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Original Research Article

Clinicopathological study of thyroid swellings in HSK hospital in Karnataka, India

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ABSTRACT

Background: A thyroid enlargement whether diffuses or in the form of nodules have to be investigated to rule out neoplasm. FNAC is the first line of investigation. USG and TFT are also used. The cases which are at high risk are considered for surgery. Aims and objectives of the study was the clinical presentation of thyroid swellings, incidence of various thyroid swelling, benign versus malignant lesion and to correlate the clinical diagnosis with that of pathological diagnosis.
Methods: A case series study of 60 patients attending surgical OPD IPD with symptoms of thyroid in SNMRC and HSK hospital Bagalkot between 1-1-2015 to 30-6-2016. After detailed history thorough, clinical examination was carried out all the patients underwent routine investigations TFT FNAC USG neck. Few patients underwent surgery and all the thyroid specimens were sent for HPE and the clinical diagnosis is correlated with that of pathological diagnosis.
Results: Of 60 cases female to male ratio was 9:1. The age group involved is between 31-40 years (31.67%). Duration of goiter is less than one year in 60% of cases. The chief complaint was swelling in front of the neck 100%. Duration of swelling ranged from 15 days to 15 years. Toxic features were present in 18.33% of cases, but after TFT the toxic cases were only 6.67%. Most of the patient showed colloid goiter (43.33%) on FNAC. Out of 60 cases only 22 cases did undergo surgery histopathological specimen were colloid versus nodular goiter in 81.88% out of 22 cases only.
Conclusions: Thyroid swellings are common in females they occur in 3rd and 4th decade most commonly. FNAC is very useful in the diagnosis. The main indications of surgery are cosmetic problems, pressure effect symptoms are suspicion of malignancy.

Keywords: FNAC, HPE, Subtotal thyroidectomy, USG

INTRODUCTION

Goiter has been recognized since 2007 BC even though the thyroid gland was not documented as such until the Renaissance period. The term thyroid gland is attributed Thomas Wharton in 1645.[1] Classic anatomic descriptions of the gland were available in the 16th and 17th century, but the function of the gland was not described. In 19th century pathological enlargement of the thyroid gland, or goiter was described.[2]

Normal thyroid gland is impalpable. Enlargement of thyroid gland is the most common manifestation of thyroid disease. The enlargement may be either generalized or localized. Which again may be toxic or nontoxic. The nontoxic goiter is further divided on

etiological basis as endemic goiter and sporadic goiter. The endemic goiter is defined as one where more than 10% of population shows thyroid enlargement. [3] Lesion of thyroid are predominantly confined to females in the ratio of 5:1.

And this has been attributed to variation of thyroid hormones during female reproductive function and physiological events such as puberty, pregnancy and lactation. A thyroid enlargement whether diffuses or in the form of a nodule has to be investigated to rule out neoplasm. FNAC is the first line of investigation and others like ultrasound, thyroid function test, thyroid scan and antibody levels are done subsequently with an aim to select who require surgery and those that can be managed conservatively. The limitations of cytology are well recognized in the diagnosis of some thyroid malignancies, in particular is not able to differentiate between follicular adenoma and carcinoma and also in the detection of some papillary carcinomas because of associated thyroid pathologies including MNG thyrotoxicosis and marked cystic changes.[4]

Thus, even if non-surgical and non-invasive techniques can provide a diagnosis, the ultimate answer rests in the histopathological examination of the excised thyroid tissue. The risk of cancer in a thyroid swelling can be expressed as a rule of 12. The risk is greater in isolated versus dominated swelling, solid versus cystic swelling and men versus woman.[5]

The reasons for wide spread use of sonography are availability, low cost, less discomfort, and non-ionizing nature.[6,7] FNAC has been become established as a choice of investigation in thyroid swelling. It has excellent patient compliance, is simple and quick to perform in outpatient department and is readily repeated.[8] Ultrasound guided FNAC has improved diagnostic accuracy compared to the FNAC by palpation.[9]

The aim of the study is to study the clinical presentation of thyroid swellings, incidence of various thyroid swelling, benign versus malignant lesion and to correlate the clinical diagnosis with that of pathological diagnosis in various thyroid diseases in non-endemic area in this part of North Karnataka.

METHODS

Study design was a case series study and source of data are 60 patients attending surgical OPD, IPD with symptoms of thyroid in SNMRC and HSK hospital Bagalkot fulfilling inclusion/exclusion criteria were included in this study. This is one and half year study done between 1-1-2015 to 30-6-2016.

Inclusion criteria

- All patients presenting with thyroid swelling attending IPD/OPD

Exclusion criteria

- Patients below 12 years of age
- Patients with recurrent thyroid swelling.

Sample size was calculated to be 60, using formula n = 4pq/l2 where n-sample size, l- allowable error, q=100-p.

After taking written informed consent detailed history and thorough clinical examination was carried out in all the patients. The patients underwent routine investigations Hb%, CBC, BT CT, ESR, RBS, Blood Urea, Serum Creatinine, HIV, HBsAg, Urine Routine, ECG Chest X ray and specific investigation like TFT (T3, T4 and TSH), FNAC of thyroid swelling, USG of neck, X ray neck AP/ lateral, Indirect laryngoscope. CT scan of neck and thorax done only if necessary for retrosternal extension and metastasis, thyroid isotope scan was done only if required. HPE of the resected specimen was done only in cases who underwent surgery.

Statistical analysis

The collected data were entered in MS Excel and analysed in SPSS V22. Descriptive analysis of data done and represented with percentages, the clinical diagnosis is correlated with that of pathological diagnosis.

RESULTS

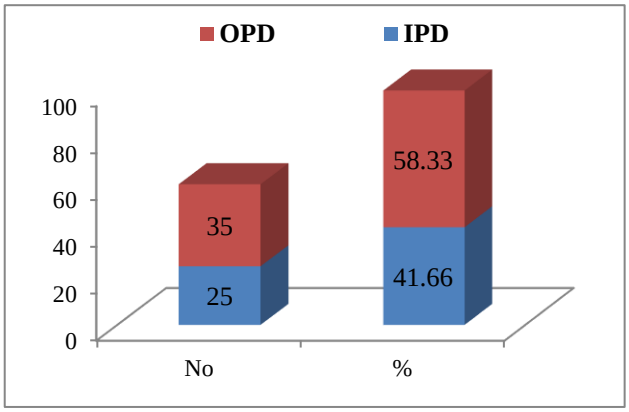

Figure 1: number of IPD versus OPD cases.

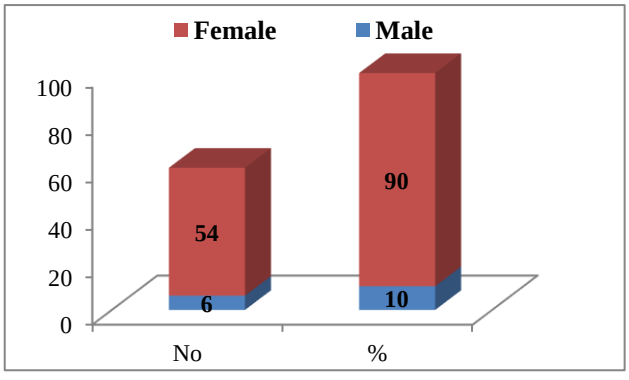

Figure 2: sex wise distribution.

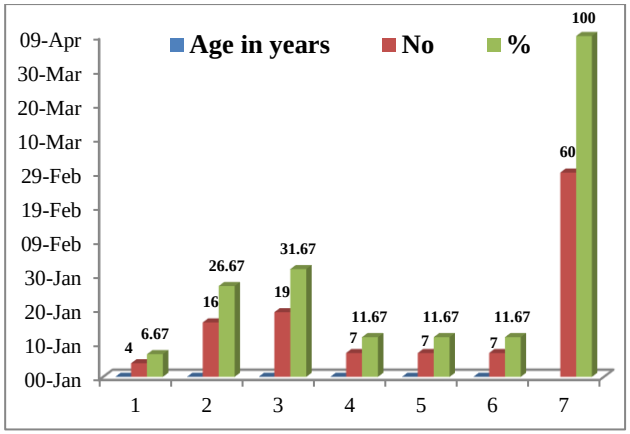

Figure 3: Age distribution.

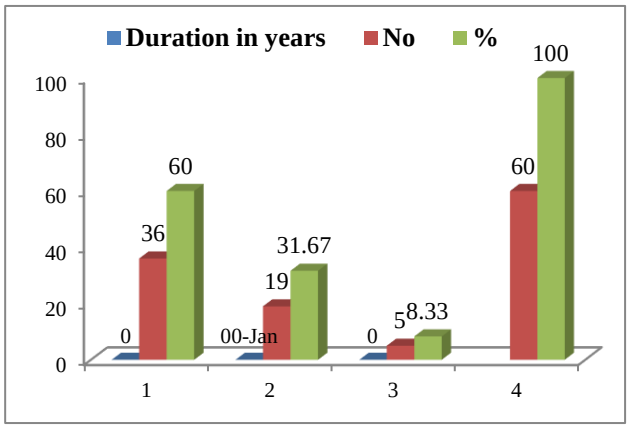

Figure 4: Duration of goiter.

In the present study of 60 cases of thyroid swellings there were 90% of female patients versus 10% of male patients giving a ratio of 9:1 of male to female patients. Maximum incidence of thyroid swelling was seen in the age group of 31-40 years (31-67%). The mean age was 38.6 years. The duration of the goiter was from 15 days to 15 years. The right lobe involvement was more than the left. Patients presented with swelling (100%), pain (20%), dyspnea (3.33), Dysphagia (18.33), Voice change (1.67%), Hyperthyroid (18.33%), Hypothyroid (3.3%).

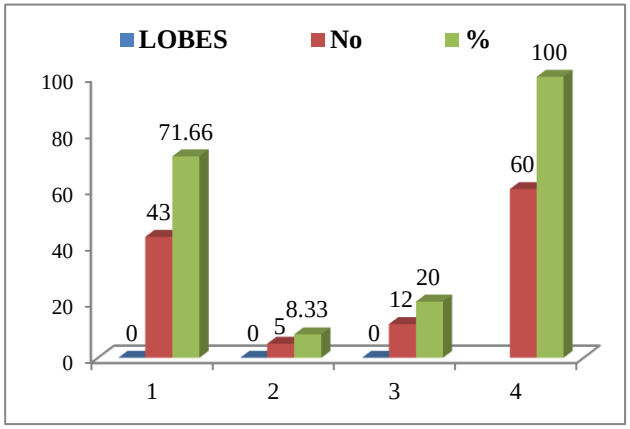

Figure 5: Lobes involved.

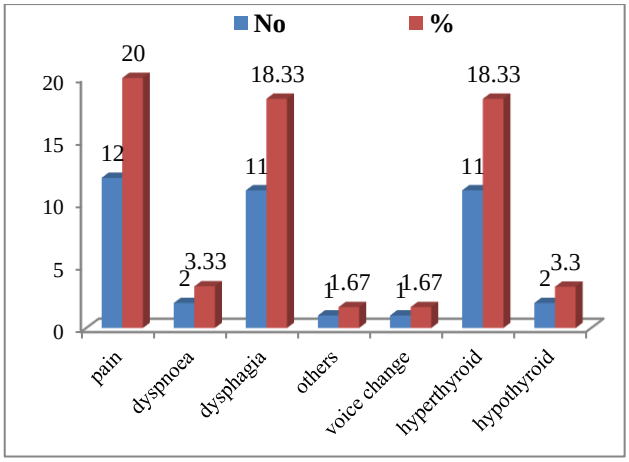

Figure 6: Clinical feature distribution: swelling was present in 100% followed by rest as shown below.

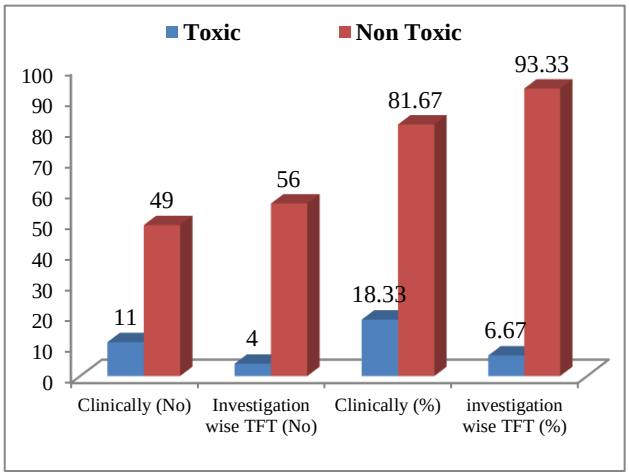

Figure 7: Toxic versus nontoxic goiter.

Comparison of clinical diagnosis and FNAC in 29 cases which were diagnosed as diffuse nontoxic goiter, 13 were colloid goiter, 8 were granulomatous thyroiditis and out of 15 nontoxic solitary nodule cases, 2 were colloid cyst. 3 cases were diagnosed as malignancy.

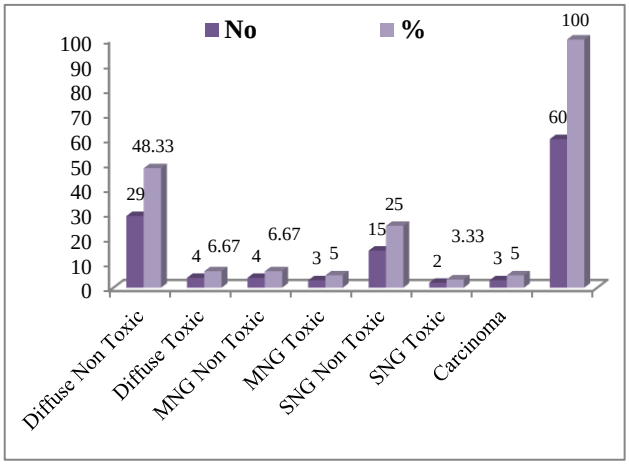

Figure 8: Clinical diagnosis distribution

Table 1: Comparison of clinical diagnosis with that of USG.

Clinical diagnosis	No	USG	Thyroiditis	Colloid cyts	Solitary nodule	MNG	Adenoma	Abscess	Hyper vascular nodule
Diffuse nontoxic goiter	29	11	5	5	1				
Non-toxic MNG	4	2				2			
Nontoxic solitary nodule	15	10			9		1		
Toxic MNG	3	2			1	1			
Toxic solitary nodule	2	2			1				1
Toxic diffuse goitre	4	1	1						
Carcinoma	3	1						1	
Total	60	29	6	5	12	3	1	1	1

Table 2: Comparison of clinical diagnosis with that of FNAC.

Clinical diagnosis	No	Fine needle aspiration cytology									
		Colloid	Granulomatous	Primary hyperplasia	Hashimotos	Benign follicular	Chronic inflammation	Hsurthle cell	Papillary CA	Colloid cyst	Lymphocytic
Diffuse nontoxic goiter	29	13	2	1	8	1	1	1	1	0	1
Nontoxic MNG	4	3	0	1	0	0	0	0	0	0	0
Nontoxic solitary nodule	15	7	0	0	2	3	0	1	0	2	0
Toxic MNG	3	2	0	1	0	0	0	0	0	0	0
Toxic solitary nodule	2	1	0	0	0	1	0	0	0	0	0
Toxic diffuse goitre	4	0	0	2	2	0	0	0	0	0	0
Carcinoma	3								3		
Total	60	26	2	5	12	5	1	2	4	2	1

Table 3: Comparison between benign and malignant cases.

		No	%
Clinically	Benign	57	95
	Malignant	3	5
FNAC	Benign	54	90
	Malignant	6	10
HPE	Benign	20	33.33
	Malignant	2	3.33

Clinically there were total 81.46% of the nontoxic cases and investigation wise 93.33% of the cases were nontoxic. Similarly, 18.33% cases were toxic clinically but only 6.67% cases were toxic after TFT. 7 clinical cases which were having hyperthyroid symptoms were in hyperthyroid state after TFT. 48.33% of cases were diffuse nontoxic goiter followed by 25% of solitary nontoxic goiter. 6.67% of the MNG nontoxic cases and 6.67% of the toxic diffuse goiter.

Table 4: Comparison between clinical diagnosis and HPE.

Clinical diagnosis	No	Cases underwent surgery	Histopathological examination		
			Colloid goitre	Benign follicular	Carcinoma
Diffuse nontoxic goiter	29	5	5		
Nontoxic MNG	4	4	4		
Nontoxic solitary nodule	15	11	8	2	1
Toxic MNG	3	0	0		
Toxic solitary nodule	2	0	0		
Toxic diffuse goitre	4	1	1		
Carcinoma	3	1			1
Total	60	22			

5% of cases had carcinoma. 29 out of 60 cases undergo USG, out of which 11 cases defined as diffuse nontoxic goiter, 5 cases showed thyroiditis, 5 showed colloid, one case was solitary thyroid nodule.

The histological data from 22 operated cases out of 60 patients in which 3.33% were malignant and 33.33% were benign. Out of 29 cases of diffuse nontoxic goiter, only five cases underwent surgery, out of which 5 cases were diagnosed as colloid goiter. And out of 4 cases of MNG, all showed colloid goiter. Out of 15 nontoxic solitary nodule thyroids, only 11 did undergo surgery out of which 8 cases were colloid, 2 were benign follicular and 1 was carcinoma (Hurthle cell neoplasm). One case of malignancy, showed papillary carcinoma on HPE.

In 22 cases which underwent surgery, out of which 15 cases which were diagnosed as colloid goiter on FNAC were diagnosed as colloid/nodular goiter on HPE. 2 cases which were diagnosed as primary hyperplasia on FNAC, was given as colloid goiter on HPE. And 2 cases were benign adenomas and 2 cases were carcinomas.

Table 5: Comparison between FNAC and HPE.

FNAC	Cases	Histopathological examination		
		Colloid goitre/ nodular	Benign follicular	Carcinoma
Colloid goitre	15	15		
Primary hyperplasia	2	2		
Benign follicular	2	0	2	
Carcinoma	2	0		2
Colloid cyst	1	1		
	22	18	2	2

DISCUSSION

In this study among 60 thyroid swelling cases 90% were female and 10% were male giving a ratio 0f 9:1. There is a wide variation of this ratio among different studies, Gupta M et al had a ratio of 11.5:1, whereas Sengupta A et al had a ratio of 3.8:1.[11,13] The maximum incidence of thyroid swellings was seen in the age group 31-40 years with mean age of 38.6 years. This is in agreement with the study conducted by Sengupta A et al with mean age of 35.39 years and maximum incidence among age group 31-40 years.[11] The duration of goitre is from 15 days to 15 years which is similar in study done by Sengupta et al.[11] In this study bilateral lobe involvement is 71%, whereas right lobe involvement 20%, this was in contrast to study done by Gupta M et al, where bilateral lobe involvement was 12% and right lobe involvement was 60%.[13]

Out of 60 cases histological data was taken from 22 operated cases which showed colloid goitre in 81.2%, this is in accordance with Sing K et al study which shows 85.71% incidence.[10] Benign adenoma and carcinoma had equal incidence of 9.1% which was similar to study done by Gupta A et al with the incidence of 7.83% and 11.80% respectively for benign thyroid adenoma and carcinoma.[11]

The incidence of carcinoma in thyroid swellings i.e., 9.1% was comparable to studies done by Gupta A et al and Khageshar et al which showed 10.52% and 11.8% respectively.[11,12]

CONCLUSION

Thyroid swellings are common in females they occur in 3rd and 4th decade most commonly. FNAC is very useful in the diagnosis. The main indications of surgery are cosmetic problems, pressure effect symptoms and suspicion of malignancy.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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