



In Gondar College of Medical sciences, North-western Ethiopia.

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Background: Goitre is defined as enlargement of the thyroid gland that normally weighs 25-30g.

Methods: This was a retrospective review aimed at determining the incidence, pattern, pathology, postoperative complications of 137 cases of goitre operated at the Gondar College of Medical sciences, Ethiopia, over a period of four years were reviewed.

Results: The female to male ratio was 5:2 and the mean age of patients was 32.3 years. The mean duration of illness was 9.1 years. The commonest reasons for seeking medical attention were bulk of the mass (82%), rapid growth (9.5%) and compressive symptoms (2.9%). The goitre size was grade III and above in 83.1% of the patients. There were 14 (10.2%) thyroid carcinomas. Follicular carcinoma was the most common type of malignancy. Thyroiditis and toxic goitres were seen in 8 and 5 of the patients respectively. Subtotal thyroidectomy and lobectomy were the commonest procedures done. A total of 36 post-thyroidectomy complications occurred in 20 patients. Eight patients developed airway obstruction six of them requiring tracheostomy. Eleven patients (8%) had blood transfusion. The postoperative mortality was 1.5%.

Conclusion: The pattern of goitre was found to be similar to other reports and post thyroidectomy complications in the acceptable range.

Introduction

Goitre is relatively common and affects about 4 - 15% of the population world wide^{1,2,3}. Many studies have shown that goitres are very prevalent in Ethiopia and the North-western part of the country is one of the highly endemic regions^{4,5,6}. The main cause of benign goitre is deficiency of iodine. Iodine supplementation has been shown to decrease the incidence of benign goitres and it can reduce the size of small sized early stage goitres. Though it is associated with some complications, the treatment of big goitres has been surgical. Despite many community prevalence studies, hospital based clinical reports concerning patterns of goitre; modes of surgical treatment and complications of surgical treatment are few. A report from Addis Ababa 22 years ago revealed that of the 567 patients operated at the St. Paul hospital, 98% were benign

and euthyroid goitres. The prevalence of thyroid cancers was 1.8%⁷.

Among 373 thyroid patients who visited the endocrine clinic of Black Lion Hospital, Addis Ababa, between 1986-1991, 53.4% were euthyroid while 43.7% were thyrotoxic⁸. A recent report from Zawditu Hospital, Addis Ababa has shown changes in pattern of surgical thyroid disease with significant increase in hyperthyroid thyroid disease as compared to the pattern 25 years ago in the same setting⁹. As far as our knowledge goes, there are no similar reports from our hospital. Hence, this study was undertaken with the objectives of reporting the incidence and pattern of surgically treated goitres, pathology findings, and type of operative management and complications of surgical treatment.

Patients and Methods

A retrospective study of all patients who underwent thyroid surgery in Gondar College of Medical Sciences (GCMS) Hospital, over a four-years-period, from September 1997 to August 2001 was undertaken. The GCMS hospital is a teaching hospital, located in North-western Ethiopia. It is the only referral and surgical facility for an average of about 5 million people. A total of 186 patients had thyroid operations done during the study period. Only 137 of the patients' charts were retrieved and analysed. Information about socio-demographic status of the patients, clinical presentation, type of operation and

post-operative complications were obtained from individual patient records. The goitres were graded according to WHO classification system. The data was entered into a computer and analysed using EP-INFO-VER-6 statistical package.

Results

A total of 137 case records of thyroid operations were analysed. The male to female ratio was 2:5 and the mean age was 32.24 (SD=13.68). One hundred six (77.3%) of the patients were younger than 40 years. Most of the patients came from the rural areas of Gondar, located a considerable distance from the

Table 1. Socio demographic profile of patients operated for goitre in GCMS, September 1997 to August 2001.

Description	Frequency (n=137)	Percentage (100%)
Sex.		
Female	98	71.5
Male	39	28.5
Age of patients		
0-14 years	3	2.1
15-29 years	73	53.2
30-44 years	34	24.8
45-59 years	18	13.1
60-74years	9	6.5
Residence of patients		
Near Gondar town	55	40.1
Far from Gondar town	82	59.9
Religion of patients		
Christian	114	83.2
Muslim	33	16.8

Most patients had long standing goitres as shown by 57% of them having the mass for more than five years while the mean duration of illness was 9.2 years. The presence of similar illness in their vicinity was reported by 57(41.6%) of the patients. The current reason to

visit the hospital for 112(81.7%) of the patients was bulk of the gland, all of who had thyroid gland grades of III and IV during presentation. Thirteen patients (9.5%) came as a result of a rapidly increasing mass and 4(2.9%) for compressive symptoms (Table 2).

Table 2. Modes of presentation of patients operated for goitre in GCMS, September 1997 to August 2001.

Description	Frequency (n=137)	Percentage (100%)
Duration of illness		
0-5 years	58	42.3
6-10 years	43	31.3
11-15 years	14	10.2
16-20 years	13	9.4
21-25 years	3	2.1
26 years+	6	4.3
Reason for presentation		
Large Neck Swelling	112	81.8
Rapid growth	13	9.5
Respiratory obstruction	4	2.9
Severe pain	3	2.2
Thyrotoxic symptoms	3	2.2
Pus discharge	2	1.5
Thyroid gland size grade		
II	23	16.7
III	59	43.0
IV	55	40.1

Table 3. Diagnosis of patients operated for goitre in GCMS, Sept 1997 to August 2001.

Description	Frequency (n=137)	Frequency (100%)
Benign Goitre	110	80.2
Multi Nodular goitre	92	83.6
Solitary nodule	13	11.8
Thyroid cysts	5	4.5
Thyroid cancer	14	10.2
Follicular	8	57.1
Papillary	4	28.5
Anaplastic	1	7.1
Medullary	1	7.1
Thyroiditis	8	5.8
Pyogenic	7	87.5
Granulomatous	1	12.5
Toxic	5	3.6
Nodular	4	80
Solitary nodule	1	20

Eighty percent of the goitres were benign, 10.2% were malignant and 5.8% had thyroiditis (Table 3).

The commonest surgical procedure done was subtotal thyroidectomy in 7(52.5%) (Table 4). Thirteen of the 14 patients with thyroid carcinoma had total thyroidectomy with or without lymph node dissection.

Debulking and tracheostomy was done for the patient

with anaplastic thyroid carcinoma with extensive local metastasis and airway obstruction.

There were 36 postoperative complications observed in 20 patients. Considerable haemorrhage that required transfusion occurred in 11 (8%) patients.

Table 4. Types of surgical procedures in patients operated for goitre in GCMS, September 1997 to August 2001.

Type of procedure	Frequency n=137	Percentage (100%)
Subtotal thyroidectomy	72	52.5
Lobectomy	30	21.8
Nodule excision	14	10.2
Total thyroidectomy + lymph node dissection	13	9.4
Abscess drainage	7	5.1
Debulking	1	0.7

Table 5. Diagnosis and complications observed in patients operated for goitre in GCMS, September 1997 to August 2001.

Diagnosis	Benign Goitre	Thyroid cancer	Thyroiditis	Toxic
Haemorrhage				
Wound Infection	5	5	1	0
Airway obstruction	5	0	3	0
Pneumonia	6	2	0	0
Transient tetany	2	2	0	1
	4	0	0	0

Eight patients developed airway obstruction out of which six required tracheostomy. Transient tetany occurred in four patients after subtotal thyroidectomy (Table 5).

There were two deaths after surgery; the causes of death being severe hospital acquired pneumonia and sudden tracheostomy tube obstruction. The mean duration of hospital stay was 18.9 days. After discharge, 98(71.5%) of the patients were lost to follow up.

Discussion

During the study period a total of 3526 major operations were performed out of which thyroidectomy accounted for 3.8%. Though Ethiopia is highly goitre prevalent^{5,6} the rate of thyroidectomy seems to be very low. This might be due to unawareness of the people with goitre about surgical treatment options, poverty, and distance from the hospital and negative attitude of some people to operative treatment. Besides being bulky, goitres stay silent for a long time. Hence, many people consider the presence of the mass as normal. A medical option of treatment for smaller goitres also might contribute to the low rate of thyroidectomy.

The age incidence of goitre is comparable with some Ethiopian and African studies but the male to female ratio (2:5) is different as compared to what is found in Addis Ababa 1:5.4 and 1:6.6^{7,9} and in Nigeria 1:8.6¹⁰. The relatively higher frequency of goitre in males in this report can be explained by the fact that males tend to come to health facilities than females when sick. Therefore, this might not reflect true sex preponderance in the community. The actual sex ratio should be obtained in a broader community based study. More than 50% of patients came to the hospital after 5 years of illness. This figure is different from a Nigerian report where more than 80% of the patients went for surgery within 4 years of the onset¹⁰. The reason for the delay could be the considerable distance of the hospital from the goitre endemic areas. The slow growth of the mass and its presence in most of the inhabitants in the region might also contribute to the delay in presentation.

The rate of thyroid carcinoma 10.2% is found to be high as compared to Addis Ababa (1.8% and 2.7%) and Nigeria (4%)^{7,9,10}. The age of occurrence and histological pattern is similar to other reports in Africa^{10,11}. The relatively younger age of occurrence of follicular malignancy may be related to endemicity of goitre in the country. Follicular carcinoma is said to follow long-standing iodine deficiency goitre and its prevalence is more common in areas of endemic

goiter¹². The finding of predominantly papillary carcinomas in Switzerland after iodine prophylaxis supports this theory¹³. However, why thyroid malignancies are relatively common in this part of Ethiopia needs to be investigated.

There were 7 cases with frank thyroid abscess that were managed with simple abscess drainage. Thyroid abscess is infrequently mentioned in literatures and there are few clinical reports. Super infection of cystic goitre and introduction of organisms during tattooing might be responsible for its development in our patients. One of the patients was sero-positive for HIV; therefore an underlying immuno-suppression might also be responsible. The studies showed that post thyroidectomy complications were commonly associated with big goitres and thyroid malignancies. From the 11 patients that required transfusion, 9 had goitres of grade III and IV. Nine of the 14 patients operated for thyroid cancers had serious complications i.e. 5/14 bled significantly, 2/14 required tracheostomies and 2/14 developed severe hospital pneumonia. The mortality rate of thyroidectomy was 1.45%. This figure is lower than the report from St Paul's Hospital (3.2%) but higher than the report from Zawditu Hospital, Addis Ababa (0.6%) and Nigeria (0%)^{7,9,10}.

The causes of death were severe hospital acquired pneumonia in a 40 years old female patient operated for grade IV nodular goitre and sudden tracheostomy tube blockage in 70 years old female patient operated for size grade III follicular carcinoma. The patients died at the 15th and 18th postoperative days respectively. The average hospital stay (18.9 days) is considerably longer than expected. This could be because of longer preoperative preparation but mainly due to retaining patients in the ward after discharge for social reasons.

After discharge 71.5 % of the patients were lost to follow up. The poor follow up might be due to the long distance of the hospital since more than 63% came from far areas. Other factors could be unawareness/unwillingness of patients to come to the hospital after surgery and provision of inadequate information about follow up during discharge. The long hospital stay after surgery that is necessary for removal of stitches and for detection and handling of early complications might exhaust the patients, hence making their return visit is less likely. Nine of the 13 patients operated for thyroid cancers were also lost; hence occurrence of fatal complications might also be responsible.

Conclusion and recommendations

- Most patients came after long time with big goitres and most are benign. Post thyroidectomy complications are in the acceptable range.
- The patient follow up system is poor. Computerizing the hospital filing system and giving appropriate discharge information to patients may improve this. The setting up of on site field visits near the residential areas of patients might bring the health facility near the patients so that follow up would be regular.
- Health education should be given to the community not only about the cause and prevention but also about the treatment options so that patients could seek medical attention earlier than shown in the study.

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