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THYROID DISEASE IN A RURAL KENYAN HOSPITAL

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ABSTRACT

Objectives: To review the spectrum of thyroid pathology diagnoses likely to be encountered by surgeons working in East African hospitals.

Design: A retrospective review of all thyroidectomies performed over a three year period.

Setting: A rural church based hospital in Kenya.

Subjects: Two hundred and twenty two patients who underwent thyroidectomy over a three year period at Kijabe hospital.

Interventions: A simple protocol was used to manage thyroid disease involving history, clinical examination, measurement of TSH and needle aspiration of lesions where appropriate, and excision when clinically indicated.

Main outcome measures: Clinical diagnosis, tribe, operation performed, pathology, and complications of surgery.

Results: Two hundred and twenty thyroidectomies were performed. Overall there was a malignancy rate of 11.7% (15 papillary, 11 follicular). The commonest pathological diagnosis was multinodular goitre (47%). Graves' disease was a relatively common diagnosis in this series (13%). The mortality rate was 0.5% and the morbidity rate was 3.6%.

Conclusion: Graves' disease is not as uncommon in rural Africa as previously thought. Malignancy is relatively common and there appears to be a change in the papillary to follicular cancer ratio perhaps reflecting widespread iodination of salt in Kenya.

INTRODUCTION

Few previous studies exist regarding thyroid disease in East Africa. The available literature is mainly derived from Kenyatta National Hospital in Nairobi, which is a teaching and referral hospital in Kenya. There is very little recent literature concerning thyroid pathology from rural Africa. Kijabe hospital is a Church-based hospital on the edge of the Rift Valley about one hour's drive north-west of Nairobi. It serves a rural Kikuyu community but patients come from all over East Africa for elective surgical problems. Thus it was thought that a retrospective chart review of three year's operative experience in thyroid surgery would be of some value in helping to understand the breadth of surgical pathology likely to be encountered in practice in rural Kenya.

MATERIALS AND METHODS

Patients reporting to Kijabe hospital complaining of a neck lump are initially evaluated by a clinical officer or general practitioner. Thyroid function tests are ordered selectively and the patient is referred to the surgical clinic. At the surgical clinic a history is taken and the patient is examined with an emphasis

on symptoms and signs of hyperthyroidism, malignancy or multinodularity. If the patient is hyperthyroid (clinically and by TSH assay), then they are rendered clinically euthyroid with carbimazole and beta-blockade prior to surgery. Nodules are aspirated with a fine needle. A clear aspirate and disappearance of the lump leads to a further appointment at six weeks. If the lump recurs or the lump is solid the patient is offered surgery. Patients are offered surgery for multinodular goitre for obstructive symptoms, suspected malignancy, and for gross cosmetic reasons. The recurrent laryngeal nerve is routinely sought. No drains are used and the specimen is sent for pathology. Patients remain in hospital for two days postoperatively and are then discharged.

The operative log, pathology records, and the individual records of the two fulltime surgeons in the unit were checked for all thyroid operations performed between the 1st January, 1999 and 31st December, 2001. A number of operations were performed by visiting surgeons who came for short periods of time to cover for leave. These data are included. Patients notes were then checked for clinical diagnosis, tribe, operation performed, pathology, and complications of surgery.

RESULTS

Two hundred and twenty two patients underwent thyroidectomy during the study period. Table 1 shows that the most common pathological diagnosis was multinodular goitre, followed by follicular adenoma. Eleven point seven percent of all cases were malignant. Anaplastic lesions were not seen in this series as these patients were usually obvious at presentation and underwent tru-cut biopsy only. Part of Table 1 has been published in a previous paper from this institution that discussed the management of thyroid nodules(2).

Thyroid disease at Kijabe is predominantly a female condition (M:F ratio-1:7.2). The predominant tribes represented were Kikuyu (61%), Kamba (14%), Somali (9%) and Masai (4%). Papillary cancer at Kijabe occurs in a younger age group than follicular carcinoma, or its hurthle cell variant. Graves' disease was a relatively common diagnosis in this series.

The most common operation for thyroid disease at Kijabe was a subtotal thyroidectomy (Table 2). This was usually a total lobectomy on the affected side (in the case of a nodule or a dominant nodule in a multinodular goitre) and a near total lobectomy on the other side. This operation was associated with a 3.3% complication rate including one haematoma requiring evacuation and one recurrent laryngeal nerve injury. Total thyroidectomy was the only operation that resulted in mortality. The only patient who died in this series was a young lady with severe thyrotoxicosis who required steroid cover prior to surgery to control her disease despite maximal conventional medical therapy. The operation went without difficulty and both nerves were seen and preserved. She died that afternoon from a respiratory arrest after pethidine. She did not have a neck haematoma. The overall rate of recurrent laryngeal nerve injuries in this series was 1.4%. There were no documented recurrent laryngeal nerve injuries in this series by the fulltime surgeons in the unit.

Table 1

Pathological diagnosis

Pathological diagnosis	No.	(%)	M:F	Median age (Range)
Follicular adenoma	47	21	5:42	40 (23-74)
Follicular cyst	1	0.5	0:1	79
Follicular carcinoma	10	5	3:7	45(25-75)
Graves' disease	29	13	4:25	36(17-59)
Hurthle cell carcinoma	1	0.5	0:1	54
Multinodular goitre	105	47	11:94	42(12-70)
Papillary carcinoma	15	7	2:13	36(16-58)
Missing data	14	6	2:12	39(20-56)

Table 2

Operations and complications

Operation	No.	Death	Haematoma	RLN Injury	Hypoparathyroidism
Biopsy	1	Nil	Nil	Nil	Nil
Isthmusectomy	2	Nil	Nil	Nil	Nil
Lobectomy	77	Nil	1	2	Nil
Sub total	122	Nil	2	1	1
Total	15	1	Nil	Nil	1
Missing Data	5	Nil	Nil	Nil	Nil

RLN=Recurrent Laryngeal Nerve

DISCUSSION

There have been at least two Kenyan operative series of thyroid disease published in the East African literature(3,4). The first of these was in 1974 and described 575 consecutive operative thyroidectomy specimens from Kenyatta National Hospital over a period of five years. The second was a personal series from a surgeon in Nairobi and was published in 1995(4). This is the first study from rural Kenya and several important differences are to be noted.

The first major difference was the rate of Graves' disease in the current series. The rate of Graves' disease in this series was approximately 13% compared with a rate of only 6.3% for all thyrotoxic disease in Kung'u's series(3). In Adwok's series(4) the rate of thyrotoxicosis appeared to be even lower than this. This may be as a result of several factors. The first issue is the possible rate of surgery for Graves' disease in the various institutions. At Kijabe, alternative therapy for Graves' disease, beyond medical control, is simply

not available for the average rural Kenyan. It is too expensive and is largely limited to those patients who can pay a private practitioner in Nairobi. Patients are reluctant to travel to Nairobi for treatment. Thus, at Kijabe, it is possible that patients are offered surgery for Graves' disease more commonly than they are in Nairobi.

The second possible explanation for the difference is the difference in tribal makeup of the three series. The tribal breakdown was not made in Adwok's paper but the percentages of Kikuyus and Kambas is similar between the paper by Kung'u and this one making this explanation unlikely.

The third possible explanation is that the increase in Graves' disease may be as a result of iodination of salt. Kung'u makes the point that much older series from East Africa reported that thyrotoxicosis was very rare(3). Whether or not this remains the case in Kenya remains to be seen. The second interesting point is malignancy rate in the three series. In this series the overall malignancy rate was 11.7% compared to 23.3% in the series of Kung'u and 15% in Adwok's series. Adwok's series is probably not relevant here as he analysed only data for thyroid nodules. The difference between our series and Kung'u's is difficult to explain. Interestingly the ratio of follicular to papillary carcinoma was very different between the two studies, perhaps reflecting widespread iodination of salt in the country. Similar changes with time have been noted in Nigeria(5).

One possible explanation for the discrepancy may be that this series was operative and we do not tend to operate on patients with anaplastic carcinoma. However this would only explain a small proportion of the difference as this group only made up 9.7% of all malignancies at Kenyatta National Hospital. Finally a comment should be made on the type of surgery performed. We have been careful only to do total thyroidectomy when absolutely necessary. This has

resulted in good results in our context. A mortality rate of under 0.5% and a morbidity rate of 3.6% compares well with the two mentioned series. The surgeons at Kijabe practice capsular dissection and identification of the recurrent laryngeal nerve in all cases. This has resulted in no recurrent laryngeal nerve injuries in 135 consecutive cases by the fulltime surgeons at the hospital.

This study has identified important differences in thyroid pathology compared to previous studies from Kenya. This may represent genuine changes with time or may simply represent different tribal mixes. This paper has pointed the way forward for detailed epidemiological studies in geographic distribution of disease in Kenya. Safe thyroid surgery is able to be practiced in rural Kenyan mission hospitals and consideration should be given to using selected institutions to aid in training of surgical residents in the future.

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