



Spectrum of thyroid diseases in the surgical department of a tertiary centre in South-south, Nigeria

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ABSTRACT

Background: Diseases of the thyroid gland are common endocrine disorders encountered globally and the incidence varies from one geographical region to another. The aim of this study is to determine the demographic, clinical and histopathological pattern of thyroid diseases as seen in University of Port Harcourt Teaching Hospital (UPTH).

Methodology: This is a 6 year retrospective study of all patients with thyroid diseases that were managed in the surgical department of the University of Port Harcourt Teaching Hospital between January 2006 and December 2011. Relevant data were retrieved from the case notes and analysed using the Statistical Package for Social Sciences (SPSS) version 17.

Results: A total of 80 patients with thyroid diseases were evaluated. They included 11 (13.7%) males and 69 (86.3%) females with a male to female ratio of 1: 6.3. Their ages ranged from 18 to 70 years with a mean of 40.3±4.4 years and peak age at 31-40 years. Colloid goitre was the commonest lesion encountered, seen in 21.3% of the patients with an average age of 37.4±3.1 years and peak age of 21-30 years. Cosmetic disfigurement was found to be the major indication for surgery and respiratory obstruction the commonest post-operative complication seen.

Conclusion: Diseases of the thyroid gland are common in Port Harcourt and seen in both genders with a female preponderance. Colloid goitre was the commonest lesion encountered and respiratory obstruction the commonest surgical complication.

Key words: Thyroid diseases, clinical features, histopathology, Port Harcourt, Nigeria.

INTRODUCTION

Hormones produced by the thyroid gland are responsible for oxygen consumption, basal metabolic rate of most body cells, metabolism of macromolecules and necessary for the normal growth, maturation and proper development of the central and peripheral nervous system.^{1,2} Diseases of the thyroid gland are one of the commonest endocrine disorders worldwide.³ They



may be diffuse or nodular, benign or malignant and hypothyroid, euthyroid and hyperthyroid in status. The spectrum of thyroid diseases includes simple goitre, toxic goitre, thyroiditis, adenoma and cancers.³ These diseases may present clinically as mass lesions or as conditions associated with hyper, hypo or euthyroidism.⁴

A report suggests a prevalence of 2-6% with palpation, 19-35% with ultrasound and 8-65% in autopsy data.⁵ The prevalence varies according to the geographical region, age and sex.⁶ It has been documented that diseases of the thyroid gland are the second commonest endocrine disorders seen in the endocrinology clinics in Nigeria, while thyroid surgery constitute a significant proportion of surgical practice in Nigeria.^{7,8}

This study seeks to determine the demographic, clinical and histopathological pattern of thyroid diseases as seen in University of Port Harcourt Teaching Hospital.

Materials and methods

A 6-year retrospective study of all patients with thyroid disease that were managed at the University of Port Harcourt Teaching Hospital between January 2006 and December 2011 was conducted. The data which included age, sex, duration of symptom before presentation at the hospital, other presenting symptoms, associated medical illness, indication for surgery, operative procedure, histological diagnosis and post-operative complications were retrieved and analysed using SPSS version 17. The diseases were classified into simple diffuse (colloid) goitre, simple multinodular goitre, toxic diffuse goitre, toxic multinodular goitre, thyroiditis, adenomas and carcinomas. Patients with thyroglossal cyst and thyroid abscess were excluded from the study.

Results

A total of 80 patients with thyroid diseases were recruited for the study. About 7 cases were excluded because of incomplete records in their case notes.

There were 69 (86.3%) females and 11 (13.7) males with a female to male ratio of 6.3:1 (Table 1). Their ages ranged from 18 to 70 years with a mean of 40.3 ± 4.4 years and peak age at 31-40 years (Table 2). Duration of symptoms before presentation ranged from 2 to 336 months with an average of 69.6 ± 3.5 months. All the patients presented with goitre. Other presenting symptoms included toxic features, pain, hoarseness, dysphagia and dyspnoea (Table 3). Hypertension was the commonest associated medical illness seen (10%). Others were diabetes, asthma and dyspepsia.

Cosmetic disfigurement was the main reason most of the patients wanted surgery and this was observed in 76.3% of patients. Other indications for surgery were toxic and compressive



symptoms (Table 4).

Preoperatively, thyroid function test which included serum triiodothyronine (T3), thyroxine (T4) and thyroid stimulating hormone (TSH) was done on all the patients. Those found to have thyrotoxicosis were rendered euthyroid by intake of antithyroid drugs (carbimazole) and β blockers (propranolol) for 4 to 6 weeks.

All the patients had subtotal thyroidectomy and the histology report retrieved from the histopathology department of the same institution. Colloid goitre was the commonest lesion encountered. This was seen in 21.3% of the patients with a mean age of 37.4 ± 3.7 years and peak age of 21-30 years. The distribution of the lesions encountered are as seen in Tables 1 and 2.

Respiratory obstruction was the commonest post-operative complication and this was seen in 8 (10%) patients. Seven (8.8%) of these cases were from reactionary haemorrhage while the remaining 1 (1.3%) was due to laryngeal oedema. Other post-operative complications are as seen in Table 5. No mortality was recorded within the study period.

Table 1. Sex distribution

DISEASE	MALE	FEMALE	TOTAL (%)
Colloid goitre	2	15	17(21.3)
Simple multinodular goitre	1	13	14(17.5)
Toxic diffuse goitre	2	12	14(17.5)
Toxic multinodular goitre	0	14	14(17.5)
Hashimotos thyroiditis	1	1	2(2.5)
Riedels thyroiditis	1	0	1(1.3)
Papillary carcinoma	1	4	5(6.3)
Follicular carcinoma	1	2	3(3.8)
Anaplastic	0	1	1(1.3)
Lymphoma	0	1	1(1.3)
Hurtle cell adenoma	0	1	1(1.3)
Follicular adenoma	2	5	7(8.8)
TOTAL	11	69	



Table 2. Age distribution

Age groups	11-20	21-30	31-40	41-50	51-60	61-70
Colloid goitre	1	7	4	2	2	1
Simple multinodular	0	3	4	4	3	0
Toxic diffuse	2	2	10	0	0	0
Toxic multinodular	0	0	2	6	6	0
Adenoma	0	3	3	1	1	0
Hashimoto	0	0	0	1	0	1
Riedel	0	0	1	0	0	0
Papillary	0	1	1	1	1	1
Follicular	0	1	0	2	0	0
Anaplastic	0	0	0	0	1	0
Lymphoma	0	0	0	0	1	0
Total	3	17	25	17	15	3

Table 3. Presenting symptoms

Symptoms	No of patients
Goitre	80(100%)
Pain	2(2.5%)
Toxic symptoms	15(18.8%)
Hoarseness	4(5.0%)
Dysphagia	3(3.8%)
Dyspnoea	2(2.5%)

Table 4. Indications for surgery

Indications	No. of Patients (%)
Cosmesis	61(76.3%)
Toxic symptoms	10(12.5%)
Compressive symptoms	9(11.2%)



Table 5. Post-operative complications

Complications	No. of Patients (%)
Respiratory Obstruction	8 (10)
Hoarseness	2 (2.5)
Recurrence	1 (1.3)
Hypothyroidism	3 (3.8)
Total	14(17.6)

Discussion

Diseases of the thyroid gland occur commonly worldwide.^{4,8} The histopathologic pattern and incidence of thyroid diseases show regional and geographical variations related to age, sex, diet and environmental factors.⁴

Reports from previous studies show that both sexes are affected but with a remarkable female preponderance.^{9,10} This was similar to the findings in this study where females predominated with a female to male ratio of 6.3:1. Abdulkareem et al¹¹ from Lagos, Hill et al^[12] from Kenya and Chung et al³ from United States of America (USA) also reported increase female preponderance with similar ratios of 6:1, 7.2:1 and 7:1 respectively. This is attributable to the increased physiological demands of pregnancy, menstruation and lactation.⁴

The mean age of patients with thyroid diseases in this study was 40.3 years and peak age incidence of 31-40 years. This is consistent with findings from previous studies.^{11,14} This finding might also be attributable to the fact that this age group is the period of increased hormonal and metabolic activities associated with menstruation, pregnancy and lactation.

In this study, simple goitre stands out as the commonest disease of the thyroid gland, seen in 31 patients (38.8%). Others were toxic goitres, carcinomas, adenomas and thyroiditis in decreasing order of frequency. The finding of simple goitre as the commonest lesion has been well documented both in Nigeria and globally.^{3,10,11,15,16} It occurred in 79.6% of females in a series from Lagos¹⁰, 68.6% in Ile-Ife¹¹, and 57.6% by Handa et al¹⁷ from India. The relatively reduced incidence of simple goitres in our centre compared to the findings from other studies may be due to the increase commercially available iodized salts, flour and other food supplements in our environment from the collaborative effort of the Federal Government in conjunction with the National Agency for Food and Drug Administration and Control in the last two decades.⁹

The common causes of toxic goitre are Grave's disease, hyper functional multinodular goitre and



hyper functional toxic adenoma¹⁸ While Grave's disease has an autoimmune basis, the latter two patterns have no such basis. In this study, toxic goitres consisted of Grave's disease and toxic multinodular goitre and they accounted for 35% of all cases. Olurin et al¹⁹ from Ibadan and Osime et al²⁰ from Benin reported incidence of 7.5 and 13.5% respectively. The finding of 35% in this study might represent an increasing incidence of thyrotoxicosis in Nigeria.

Only 3 cases (3.8%) of thyroiditis were seen in this study. Two cases of Hashimoto's thyroiditis (in a 70 year old male and 43 year old female) and a case of Riedel's thyroiditis in a 40 year old female. The rarity of inflammatory thyroid diseases is supported by findings from other reports in Nigeria.^{9-11,14} The figures are relatively higher in India and Middle East.^{17,21} There is no known reason for this relative difference in incidence.

In this study, thyroid adenomas accounted for 10% of all thyroid diseases. This figure is consistent with the 10-21% recorded for adenomas in Nigeria, Africa and USA,^{9,11-13,18} though some reports in Nigeria have documented lower frequencies.^{10,22} This difference has been attributed to the differences in the relative frequencies of simple goitre in such areas.¹⁸

Follicular adenoma was the predominant histological sub type (8.8%) and this is similar to the findings of previous studies.^{11,14} There was only one case of Hurtle cell adenoma (1.3%).

Thyroid cancer constituted 12.7% of thyroid diseases within the period of study. This was similar to some Nigerian series^{9,15,18} but higher than the 7% reported by Abdulkareem et al.¹¹ There was no identifiable reason for the low incidence in Lagos. Papillary carcinoma was the commonest histological type in this study representing 49.6% of all thyroid cancers and 6.3% of all thyroid diseases. This is similar to the reports of some Nigerian series and some international studies.^{3,9,12,18} It is well established that papillary carcinoma is the most common malignant neoplasm of the thyroid gland globally and in iodine sufficient areas while follicular carcinoma has higher frequency in iodine deficient areas.^{2,3,4}

Similar to the findings by Ogbera et al⁸, goitre was the commonest presenting feature and it was present in all the patients. Other less presenting features were symptoms of toxicity, pain and compressive symptoms.

In our study, cosmetic disfigurement was the predominant reason why the patients sought for surgery and this was noted in 76.3% of the patients. This finding is in agreement with the findings of studies done elsewhere.^{23,24} However, Acun et al²⁵ in Greece reported toxic symptoms as the most common indication for surgery. The indication for surgery may be determined by the prevalence of goitre in a certain locality.

Although thyroidectomy has been reported to be a well-established surgical procedure and the main stay of treatment for goitres²⁶, the approach and extent of tissue resection for benign



goitres remain controversial.²⁷ Many surgeons advocate a surgical procedure that results into low complications and recurrence rates.²³ In our study, subtotal thyroidectomy was done for all the patients and was found to be effective and relatively safe. No mortality was recorded and only 14 patients (17.6%) had post-operative complications. The type and frequency of post-operative complications vary from centre to centre. The commonest from this study is respiratory obstruction resulting from reactionary haemorrhage. In the study by Abede et al²⁸, the commonest was post operative pneumonia while Phillip et al²³ in Tanzania documented intra-operative bleeding requiring post-operative blood transfusion as the commonest. There is no identifiable reason for this variation. Other post-operative complications from our study were hypothyroidism, hoarseness and recurrence.

Conclusion

Diseases of the thyroid gland are common in Port Harcourt and seen in both genders with a striking female preponderance. Colloid goitre was the commonest lesion encountered. We recommend that the government and non-governmental organizations should sustain the iodination of salt and flour programme in addition to public health education on the need to consume them as this will further reduce the incidence.

References

- 1) Lewis EB, Robert DU. Anatomy of the thyroid gland. In: Werner and Ingbar's The thyroid, A fundamental and clinical text. 7th ed. Philadelphia: Lippincott-Raven Press; 2001. P 43-45.
- 2) Ganon WF. The Thyroid gland In: Review of medical physiology. 22nd ed. San Francisco: Mc Graw-Hill co; 2005. P 317-332.
- 3) Segupta S, Tuli IP, Baruah B, Kesari SP, Ilapakurty B, Gupta A. Spectrum of goitrous lesions in patients at a tertiary care center of Sikkim. Sahel Med J 2014; 17: 112-116.
- 4) Maitra A, Abbas AK. Thyroid gland. In: Kumar V, Abbas AK, Fausto N, Aster JC, editors. Robins and Cotran Pathologic Basis of Diseases. 7th ed. Philadelphia: Elsevier Saunder, 2004. P 1155-1226.
- 5) Dean DS, Gharib H. Epidemiology of thyroid nodules. Best Pract Res Clin Endocrinol Metab. 2008; 22: 901-911.
- 6) Lamfon HA. Thyroid Disorders in Makkah, Saudi Arabia. Ocean J Appl Sci 2008; 1: 55-58.
- 7) Solomon R, Iliyasu Y, Mohammed AZ. Histological pattern of thyroid diseases in Kano, Nigeria: A 10 year retrospective review (2002-2011). Niger J Basic Clin Sci 2015; 12: 55-60.
- 8) Ogbera AO, Fasanmade O, Adeniran O. Pattern of thyroid diseases in southern region of



Nigeria. *Ethin Dis.* 2007; 17: 327-330.

9) Nzegwu MA, Ezume ER, Njeze GE, Olusina DB, Ugochukwu IA. A histological update of thyroid lesions in Enugu, Nigeria. A 5 year retrospective review. *Asian J Exp Biol Sci.* 2010; 1: 430-433.

10) Nggada HA, Ojo OS, Adelusola KA. A histopathological analysis of thyroid diseases in Ile-Ife, Nigeria. A review of 274 cases. *Niger Postgrad Med J.* 2008; 15: 47-51.

11) Abdulkareem FB, Banjo AA, Elesha SO. Histological review of thyroid lesions: A 13 year retrospective study (1989-2001). *Niger Postgrad Med J.* 2005; 12: 210-214.

12) Hill AG, Mwangi I, Wanga L. Thyroid diseases in rural Kenyan Hospital. *East Afr Med J.* 2004; 81: 631-633.

13) Chung EB, Rogers N, White JE. Thyroid diseases in black patients. *J Natl Med Assoc.* 1977; 69: 573-577.

14) Seleye-Fubara D, Numbere N, Etebu EN. Pathology of common diseases of the thyroid gland in Port Harcourt. *Port Harcourt Med J.* 2009; 3: 312-317.

15) Edino ST, Mohammed AZ, Ochicha O. Thyroid gland diseases in Kano. *Niger Postgrad Med J.* 2004; 11: 103-106.

16) Ntyonga-Pono MP. Gabonese thyroid pathology in a hospital milieu in Libreville: 137 cases. *Bull Soc Pathol Extot.* 1998; 91: 226-228.

17) Handu U, Garg S, Mohan H, Nagarkar N. Role of fine needle aspiration in diagnosis and management of thyroid lesions: A study of 434 patients. *J Cytol.* 2008; 25: 13-17.

18) Solomon R, Iliyasu Y, Mohammed AZ. Histopathological pattern of thyroid lesions in Kano, Nigeria: A 10 year retrospective review (2002-2011). *Niger J Basic Clin Sci.* 2015; 12: 55-60.

19) Olurin EO, Itayemi SO, Oluwasanmi JO, Ajayi OO. The pattern of thyroid diseases in Ibadan. *Nig Med J.* 1973; 3: 58-65.

20) Osime U, Okobia MN. Thyrotoxicosis in Benin City: a study of surgical treatment of 50 patients. *JMBR.* 2004; 3: 81-85.

21) Darwish AH, Al Sindi KA, Jihene EB. Pattern of thyroid diseases: a histopathological study. *Bahrain Med Bull.* 2006; 28: 1-6.

22) Adeniji KA, Anjorin AS, Ogunsulire A. Histological pattern of thyroid diseases in a Nigerian population. *Niger Q J Hosp Med.* 1998; 8: 241-244.

23) Phillip LC, Peter R, Joseph BM, Emmanuel SK, Godfrey G, Alphonse B, et al. patterns and outcome of surgical management of goitres in Bugando Medical Centre in northwestern Tanzania. *Tanzania J Health Res.* 2011; 13: 1-9.

24) Salmon YG, Omer AE. Total thyroidectomy for bilateral benign thyroid diseases: safety



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profile and therapeutic efficacy. *Kuwait Med J.* 2007; 39: 149-152.

25) Acun Z, Comert M, Cihon A, Ulukent SC, Ucan B, Cakmak GK. Near total thyroidectomy could be the best treatment for thyroid in endemic regions. *Archives Surg.* 2004; 139: 444-447.

26) Giddings AE. The history of thyroidectomy. *Royal Society of Medicine* 1998; 91: 3-6.

27) Bellantone R, Lombardi CP, Bossola M. Total thyroidectomy for management of benign thyroid disease: review of 526 cases. *World J Surg.* 2002; 26: 1468-1471.

28) Abede B, Osman M. Goitre in a teaching hospital in the north western Ethiopia. *East and Central Afr J Surg.* 2006; 11: 21-27.