

Operative Management of Thyroid Disorders in Maiduguri

Ali N MBBS, FWACS, Naa'Ya H U MBBS, FWACS

Department Of Surgery, University Of Maiduguri Teaching Hospital, P.M.B 1414, Maiduguri Borno State

Abstract

Background: Goiters are a common problem worldwide and its operative treatment has evolved over the years to become one of the safest operations in general surgery. The objective of this study is to evaluate the outcome after thyroidectomy for the treatment of goiters.

Method: A retrospective study of all patients undergoing thyroid surgery at the University of Maiduguri Teaching Hospital (UMTH) over a five year period (January 2000 to December 2004) was conducted, to establish the pattern of the disease and the outcome of management.

Results: A total of 184 thyroid operations were performed during the study period. This comprised 163 (88.6%) females and 21 (11.4%) males. The mean age was 33.9 ± 11.3 years (range 12-65). The male, female ratio was 1:7.8. One hundred and seventy four (94.6%) of the patients had benign thyroid disease, and 10 (5.4%) had thyroid carcinoma. All the patients presented with anterior neck swelling and this was the only complaint in 107 (58.1%) of the patients. The mean duration of symptoms was 6.61 ± 7.1 years, (range 3 months - 40yrs). The indications for operation were cosmesis in 88 (47.8%), toxic symptoms in 64 (34.8%), pressure symptoms in 16 (8.7%), suspicion of malignancy in 13 (7.1%) and recurrent goiter in 3 (1.6%). The most frequent operative procedure was subtotal thyroidectomy in 143 (77.7%) patients. Postoperative complications included seroma of the surgical site in 24 (13.0%), wound infection in 12 (6.5%), airway obstruction due to haematoma in 12 (6.5%) and hypoparathyroidism in 11 (5.9%) of the patients. The mean duration of hospital stay was 8.8 ± 4.4 days (4-28). There was one case of recurrent laryngeal nerve injury. There was no mortality following thyroidectomy.

Conclusion: Thyroidectomy is a very safe operation, with no mortality and extremely low morbidity rate. Majority of thyroid disorders in this environment were benign and subtotal thyroidectomy was sufficient operative management, with low rates of recurrence.

Key Words: Goiters, pattern, subtotal thyroidectomy, outcome, postoperative complications.

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Introduction

Goiters are a common surgical problem throughout the world and many patients in sub-Saharan Africa present to their surgeons on account of an enlarged thyroid gland. It was estimated by the W.H.O. in 1981 that there were at least 200 million people with goitres world wide¹. Most patients opt for thyroidectomy for cosmetic reasons. Other indications for thyroidectomy include pressure symptoms, hyperthyroidism, and suspicion of malignancy. Recent trends in the operative management of goiters seem to favor total thyroidectomy in place of the time honored subtotal thyroidectomy for the treatment of non-malignant goiters^{2,3}. This is because total thyroidectomy was found to have a comparable surgical risk to subtotal thyroidectomy and the risk of recurrence is eliminated². The problems of total thyroidectomy however had been the higher incidence of debilitating complications of hypothyroidism, hypoparathyroidism and recurrent laryngeal nerve injury⁴; this study reports our experience with thyroid surgery in this environment where our patient underwent mainly subtotal thyroidectomy with acceptable complication rates. It also highlights the spectrum of thyroid pathology likely to be encountered by surgeons working in north eastern Nigeria.

Patients and methods

One-hundred and eighty four consecutive patients operated for goiters at the UMTH between January 2000 and December 2004 were studied. Data extracted from their hospital records included age, sex, presenting symptoms and signs, investigations such as ultrasound scan of the neck, soft tissue x-rays of the neck, fine needle aspiration cytology, assays of T3 (tri-iodothyronine), T4 (thyroxine) and TSH (thyroid stimulating hormone), were done routinely as indicated. Preoperative drug treatment with anti thyroid drugs (carbimazole and propranolol) were used to control toxic symptoms in cases of thyrotoxicosis and response where applicable were noted, operative procedures, immediate postoperative course, postoperative complications, histopathological examination of specimens, and long term follow-up were collected and analyzed.

Results

A total of 184 thyroid operations were performed during the study period. This comprised 163 (88.6%) females and 21(11.4%) males. The mean age was 33.9 ± 11.3 years (range 12-65). The male, female ratio was 1:7.8. The 20-39 year age group accounted for most 122 (66.3%) of the cases (Figure 1). One hundred and seventy four (94.6%) of the patients had benign thyroid disease, and 10(5.4%) had thyroid carcinoma. Ninety-seven (55.7%) of the benign thyroid swelling were simple goiters out of which 64(36.8%) were multinodular, 18 (10.3%) were diffuse and 10(5.7%) simple thyroid nodules. There were 5 (2.8%) cases of follicular adenoma (Table 3). Of the 13 patients that were clinically suspected to have malignant goiters 10 had fine needle aspiration cytologies that were suspicious of malignancy. This was histologically confirmed in resected specimens, 4 of which were follicular carcinoma, and 2 each of medullary, papillary and anaplastic carcinomas. The 2 patients with anaplastic carcinoma had very advanced disease and demised before any active intervention. Three of the patients with follicular carcinoma had total thyroidectomy and the third had complete lobectomy and isthmusectomy. The two with medullary carcinoma had total lobectomy on the affected side. All the patients presented with anterior neck swelling and this was the only complaint in 107 (58.1%) of the patients. Other symptoms included pain in 12 (6.5%), weight loss 73 (39.7%), palpitations 66(35.8%), tremulousness 60(32.6%) intolerance to heat 53(28.8%) and other symptoms of toxicity in 75(40.7%) patients (Table 1). The mean duration of symptoms was 6.61 ± 7.12 years, (range 3 months - 40yrs). The indications for operation were cosmesis in 88(47.8%), toxic symptoms in 64(34.8%), pressure symptoms in 16(8.7%), suspicion of malignancy in 13(7.1%) and recurrent goiter in 3(1.6%) (Fig. II). The most frequent operative procedure was subtotal thyroidectomy in 143(77.7%) patients; followed by near total thyroidectomy and right lobectomy in 11(5.9%) patients each. Other operative procedures include left lobectomy in 9 (4.8%), lobectomy and isthmusectomy in 4 (2.2%) and total thyroidectomy in 3 (1.6%). Three (1.6%) patients had isthmusectomy for simple nodules.(Table 2). The patients with anaplastic carcinoma had highly suggestive clinical features and underwent trucut needle biopsies only. The mean weight of resected specimen was 247.7 ± 313.8 g (range 6 - 1344g). Postoperative complications included seroma of the surgical site in 24(13.0%), wound infection in 12(6.5%), airway obstruction due to haematoma in 12(6.5%) and hypoparathyroidism in 11(5.9%) of the

patients (Table 4). There were 3 known cases of recurrent goiters seen over a mean follow-up period of 3 years, one in a patient with follicular carcinoma. There was one case of transient recurrent laryngeal nerve injury managed together with the Otorhinolaryngologists and the patient was weaned off tracheostomy after 6 weeks. The mean duration of hospital stay was 8.8 ± 4.4 days (4-28). There was no mortality following thyroidectomy.

Table I. Presenting symptoms.

Symptoms	Frequency (%)
Anterior neck swelling	184(100)
Pressure symptoms	16 (8.7)
Weight loss	73 (39.7)
Palpitations	66 (35.8)
Tremulousness	60 (32.6)
Heat intolerance	53 (28.8)
Insomnia	26 (14.1)
Pain in the neck	12 (6.5)
Loss/ hoarseness of voice	37 (20.1)
Cold intolerance.	-
Increased appetite	26 (14.1)

Table II. Operative procedures

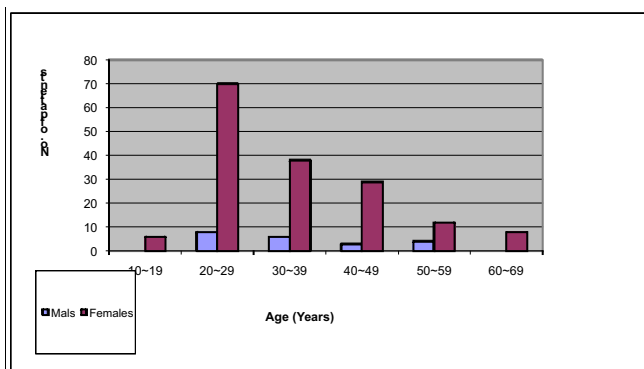
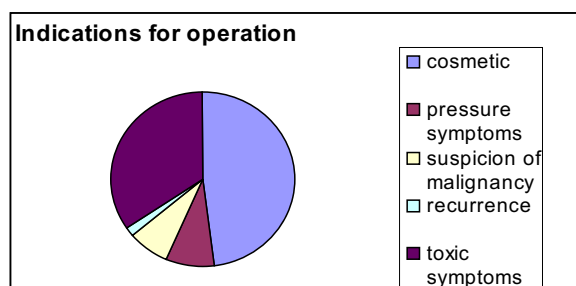
Operation	Frequency (%)
Subtotal thyroidectomy	143(77.7)
Total thyroidectomy	3(1.6)
Near total thyroidectomy	11(5.9)
Isthmusectomy	3(1.6)
Unilateral lobectomy/isthmusectomy	4(2.2)
Right lobectomy	11(6.9)
Left lobectomy	9(4.8)
Total	184(100)

Table III. Type of thyroid abnormality.

Diagnosis	Frequency (%)
Diffuse simple goiter	18(9.8)
Multinodular simple goiter	64(34.8)
Simple nodule	10(5.4)
Toxic nodule	2(1.1)
Diffuse toxic goiter	57(30.9)
Toxic nodular goiter	18(9.8)
Follicular adenoma	5(2.7)
Malignant goiter	10(5.4)
i) Papillary carcinoma	2
ii) Follicular carcinoma	4
iii) Medullary carcinoma	2
iv) Anaplastic carcinoma.	2
Total	184(100)

Table IV. Postoperative complications

Postoperative complications	Frequency (%)
Airway obstruction due to haematoma	12(6.5)
Wound haematoma/seroma	24(13.0)
Wound infection	12(6.5)
Hypertrophic/keloid scar	11(5.9)
Hypoparathyroidism (transient)	11(5.9)
Weak/hoarse voice	9(4.8)
Recurrent goiter	3(0.5)
Laryngeal oedema	1(1.1)
Tracheal tear	1(0.5)
Recurrent laryngeal nerve palsy(transient)	1(0.5)

Figure 1. Age and sex distribution of the patients with goiters**INDICATIONS FOR OPERATION****Figure II.****Discussion**

Thyroidectomy is one of the most commonly performed operative procedures in general surgery which has been perfected over the years and now has very minimal morbidity and mortality⁵. This operative series was mainly dominated by subtotal thyroidectomy which has been practiced over the years and hitherto regarded as enough operative treatment for benign goiters. More females were affected (Fig.1) in keeping with other studies⁶. Majority of the patients presented with benign thyroid disease compared to a few presenting with primary malignant goiters (Table 3). Cancer of the thyroid gland, the most common malignancy of the endocrine glands is rare, accounting for about 1% of all cancers diagnosed¹. The female sex is three times more affected by malignancies of the thyroid and in goiter endemic zones; the follicular variant of thyroid carcinoma is commoner accounting for 30-60% of cases¹. Of the benign goiters, the most common pathological type in this series is simple multinodular goiter, which corroborates other series⁷. Grave's disease which accounted for 30.9% of cases in this series is a high incidence when compared to earlier studies^{7,8}. The difference may be due to environmental factors or the use of medical and other modalities of treatment for Graves' disease. Thyrotoxicosis (Graves's disease) may no longer be considered a rare disease among Africans. The incidence of toxic nodular goiter, which is common after the fourth to fifth decade of life and in long standing goiters is similar to other reports⁹. Follicular adenoma which is found to account for 6- 21% of cases in other parts of Africa^{7, 10} has a rather low incidence here (2.7%). The reason for this marked variation is not immediately apparent.

All the patients presented with anterior neck swelling and this was the only complaint in 107(58.1%) of them. The main indication for thyroidectomy in this series was the unsightly appearance of the gland in the neck and even patients with thyrotoxicosis showed more concern for the goiter than other symptoms. The diagnosis of thyrotoxicosis was mainly clinical. A full complement of thyroid function tests was available both to establish the diagnosis and to confirm a euthyroid status. Despite the huge size of the goiter in many cases, pressure symptoms were significant in only 16(8.7%) of the cases, similar to {4, (5%) and 8 (13%)} in earlier reports^{6,9}. Pain was not a common presentation in the goiters because of the rarity of acute suppurative thyroiditis and other forms of inflammatory goiter. Amabibi and colleagues in Lagos Nigeria¹¹ and Gitau *et al* in Kenya¹² reported 0.5 and 1.1% cases of

inflammatory goiters respectively in large series. This is a sharp contrast with similar studies from Europe where sub-acute thyroiditis constitutes up to 6.0% of all goiters¹³.

No special preoperative preparations were required for patients with multinodular and diffuse simple goiters (i.e. benign nodules in euthyroid patients), save for routine indirect laryngoscopy, soft tissue x-rays of the neck and ultrasonography among others. Although routine use of oral levo-thyroxine to suppress TSH secretion and oral potassium iodide to treat iodine deficiency some weeks before thyroidectomy has been found to reduce both the size of the goiter and its vascularity, making handling at surgery better, there is generally no objective agreement. While some workers established the benefits of such measures, others did not^{14, 15}. This was not part of our protocol in the operative management of euthyroid patients. The 10 patients with malignant goiters were subjected to needle biopsies before thyroidectomy.

The most frequent operative procedure among our patients was subtotal thyroidectomy in 143 (77.7%). But over the last decade, total thyroidectomy is increasingly being adopted for patients with benign thyroid disorders¹⁶. This is based on comparable surgical risks and the elimination of recurrence with adoption of total thyroidectomy in these patients. Some workers also argue that subtotal thyroidectomy may not be able to maintain euthyroidism in the thyrotoxic patient in the long run² because of the rather in consistent amount of thyroid tissue left. Recurrent thyrotoxicosis in this series was low because of the short follow-up duration in our patients. Recurrent thyrotoxicosis is considered a failure of subtotal thyroidectomy in toxic patients and completion thyroidectomy is considered risky because of marked

vulnerability of the recurrent laryngeal nerve. That is why more cases of thyrotoxicosis are treated by total thyroidectomy. Though total lobectomy may be considered an inadequate treatment for patients with differentiated thyroid malignancies this conservative surgical approach definitely results in a significantly lower incidence of damage to the recurrent laryngeal nerve and the debilitating effects of hypoparathyroidism, which are minimal but potential complications of total thyroidectomy¹⁷. Besides The patients who undergo total thyroidectomy will need to be on thyroxine supplements for life and for economic reasons this may not be feasible in many of our patients.

The postoperative complications in this series are not different from similar reports^{5, 9}. Generally the incidence of permanent injury to the recurrent laryngeal nerve is less than 0.5% and thyrotoxic crisis is almost unknown even in very large series⁹ because of the routine protocol of making patients with thyrotoxicosis euthyroid before thyroidectomy. Laryngeal and subglottic oedema, the most serious and life threatening complication of thyroidectomy, causing respiratory obstruction seen in 1 of our patients is frequently but not always associated with wound haematoma in some huge goiters. It is avoided by meticulous attention to haemostasis and avoidance of undue manipulation of the larynx at thyroidectomy.

In conclusion, goiters are a common surgical problem and its operative management is a safe and preferred option in both malignant and benign disease with minimal complications. Total thyroidectomy is being advocated for a considerable number of patients with benign goiters.

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