Patterns of Thyroid Lesions: A Histomorphological Study

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Received: 12 December 2013 Accepted: 2 January 2014 Published: 15 January 2014

Abstract

Background: Thyroid lesions are fairly common in and around Kolar town. This study was undertaken to study the various histomorphological types of neoplastic and non-neoplastic lesions of the thyroid and to correlate these with respect to age and sex.Methods: All thyroid specimens received at the pathology Department of Sri Devaraj Urs Medical College, Kolar during the period January 2000 to December 2004 were processed. A detailed histomorphological study was done. The histomosphological type was correlated with the age, sex and clinical presentation.Results: Total 120 cases of thyroid were studied. Most common age group affected was between 3rd and 5th decade. Females were predominantly affected. The non-neoplastic lesions reported in this study were thyroglossal duct cyst 1 case (0.83

Index terms— goiter, thyroid lesions.

1 Introduction

hyroid gland is unique among the endocrine glands in having a wide spectrum of diseases ranging from functional enlargements immunelogically mediated enlargements to the neoplastic lesions. These enlargements may be diffuse or nodular at times causing obvious physiological changes. In contrast patient having a papillary carcinoma thyroid with lymph node secondaries may remain asymptomatic till a very late stage. Occasionally a patient may present with obvious metastatic disease with an undetectable primary (occult or hidden malignancy of thyroid).

Thyroid gland lesions appear to be common in and around the city of Kolar. So the classification of various histomorphological types of tumor is important to categorize the lesion into non-neoplastic and neoplastic lesion of thyroid. The WHO published its second edition on the histological classification of thyroid tumors in 1988 1 . Based on WHO we can classify our neoplastic lesions. It will be of great value for clinicians for further therapy and prognosis.

The present study is intended to study the various histomorphological changes of non -neoplastic and neoplastic lesions of the thyroid, as there are no studies on the patterns of thyroid lesions in and around Kolar, which has high number of patients with thyroid enlargements.

2 II.

3 Materials and Methods

The material for the present study comprised of specimens received at Department of Pathology, Sri Devraj Urs Medical College, Tamaka, Kolar, between January 2000 and December 2004 from patients admitted to R.L. Jalappa Hospital and S.N.R. Hospital, Kolar. All cases registered in our department files for thyroidectomy and diagnosed between January 2000 and December 2004 for a period of five years were reviewed. The period of retrospective study was from Jan 2000 to Dec 2003 and prospective study from Jan 2003 to Dec 2004.

The specimen were fixed in 10% formalin for 24-48 hour. Large specimens were cut serially (at 1cm thickness) before fixing. After fixation, representative areas were selected for paraffin embedding. In case of encapsulated lesions, adequate representation from tumour capsule -thyroid interface was given. Section Special stains like methyl violet, vanGieson, masson trichrome and congo red were performed for necessary cases.

Stained histopathology slides were studied in detail. All details of the case consisting of clinical history, external examination, gross features, microscopic features and final diagnosis were filled in a proforma. Details from all proforma were tabulated in a master chart.

4 III.

5 Results

The present study is undertaken for a period of five years between January 2000 and December 2004.

Retrospective study for three years from January 2000 to December 2002 (48 cases). Prospective study for two years from January 2003 to December 2004 (75cases).

A total number of 8,638 specimens were received during this period. Of these 123 cases were clinically thyroid neck swellings. Among these 3 cases were excluded, which were histopathologically diagnosed as granulation tissue (Sl.No.28 and 42) and normal lymph node (Sl.No.118). Remaining 120 cases were thyroid lesions and included in this study. IV.M F M F M F M F M F M F M F M F 1 Thyroglossal duct cyst - 1 - - - - - - - - - - - - - 1 2 Sub-acute thyroiditis - - - - - - - 1 - - - - - - - - 1 3 Hashimoto thyroiditis - - - - - 1 - 3 1 2 - 3 - 1 - -11 4 Colloid goiter - - - - 1 2 - 2 - 1 - - - 1 - - 7 5 Multinodular goiter - - - 2 2 6 -11 1 8 - 3 - 2 - -**35**6 Diffuse toxic goiter - - - - - 1 - 1 - - - - - - - - 2 7 Follicular adenoma - - - 2 3 12 -11 2 6 - 3 - 3 - 1 43 8 Atypical adenoma - - - - - 1 - - - - - - - - - - 1 9 Papillary Ca.Classic - - - - - 2 1 3 1 - 1 2 - 1 - -11 10 Papillary.Ca.Follicular - - - 1 - 1 1 4 - - - - - - - - 7 11 Medullary Carcinoma - - - - - - - - - - - - - 1 - - 1 TOTAL - 1 -**5**

6 Discussion

Total 120 thyroid lesions were studied in the present study. Of this 57 cases were non-neoplastic and 63 cases were neoplastic consisting of 47.5% and 52.5% respectively. A study conducted by 9 reviewed 127 cases and found the percentage of non neoplastic lesions as 85.8% and neoplastic as 14.2% Non-neoplastic lesions, in this study there was one case of thyoglossal cyst (0.83%) out of 120 cases. This was a 5 years old female child. One case of sub-acute thyroid it is was reported (0.83%) in a 38 years female patient out of 120 cases. A study conducted by Arora and Gupta 6,10 reviewed 94 cases and found the percentage of sub-acute thyroditis was 4.25% (4 cases). Another study conducted by Meachim and Young 8 reviewed 1285 cases and found the percentage of sub acute thyroditis was 0.15% (2 cases). Hashimoto thyroditis accounted for 11 cases (9.16%) out of 120 cases. A study conducted by Arora and Gupta 2,6,10 found Hashimoto thyroditis were 4.25% (4 cases) out of 94 cases studied. Another study conducted by Meachim and Young 8 reviewed 1285 cases and found the percentage of Hashimoto thyroditis was 5.68% (73 cases). Total all types of the thyroditis reported were 12 cases (10%) out of 120 cases. Total all types of thyroditis reported in the study conducted by Arora and Gupta 6,10 was 9.57% (9 cases) out of 94 cases. In another study conducted by Meachim and Young 6,8 total all types of thyroditis was 5.99% (77 case) out of 1285 cases studied. Colliod goiter formed 5.83% (7 cases). Maximum cases were in the 3 rd to 5 th decade of life and one male case was reported. There was a wide range in the incidence of the colloid goiter reported by several authors. In a study conducted by Sankaran 6,9 the incidence of colloid goiter was 36%. The average age being 33 years with female preponderance. In another study conducted by Arora and Gupta 10 the incidence of colloid goiter was 15.95%. In the study conducted by Meachim and Young 8 the incidence of colloid goiter was 49.18%. Mulitnodular goiter was the most common nonneoplastic lesion in this study. There were 35 cases (29.16%) with peak age incidence seen between 3 rd and 5 th decade of life and was more common in females. In a study conducted by Sankaran 6,9 the incidence of multinodular goiter was 18% and average age incidence was 35 years. In the study conducted by Arora and Gupta 10 the incidence of multinodular goiter was 3.19%. Diffuse toxic goiter accounted to 1.66% (2 cases). Both were female patients. The study by Arora and Gupta 5,10 reported an incidence of 2.12%. Compared to the overall incidence of goiter (all types) in this study (36.65%). Kalpatrick et al 6,11 reported the overall incidence as 39.4 %, predominantly in the 20-49 years age group.

Neoplastic lesions, benign and malignant tumors together formed 63 cases (52.5%) out of total 120 cases studied.

Benign lesions found were in 36.66% (44 cases). Of this follicular adenoma was reported in 35.83%(43 cases). Follicular adenoma was the most common lesion in this study and it was the most common neoplastic lesion. Maximum incidence was seen between 3 rd and 5 th decade of life with female preponderence. Five male patients were reported. In a study conducted by Arora and Gupta Atypical adenoma was found in one case (0.83%). This was female patient aged 27 years.

Malignant tumors (19 cases) constituted 15.63% of the total 120 cases studied.

In contrast, Sankaran 9 reported an incidence of 14%. Arora and Gutpa 7,10 reported an incidence of 31.91% and Thomas 3,5, **??**2 reported an incidence of 19%. Papillary carcinoma classic variant constituted 9.16%(11 cases). Most cases were aged 40 years and below. Two youngest patients were 22 years old females. The oldest patient was a 65 years female with lymph node metastasis. There were only three male patients. Comparative analysis of histological types of the thyroid carcinoma V.

7 Conclusion

Most of the patients presented with a symptoms of neck swelling. Majority of the patients were between 3 rd and 6 th decade.Females were predominantly affected.

The commonest lesion was follicular adenoma followed by multinodular goiter. Most common malignant lesion was papillary carcinoma.

The present study was undertaken to review the recent literature in recognising the histomorphologic criteria for the thyroid lesions and to correlete the histomorphological type of thyroid lesion with age and sex of patient in and arround Kolar town. The drawback of this study was that the present data being hospital generated cannot be regarded as representative of the incidence of thyroid lesion in the general population.

Figure 1: TC

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Figure 2: Table 1 :

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Figure 3: Table 2 :

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Sl.No	Age	No.of. Cases	Male	Female
1	<10	1	-	1
2	10-19	4	-	4
3	20-29	33	4	29
4	30-39	40	2	38
5	40-49	21	5	16
6	50-59	11	1	10
7	60-69	9	-	9
8	70-79	1	-	1
	Total	120	12(10%)	108(90%)
Sl.No	Sympotoms		No.of.Cases	
1	Neck Swelling		120 (100%)	
2	Dysphagia		24 (20%)	
3	Dyspnoea		15 (12.5%)	
Sl.No	Signs			No.of.Cases
1	Diffuse.			34
	a. Sub acute thyroiditis			(28.3%)
	b. Hashimoto thyroidtis			
	c. Colloid goiter			
	d. Diffuse toxic goiter			
	e. Papillary carcinoma			
2	Solitary nodule.			51
	a.Follicular adenoma			(42.5%)
	b. Atypical adenoma			
	c. Thyroglossal duct cyst			
	d. Papillary carcinoma			
	e. Medullary carcinoma			
3	Multiple nodules.			35
	a. Multinodular goiter			(29.2%)

Figure 4: Table 3 :

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Figure 5: Table 4 :

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SL.No	Age in years Types	<10	10-19	20-29	30-39	40-49	50-59	60-69	70-79	TOTAL

Figure 6: Table 5 :

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6 26 2 36 5 17 1 11 - 9 - 1 120

Sl.No	Types	No.of.Cases	%
1	Thyroglossal duct cyst	1	0.83
2	Sub-acute thyroiditis	1	0.83
3	Hashimoto thyroiditis	11	9.16
4	Colloid goiter	7	5.83
5	Multinodular goiter	35	29.16
6	Diffuse toxic goiter	2	1.66
	Total	57	47.5

Figure 7: Table 6 :

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Sl. No	Types	No of cases	%
1	Follicular adenoma	43	36
2	Atypical adenoma	1	1
3	Papillary.Ca.Classic	11	9
4	Papillary .Ca.Follicular	7	6
5	Medullary Carcinoma.	1	1
	Total	63	(52.5%)

Figure 8: Table 7 :

Sl. No	Types	Arora & Gupta 10 (94cases)	Thomas 12 (23cases)	Woolner et al 13 (885 cases)	Burn & Taylor 14 (152 cases)	Year 2014 Present Study (19 case)
1	Papillary .Ca	23.33%	34.8%	61.1%	28.5%	94.73%
2	Follicular .Ca	63.33%	60.8%	17.7%	28.5%	-
3	Follicular + Papillary .Ca	-	4.4%	-	-	-
4	Medullary .Ca	-	-	6.5%	-	5.26
5	Anaplastic .Ca	13.33%	-	14.7%	43	-

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Figure 9:

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