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A Clinical Study of Thyroid Disorders and its Surgical Management in a Teaching Hospital

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Abstract

Background: Diseases of thyroid are manifested either qualitative and quantitative alterations in hormone secretion or enlargement of the thyroid (goiter) or both. The present study aimed to study thyroid disorders and their surgical management. **Methods:** This is a randomized prospective clinical study of thyroid diseases in patients who consulted General Surgery OPD in Prathima Institute of Medical Sciences, Naganoor, Karimnagar. The serum sample of all the individual with suspicion of thyroid dysfunction were obtained in vacutainer 5ml and serum Total T4, Total T3, Free T4, Free T3, and TSH were estimated using Abbott ARCHITECT i1000SR (Abbott Laboratories, Diagnostics Division, Abbott Park, IL, USA) analyzer based on a Chemiluminescent Microparticle Immunoassay (CMIA) for the quantitative determination of thyroid hormone profile. The CBP along with BT and CT was done. USG analysis of the thyroid gland was obtained. **Results:** The highest incidence was seen in the age group of 21-30 n=16(32%) in the present study out of total n=50 patients n=48 were females while the male was n=2 and the female: male ratio was 25:1. Fine needle aspiration cytology (FNAC) was done in all cases. N=25 cases (50%) were reported as nodular colloid goitre, n=3(6%) cases as Hashimoto's thyroiditis and lymphocytic thyroiditis in n=4(8%) cases n=4(8%) follicular neoplasm in n=13 cases (26%) n=4(8%) cases reported as papillary carcinoma n=4(8%) adenoma was reported in n=1(2%). In toxic cases, the toxicity was controlled with carbimazole 10 mg, 3-4 times daily for a period ranging from 4-12 weeks and Propranolol 40 mg, 3 times daily along with carbimazole. **Conclusion:** The highest age incidence of goiter was observed in the age group 21 - 30 years (36%). The standard surgery done was hemithyroidectomy in 56% cases. Subtotal-thyroidectomy was done in 14% cases, conservative in 4%, excision in 2% total thyroidectomy in 20% of cases, 2% of patients refused surgery.

Keywords: Thyroid disorders, surgical management

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Introduction

The diseases of the thyroid gland are very common across the world second only to diabetes. It has been estimated that around 300 million people in the world are suffering from thyroid disorders and among those, it is estimated that approximately 42 million are Indians [1]. Thyroid disorders are now being increasingly diagnosed with greater awareness

and it is one of the chronic non-communicable diseases affecting females largely as compared to the male counterparts. The geographical location is also related peculiarly with the type of thyroid disorder. In the areas where there is increased iodine intake hypothyroidism is more common [2]. Hypothyroidism has a broad range of clinical presentation that includes from an overt state of myxoedema, end-organ effects and multisystem failure to an asymptomatic or subclinical condition where there are normal

levels of the thyroxine T4 and T3 levels with mild elevation of TSH^[3-6]. Many cases of hyperthyroidism are presented in form of goiter. Nodular goiter remains one of the problems of enormous magnitude across the world and 5% of the world population is estimated to have goiters. Depending on the population studied the existence of multinodular goiter occurs in 12% of adults. Multinodular goiter is also more common in females as compared to males and increases in prevalence with increasing ages. The incidence of carcinoma in multinodular goiter has been reported from 5% to 10 %^[7]. The nodules of goiter may be benign or malignant and it has to be differentiated with histopathological studies before starting treatment^[8]. Multinodular goiter management is challenging and it commonly encountered thyroid disorder clinically. The major concern in modern thyroid gland surgery is morbidity. Besides hemorrhage and hypoparathyroidism, damage to the recurrent laryngeal nerve is the complication most feared by both patient and surgeon^[9]. It represents a serious complication inducing when bilateral, serious functional sequelae such as phonatory, respiratory and psychological problems that limit working capacities and social relationships of the patients. Postoperative respiratory complications may need either lifesaving endotracheal intubation followed by tracheostomy or immediate tracheostomy. With this background, we in this present study tried to evaluate the thyroid disorders and their surgical management.

Materials and Methods

This is a randomized prospective clinical study of thyroid diseases in patients who consulted General Surgery OPD in Prathima Institute of Medical Sciences, Naganoor, Karimnagar. Institutional Ethical committee permission was obtained for the study. Written consent was obtained from all the participants of the study. All the patients with suspected thyroid disorders were taken up for the study. Inclusion criteria were patients with anterior neck swelling, anterior neck swelling moving with deglutition, palpable or enlarged thyroid gland, toxic and non-toxic goiters were included. Exclusion criteria: Other neck swellings not in anatomical positions of the

thyroid were excluded Patients not willing for detailed evaluations were excluded Patients who had severe co-morbidities associated were excluded. The serum sample of all the individual with suspicion of thyroid dysfunction were obtained in vacutainer 5ml and serum Total T4, Total T3, Free T4, Free T3, and TSH were estimated using Abbott ARCHITECT i1000SR (Abbott Laboratories, Diagnostics Division, Abbott Park, IL, USA) analyzer based on a Chemiluminescent Microparticle Immunoassay (CMIA) for the quantitative determination of thyroid hormone profile. The CBP along with BT and CT was done. USG analysis of the thyroid gland was obtained. All the surgical procedures were done under General Anesthesia. The data was collected and analyzed using MS Excel 2010 spreadsheet and analyzed using SPSS version 17 for statistical analysis.

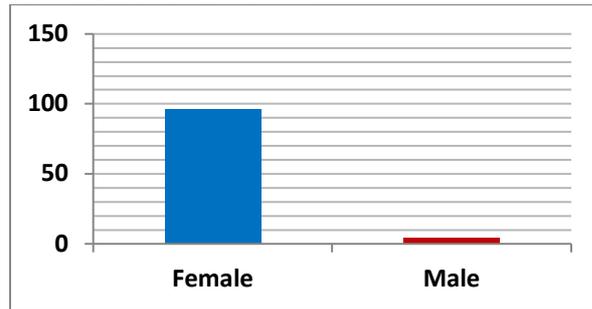
Results

The incidence of thyroid disease in the present study at the department of General surgery in Prathima Institute of Medical Sciences, Karimnagar was sought and found to be 3% of all outpatient cases majority being those of acid peptic diseases followed by renal calculi. No emergency case was admitted. In this study the maximum age recorded was 68 yrs and the youngest patient was 8 yr old, the mean age of presentation had been 34 yrs. The highest incidence was seen in the age group of 21-30 n=16(32%) in the present study out of total n=50 patients n=48 were females while the male was n=2 and the female: male ratio was 25:1 shown in table 1.

Table 1: Demographic profile of patients

Age Group	Females	Male	Total	Percentage
<10	1	0	1	2
11 – 20	5	0	5	10
21 -30	14	2	16	32
31 – 40	13	0	13	26
41 – 50	7	0	7	14
51- 60	7	0	7	14
>60	1	0	1	2
TOTAL	48	2	50	100

Chart 1: Sex distribution



All patients were presented with swelling in front of the neck n=50 (100%). Other symptoms were Pain and discomfort in n=5 cases (10%), Palpitation in n=2 cases (4%), Dysphagia in n=2 cases (4%), Increased sweating in n=2 cases (4%), wt gain and anorexia in n=1case (2%) and Weight loss in 1 case (2%) shown in table 2.

Table 2: Frequency of symptoms

Symptoms	Frequency	Percentage
Swelling	50	100
Pain	5	10
Dysphagia	2	4
Palpitations	2	4
Sweating	2	4
Wt. Loss	1	2
Wt. Gain	1	2
Anorexia	1	2

Fine needle aspiration cytology (FNAC) was done in all cases. N=25 cases (50%) were reported as nodular colloid goitre, n=3(6%) cases as Hashimoto's thyroiditis and lymphocytic thyroiditis in n=4(8%) cases n=4(8%) follicular neoplasm in n=13 cases (26%) n=4(8%) cases reported as papillary carcinoma n=4(8%) adenoma was reported in n=1(2%) shown in table 3.

Table 3: FNAC findings

FNAC	Frequency	Percentage
Colloid Goiter	25	50
Hashimoto's thyroiditis	3	6
Lymphocytic thyroiditis	4	8
Follicular Neoplasm	13	26
Papillary carcinoma	4	8
Thyroid Adenoma	1	2
Total	50	100

Out of the n=50 cases of our sample study n=46(92%) cases were operated. Surgery was advocated for reasons of cosmetic, pressure symptoms and secondary thyrotoxicosis. In toxic cases, the toxicity was controlled with carbimazole 10 mg, 3-4 times daily for a period ranging from 4-12 weeks and Propranolol 40 mg, 3 times daily along with carbimazole. The type of surgery performed in the cases is shown in table 4.

Table 4: Type of surgery performed

Surgery Type	Frequency	Percentage
Hemi-Thyroidectomy	28	56
Total Thyroidectomy	10	20
Sub-Total Thyroidectomy	7	14
Excision	1	2
Conservative	2	4
Referred	2	4
Total	50	100

Out of the n=46(92%) cases operated, of which n=2(4%) cases were managed conservatively and n=2(4%) cases were not willing for surgery. Out of the n=46 cases operated the tissue specimen was sent for histopathological examination and final diagnosis. It was found that n=23(46%) specimen were reported as colloid goiter, follicular adenoma was reported in 8(16%) cases, lymphocytic thyroiditis was reported in 4(8%) cases follicular neoplasm and papillary carcinoma was found to be in n=3 cases (6%) each, Hashimoto's thyroiditis was reported in n=3 cases (6%), while the rest out of the n=2 cases one was colloid cyst and one was Thyroid adenoma shown in table 5.

Table 5: Histopathological report of the excised specimen after surgery

HPE REPORT	Frequency	Percentage
Colloid Goitre	23	46
Follicular Adenoma	8	16
Follicular Neoplasm	3	6
Papillary Carcinoma	3	6
Lymphocytic Thyroiditis	4	8
Hashimotos Thyroiditis	3	6
Thyroid Adenoma	1	2
Colloid Cyst	1	2

Discussion

The present study was conducted with aim of assessing the clinical presentation, age, sex distribution and symptomatology indications and complications of surgery and comparison of FNAC with histopathological analysis of 50 cases of Thyroid diseases consulting general surgery unit of Prathima Institute of Medical Sciences. All cases were evaluated clinically and cytologically before the surgery and final diagnosis was done on histopathology of specimens.

In our study of n=50 cases, we recorded 3% of all the cases attending General surgery outpatients. In the present study, the maximum age recorded was 68 years and a minimum of 8 years. In the study conducted by Ahuja MM et al; ^[10] the majority of cases belong to the 3rd and 4th decades, least was in the 7th decade. Kapoor MM et al; ^[11] n=62 reported that out of n=226 cases the majority n=145 (64%) cases were in the age group of 21-40 years with maximum distribution in the third decade and least in the 7th decade, 12(5.3%) cases our results are comparable to these studies. The thyroid diseases are more common in the 3rd and 4th decades the reason being more TSH fluctuation is noted in adolescence and reproductive age groups ^[12]. It was observed in the current study out of n=50 cases n=48(96%) were females and n=2(4%) were males with a sex ratio of female to male is 25:1. Nygaard B et al; ^[13] reported that out of n=69 cases. N=62 cases (89.9%) were females and n=7 cases (10%) were males with sex ratio 8.8: 1. Antonio A et al; ^[14] have shown a female to male ratio of 7:1. In all similar studies, there is a clear female preponderance in thyroid disorders. All patients were presented with swelling in front of the neck n=50 (100%). In the majority of the patient, the duration of swelling before the presentation was 1-3 months in 11 (22%) cases. In n=2 (4%) patients presented with duration more than 5 years involvement of both the lobes was seen in n=9 cases (18%). Predominant right lobe involvement was seen in majority n=27 cases (54%). Left lobe involvement was seen in only n=12 (24%) case only isthmus was involved in n=2 cases (4%). FNAC was found to be very useful in the evaluation of Multinodular Goiter. In the majority of the cases

where the FNAC was benign, on postoperative histopathological examination were also found to be benign. But it could not differentiate between a benign and malignant variety of follicular neoplasm, where the sensitivity was around 70% while it was able to distinguish PTC, thyroiditis accurately ^[14]. The results prove that FNAC is less specific for follicular neoplasms. In other cases to differentiate other thyroid diseases it has been proven to be invaluable, minimally invasive, highly accurate and cost-effective procedure for preoperative assessment of patients with thyroid lesions. Subtotal thyroidectomies were done in n=7 (14%) cases, hemithyroidectomy in n=28 (56%) total thyroidectomy in n=10 (20%) were carried out when there was high suspicion of malignancy. We encountered two complications post-operatively, one patient had developed stitch abscess. Which underwent incision and drainage and the other patient developed hypocalcemia for which she had been supplemented with calcium oral supplementation. The average duration of stay in the hospital was 8 days. According to histopathological analysis in the present study out of n=50 cases, n=31 (62%) cases showed features of benign goiter, n=7 (14%) cases of Hashimoto's thyroiditis. And n=3 (6%) cases of neoplasm follicular and PTC each. Rao KM et al; ^[15] reported a 7% distribution of Hashimoto's thyroiditis and Ahuja MM et al; ^[10] reported 9%. The present study with 14% is although slightly more but the sample size is less in the current study hence; the results may be comparable with the other studies.

Conclusion

Incidence of the thyroid diseases was found to be in 3% of all the cases that attended surgery OP. The highest age incidence of goiter was observed in the age group 21 - 30 years (36%). The standard surgery done was hemithyroidectomy in 56% cases. Subtotal-thyroidectomy was done in 14% cases, conservative in 4%, excision in 2% total thyroidectomy in 20% of cases, 2% of patients refused surgery. On histopathological examination, 31 (62%) cases showed features of benign goiter, 7(14%) cases of thyroiditis and 3 (6%) cases of neoplasm, follicular and PTC each.

Conflict of Interest: None declared

Source of Support: Nil

Ethical Permission: Obtained

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