoma is the only thyroid cancer represented
138 in this study. This is in contract to most studies done in Nigeria
139 where follicular carcinoma has, been reported as the most
140 predominant (3,13,14). Anidi(5) et al also in Nigeria reported
141 higher incidence of papillary carcinoma over follicular carcinoma.

142 This is also in keeping with some other African studies (6,10,13),
143 but Kungu(9) reported a preponderance of follicular carcinoma in
144 Kenya. Our studies of high papillary carcinoma is in tandem with
145 finding away Caucasians where incidence of papillary carcinoma is
146 higher than follicular carcinoma (14,15,16). We submitted that
147 them is a need for further studies on this in Abuja in view of the
148 size of our studied population.

149 Thyroiditis is also seen in our study representing 7(7%) of
 150 cases. Compared with other studies within Africa (3,6,9,16), this is
 151 rather high. The Ilorin study reported 0.8 %(3), Ethiopian2.1 %(6),
 152 Kungun 3% (9) and another Ethiopian work 1% (17). Though our
 153 study show a preponderance of female cases(86%), which is in
 154 consonant with other studies (3,6,9,16) there is a need for further
 155 studies and evaluation of this relative higher rate(7%) in Abuja.

156 Thyroidglossal duct cysts represents 7% of cases of lesions
 157 found in this study and are predominantly seen in male (71%).

158 The cyst represents a persistent sinus tract remaining as a
 159 vestigial remnant of the tubular development of the thyroid gland,
 160 when obliterate leaving small segments to form cyst. They tend to
 161 occur at any age and might not become evident until adult. The
 162 male-female disparity in our study contrast the Ilorin study (3)
 163 where equal numbers of thyroidglossal cyst were found in both
 164 sexes.

165 In conclusion this study has shown that nodular colloid goiter
 166 is the preponderance thyroid pathology in thyroidectomy patients
 167 seen in Abuja. There is also need for further study on the
 168 incidence and histopathologic type of thyroid carcinoma seen in
 169 Abuja and incidence and prevalence of thyroiditis.

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213 **Table 1**

214 **Histopathologic pattern of thyroid diseases seen at**
 215 **thyroidectomy.**

Histopathologic diagnosis	No	%
1. Nodular colloid goiter	76	75
2. Thyroid adenoma	8	8
3. Thyroid carcinoma	3	3
4. Thyroiditis	7	7
5. Thyroido-glossal duct cyst	7	7
Total	101	100%

216

217 **Table 2**

218 **Distribution of histopathologic thyroid diagnosis in relations**
 219 **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

220 **Key: NCG-Nodular colloid goiter, TGC-Thyroido-glossal-cyst,**

221 **TA-Thyroid adenoma, TC-Thyroid carcinoma,**

222 **TD-Thyroiditis.**

223  **Table 3**

224 **Distribution of the histopathologic thyroid disorders in**
 225 **relation to sex.**

SEX	NCG	TC	TA	TC	TD	TOTAL
	NO (%)	NO(%)	NO (%)	NO (%)	NO (%)	NO (%)
Female	68(89%)	2(29)	6(75)	3(100)	6(86)	85(84)
Male	8(11)	5(71)	2(25)	0(0)	1(14)	16(16)
Total	76	7	8	3	7	101

226 **Key: see Table 2**

227  **Table 4**

228 **Histopathological subdivisions of the 3 thyroid carcinoma**

THYROID CARCINOMA	NO	%
Papillary carcinoma	3	100
Follicular carcinoma	-	-
Anaplastic carcinoma	-	-
Medullary carcinoma	-	-
Total	3	100

229