

## Clinico-Pathological Presentation and Management Outcome of Thyroid Diseases at a Tertiary Medical Centre in North-central Nigeria

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### ABSTRACT

Thyroid diseases are endemic in our environment. These could be benign or malignant in nature. Management of thyroid diseases is multidisciplinary with attendant complications observed with operative treatment. This study looked at the spectrum and appraises the management of thyroid diseases encountered at the study centre. This is a 6-year retrospective descriptive study that looked at the various forms of thyroid diseases that were managed at FMC Keffi from January 2015 to December 2020. Patients' pathological details were retrieved from the histopathology Departmental records as well as patients' folders covering the said period. Data obtained was analysed with Epi Info statistical package version 3.5.1. A total of 116 patients were reviewed out of which 79 (68.1%) patients had operative treatment. Their ages ranged between 18-72 years (mean age 33.5±3.01years). A hundred and seven (92.2%) were females while 9 (7.8%) were males with M:F of 1: 12. Benign thyroid diseases were common 89(76.7%) with non-toxic goiters accounting for more than two-thirds 51 (57.3%) while the rest were toxic 38 (42.7%). Papillary thyroid carcinoma was the commonest malignant variant 13(48.2%) followed by follicular 7(25.9%), anaplastic 5(18.5%) and medullary 2(7.4%) variants. Total thyroidectomy was the most common procedure carried out on the patients 42 (53.2%) followed by sub-total thyroidectomy 22(27.9%). Complications encountered included dysphonia 11 (13.9%), respiratory distress from deep space haematoma 5(6.3%), recurrent laryngeal nerve injury 6 (7.6%), and hypocalcaemia 3 (3.8%). Thyroid diseases are common encounters with variations in pathology. Papillary thyroid cancer was found predominant among differentiated thyroid cancers. Recurrent laryngeal nerve injury is a recognized complication that may ensue especially in inflammatory, recurrent or toxic goitres. A better approach to a successful management of thyroid diseases is multidisciplinary with adequate understanding of the anatomy, pathology and possible operative outcomes.

**Keywords:** Thyroid Pathology, Thyroidectomy, Management, Outcome

### OPEN ACCESS

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## INTRODUCTION

The thyroid gland produces thyroid hormones which are directly involved in many physiological processes like energy metabolism, growth, reproduction, growth and development.<sup>1</sup> The thyroid gland may become pathological either structurally or functionally thereby leading to either excessive or underproduction of the thyroid hormones. Structurally, it may become enlarged and even nodular with or without anomalies with hormonal level. Thyroid diseases have been reported globally to be second commonest endocrine disorder after diabetes mellitus and reported to be endemic more on the Africa continent.<sup>2,3</sup> Both environmental and nutritional factors have been implicated in the aetiopathogenesis of thyroid diseases.<sup>4</sup>

The occurrence of thyroid diseases has been attributed to different aetiological factors. In Nigeria and other sub-Saharan countries, goitres have been attributed to iodine deficiency from mining activities leading to communal iodine deficiency (endemic goitres), presence of goitrogens such as thiocyanates found in poorly processed cassava as well as selenium deficiency.<sup>4,6</sup> In both benign and malignant presentation, there could be associated pressure symptoms resulting from compressive forces on the aero-digestive and vascular structures in the neck. The persistent encounter of goiters in our out-patient clinics therefore prompted us to have a look at the spectrum of pathological variants and management of thyroid diseases presenting to our health care facility at the Federal Medical Centre, Keffi.

## MATERIALS AND METHODS

This is a retrospective descriptive study that entailed the review of clinical records of patients that presented to the General surgery clinics with goitres between January 2015 and December 2020. Ethical clearance was sought to retrieve patients' clinical

information and conduct this study. Out of a total of 116 patients that presented with thyroid diseases, 79 patients had operative treatment while another 33 had non-operative management and were co-managed with the endocrinologist accordingly. There were four patients that did not give consent for surgery based on some socio-cultural beliefs. Patients' pathological details were retrieved from the histopathology Department accordingly. Required information were retrieved from the folders and entered into the Epi Info statistical package for analysis for this study.

## RESULTS

A total of 116 patients' records were reviewed and recruited into this study. Their ages ranged between 18-72 years. A hundred and seven patients (92.2%) were females while nine (7.8%) were males. A total of 79 patients had operative treatment (thyroidectomy). Benign thyroid diseases account for over 75% of the total varieties encountered. Of the benign thyroid diseases, non-toxic goiters accounted for more than two-thirds; 51 (64.6%) while the rest were toxic 38 (35.4%) of the malignant goiters, papillary thyroid carcinoma was the commonest variant 13(48.2%) followed by follicular 7(25.9%), anaplastic 5(18.5%) and medullary 2 (7.4%) variants. Majority (62.1%) of the patients presented within 5 years of noticing their anterior neck masses while others had their goiters presented more than 5 years before presentation. Virtually all patients presented with anterior neck mass as cosmetic disfigurement among other complaints which prompted their clinical appearance as shown in Table 1. Total thyroidectomy was the most common procedure carried out on our patients 42 (53.2%) patients followed by sub-total thyroidectomy 22 (27.9%) patients. Complications encountered included dysphonia 11 (13.9%)

respiratory distress from deep space haematoma 5 (6.3%) patients, recurrent laryngeal nerve injury 6 (7.6%) and hypocalcaemia 3 (3.8%) patients

**Table 1: showing demographics and clinical parameters of patients**

Parameter	Frequency	Percentage
<b>Age</b>		
11-20	2	1.7
21-30	27	23.3
31-40	45	38.8
41-50	24	20.7
51-60	13	11.2
61-70	4	3.5
>70	1	0.9
<b>Sex</b>		
Male	9	7.8
Female	107	92.2
<b>Nature of disease</b>		
Benign	89	76.7
Malignant	27	23.3
<b>Duration of symptoms</b>		
< 5 yrs	72	62.1
5-10 yrs	28	24.1
10-15 yrs	14	12.1
>15 yrs	2	1.7

**Table 2: showing pathological characteristics and surgical outcomes of the thyroid diseases**

Parameter	Frequency	Percentage
<b>Benign Variants (n=89, 76.7%)</b>		
<i>Non-toxic (n=51, 57.3%)</i>		
*multinodular	27	52.9
*Diffuse	23	45.1
*solitary nodule	7	13.7
*Inflammatory	1	2.0
<i>Toxic (n= 38, 42.7%)</i>		
+Diffuse (Graves')	24	63.2
+Multinodular	14	36.8
<b>Malignant variant (n= 27, 23.3%)</b>		
Papillary	13	48.2
Follicular	7	25.9
Anaplastic	5	18.5
Medullary	2	7.4
<b>Mode of management (n=116, 100.0%)</b>		
Operative (Thyroidectomy)	79	68.1
Non-operative (Pharmacological)	37	31.9
<b>Type of surgery (n=79)</b>		
Total thyroidectomy	42	53.2
Subtotal thyroidectomy	22	27.9
Near total thyroidectomy	9	11.3
Lobectomy	6	7.6
<b>Complications (n=79)</b>		
No complication	40	50.6
Hypertrophic scar	11	13.9
Dysphonia	11	13.9
Recurrent laryngeal nerve injury	6	7.6
Deep space haematoma	5	6.3
Keloid	3	3.8
Hypocalcaemia	3	3.8

## DISCUSSION

Thyroid diseases in this study were observed to be more common among the females with male to female ratio of 1:12. This observation aligns with reports from similar studies in which female preponderance was reported.<sup>7-9</sup> Although, many of these patients were found to have developed goitres in sporadic fashion, quite a significant number of them emanated from the goitre belt within the study region. Patients in their 3<sup>rd</sup> to 6<sup>th</sup> decades of life were predisposed while those in the 4<sup>th</sup> decade of life constituted the modal group. This may be attributed to hormonal factors on account of monthly surge in endocrine activities which may predispose to formation of thyroid nodules and subsequent thyroid gland enlargement. Thyroid diseases encountered were both of benign and malignant varieties with majority of the patients presenting with benign (non-toxic) diseases. Our observation tends to conform to reports from other similar studies in northwest and southwest Nigeria in which non-toxic goitres were reported to be prevalent.<sup>9,10</sup> It is important to state that some of our patients that presented with Graves's disease were optimally managed on medications in conjunction with the endocrinologist. This category of patient did not require operative intervention. However, we encountered another category of patients who declined operative intervention on account of socio-cultural beliefs. Malignant thyroid diseases as seen in this study comprised about a quarter of the total patients in the study with papillary thyroid cancer representing the highest proportion in about half of the total patients with thyroid cancers. Papillary thyroid cancers has been hitherto, reported to be less common in our clime however; a study from University College Hospital, Ibadan, southwest Nigeria, had also reported the prevalence of papillary thyroid cancer over other variants.<sup>11</sup> Our finding therefore contradicts earlier reports of predominance of follicular thyroid carcinoma in our geographical

region.<sup>12</sup> There have been differences in the reported prevalence of the histopathological variants of differentiated thyroid cancers however, some studies reported equivocal findings.<sup>10</sup> These observed differences in the variants of thyroid cancers may be borne out of many factors including over diagnosis, true diagnosis or some other unexplained factors. The occurrence of follicular thyroid carcinoma has been linked to iodine deficiency states and this may substantiate why some studies have reported such as being predominant.<sup>13</sup> It is therefore possible to infer that occurrence of more of papillary thyroid carcinoma may be sporadic in nature or due to some factors yet to be identified.<sup>14</sup> Majority of our patients were conscious of their cosmetic outlook and the presence anterior neck masses in such people made them to present within the first five years of observing their neck swellings. Some of these patients also had some pressure symptoms (like difficulty in swallowing, difficulty in breathing, change in voice) at were responsible for presentation. This spectrum of symptomatology in clinical presentation of patients that presented with goiters has been consistent over the years.<sup>15</sup> Intra-operative findings of hard (nodular) portions of the gland and the presence of paratracheal lymphnodes gave a high index of suspicion of malignancy hence; guided in taking decision for total thyroidectomy in such patients. The option of total thyroidectomy in many of our patients being favoured over near-total thyroidectomy for suspected malignant thyroid lesions could be attributed to the following reasons. Firstly, financial difficulty to undergo a second surgery (completion thyroidectomy). Secondly, to avert another exposure to general anaesthesia (with its risks and complications) and thirdly L-thyroxine is cheap, affordable and readily available for our patients to procure and the compliance over the years has been noted to be satisfactory. The spectrum of the various complications encountered in this study is consistent with what has earlier been reported by

different authors from other climes. These include respiratory distress from deep space haematoma<sup>16-18</sup> and recurrent laryngeal nerve injury<sup>19-22</sup> hypocalcaemia<sup>23,24</sup> among others.

## CONCLUSION

In this study, both benign and malignant variants of thyroid diseases were encountered. Papillary thyroid cancer was found to be predominant among different thyroid cancers. Total thyroidectomy was the most common operative procedure. Dysphonia was the commonest post-thyroidectomy complications encountered.

## Recommendation

We recommend public health education and exploration of all possible preventive measures to stem the tide of thyroid diseases. We also recommend multi-disciplinary approach to the management of thyroid diseases

## Conflict of interest

None

## Sponsors

None

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