Original Article

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Clinical Study of Neoplastic Thyroid Swellings in Western Rajasthan

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Abstract

Background: Thyroid carcinoma is one of the common cancers affecting the women in their young age. They vary from being indolent to aggressive cancers. Improvements in diagnostics and understanding the pathophysiology have made the treatment more effective with good long-term results. *Methods*: this is Cross sectional record based study.12 months (August 2015 to July 2016) at Dept. of Surgery, S.P. Medical College and P.B. M Hospital, Bikaner. *Results*: Maximum 36% belonged to 31-40 years age group followed by 26% individuals in 21-30 years age group. Minimum 6% individuals were found in 11-20 years and >60 years age group. among 50 patients, 68% were euthyroid, 28% were hypothyroid and 4% were hyperthyroid. 58% patients were having Solitary Thyroid Nodule, followed by 18% with Diffuse Multi Nodular Goitre (MNG), 12% with thyroid adenoma, 4% patients each with thyroid swelling with palpable neck nodes, follicular neoplasm and toxic goitre. *Conclusion*: 58% patients were having solitary thyroid nodule, followed by 18% with Diffuse Multi Nodular Goiter (MNG), 12% with thyroid adenoma, 4% patients each with thyroid swelling with palpable neck nodes, follicular neoplasm and toxic goiter.Majority (90%) patients were Benign and 10% patients were malignant.

Keywords: Thyroid Swelling; Goiter; FNAC.

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Introduction

The word 'Thyroid' originated from 'Thyreos', a Greek word meaning shield. It was first used by Thomas Wharton (1614-1673) of London, UK. He named it as Glandularis thyroideis in 1656 in his book "Adenographia." In old times, it was called Struma (Latin word for swollen gland), bronchocele (a cystic mass in the neck) and Goitre (Latin word – gutter meaning throat).The last name is in use even today [1]. Diseases of the thyroid gland are commonly comprise a spectrum of entities causing systemic disease (Grave's disease) or a localized abnormality in the thyroid gland such as nodular enlargement (goitre) or a tumor mass. After diabetes mellitus, the thyroid gland is the most common organ to cause endocrine disorders [2]. Thyroid disorders are the most common endocrine diseases particularly in countries where iodine intake through diet is low.

Thyroid carcinoma closely resembles its benign counterpart in physical characteristics, measurable physiological parameters such as serum T3/T4 levels and ultrasonic characteristics. Therefore, the surgical excision of the nodule and its histological examination is the only way to differentiate between the more frequent benign and much less frequent malignant nodules. Since most of the thyroid nodule are benign, symptomless and small in size, they do not require surgical excision [3].

The thyroid gland is the most accessible and largest endocrine gland in the body. Normal thyroid gland is impalpable. It was one of the earliest endocrine gland to be recognized, investigated and researched into. It is situated in the lower part of front and the sides of the neck [4]. Its main function is regulation of the basal metabolic rate, stimulation of somatic and

psychic growth.

Material & Method

Study Design

Cross sectional record based study.

Study Duration

12 Months (August 2015 To July 2016).

Study Place

Dept. of Surgery, S.P.Medical College and P.B.M Hospital, Bikaner

Study Population

All patients reporting with thyroid swelling

Sample Size

50 patients reporting to the Surgery dept. with in study duration and eligible as per inclusion criteria were included in the study.

Sampling Method

Convenience Sampling

Inclusion Criteria

- Patients admitted with complaint of thyroid swelling.

Exclusion Criteria

- Children with neck swelling(below 10 year).
- Head & Neck swelling other than thyroid origin
- Patients refusing for investigation/ management

Study Tool

Information regarding following points will be noted down in a pretested pre-structured questionnaire from hospital records:

- Patients demographic
- Clinical Symptoms
- Any history of previous radiotherapy for head and neck
- Comorbidity status
- BMI
- Meticulous History Taking
- Clinical Examination
- Appropriate laboratory and radiological investigations
- Operative findings
- Histopathological report and follow up of cases

Data Analysis

The information thus collected was entered into Microsoft excel sheet thereafter with help of SPSS 22.0 data were analyzed with the help of frequencies, figures, proportions, measures of central tendency, appropriate statistical test wherever required.

Results

Table 1 shows distribution of study population according to age. Maximum 36% belonged to 31-40 years age group followed by 26% individuals in 21-30 years age group. Minimum 6% individuals were found in 11-20 years and >60 years age group.

Table 2 shows distribution of study population according to symptoms presentation. All 100% patients presented with swelling in front of neck. 2nd most common presentation was pain (12%) followed by difficulty in swallowing (6%) and cervical lymph node enlargement (4%). Less common symptoms were hoarseness of voice, difficulty in breathing and pulmonary metastasis (2% each).

Table 3 shows laterality of thyroid swelling that in 34% patients had left lobe involvement, 34% patients had whole gland involvement, 30% patients had right lobe involvement and only 2% had midline gland involvement.

Table 4 shows that among 50 patients, 68% were euthyroid, 28% were hypothyroid and 4% were hyperthyroid.

Table 5 shows that 58% patients were having Solitary Thyroid Nodule, followed by 18% with Diffuse Multi Nodular Goitre (MNG), 12% with thyroid adenoma, 4% patients each with thyroid swelling with palpable neck nodes, follicular neoplasm and toxic goitre.

Table 6 shows that majority (90%) patients were benign and 10% patients were malignant.

Table 1: Distribution of study population according to Age

S. N.	Age Group	No.	%
1	11 – 20	3	6
2	21 – 30	13	26
3	31 – 40	18	36
4	41 – 50	8	16
5	51 – 60	5	10
6	>60	3	6
	Total	50	100.0

Table 2: Distribution of study population according to

S. N.	Symptoms	No.	%
1	Swelling in front of Neck	50	100
2	Hoarseness of voice	1	2
3	Difficulty in swallowing	3	6
4	Difficulty in breathing	1	2
5	Pain	6	12
6	Cervical LN enlargement	2	4
7	Pulmonary metastasis	1	2
8	Skeletal metastasis	0	0

Table 3: Distribution of study population according to Laterality of Swelling

S. N.	Swelling	No.	%
1	Left	17	34
2	Right	15	30
3	Midline	1	2
4	Whole gland	17	34
	Total	50	100.0

Table 4: Distribution of study population according to Thyroid Function Test

S. N.	TFT	No.	%
1	Euthyroid	34	68
2	Hypothyroid	14	28
3	Hyperthyroid	2	4
	Total	50	100.0

Table 5: Distribution of study population according to Type of Swelling

S. N.	Swelling	No.	%
1.	Solitary Thyroid Nodule	29	58
2.	Diffuse MNG	9	18
3.	Thyroid Adenoma	6	12
4.	Thyroid swelling with palpable neck nodes	2	4
5.	Follicular Neoplasm	2	4
6.	Toxic goitre	2	4
	Total	50	100.0

Table 6: Distribution of study population according to FNAC report

S. N.	FNAC	No.	%
1	Benign	45	90
2	Malignant	5	10
	Total	50	100.0

Discussion

In present study, maximum 36% belonged to 31-40 years age group followed by 26% individuals in 21-30 years age group. Similar findings were observed by Borgohain R et al(2013) [5] in a cross sectional study in the department of ENT – Head and Neck Surgery, Guwahati Medical College & Hospital, Guwahati, Assam, from January 2012 to December

2013 (2 years). In this series of 122 thyroid swellings, patients were grouped in age groups of 0-20; 21-40; 41-60 and 61-80 years & patients in each age group were 9%; 50%; 37% and 4% respectively. Most of the patients were in the age group of 21-40 years. Whereas Srivastava C et al (2015) [6] found that most common age group affected was 51-60 years followed by 41-50 years and RajnishN et al (2015) [7] found that out of 16933 cancer patients, 128 patients suffered from thyroid disorders and the prevalence of thyroid disorders was significantly higher in higher aged (>31 years) patients as compared to lower aged (>30 years) patients (14.1% vs. 85.9%, χ^2=132.30, p< 0.001).

100% patients presented with swelling in front of neck. Second most common presentation was pain (12%) followed by difficulty in swelling (6%) and cervical lymph node enlargement (4%). Less common symptoms were hoarseness of voice, difficulty in breathing and pulmonary metastasis (2% each). While being observed for laterality of thyroid swelling, 34% patients had left lobe involvement, 34% patients had whole gland involvement, 30% patients had right lobe involvement and only 2% had midline gland involvement. While being tested for thyroid function by means of T3, T4, TSH; 68% were euthyroid, 28% were hypothyroid and 4% were hyperthyroid; 58% patients were having solitary thyroid nodule, followed by 18% with Diffuse Multi Nodular Goiter (MNG), 12% with thyroid adenoma, 4% patients each with thyroid swelling with palpable neck nodes, follicular neoplasm and toxic goiter. Deshpande A (2005) [8] stated that different cell types detected in FNAC of these tumors were-pleomorphic (most common), round cell, spindle cell and pauci-cellular type. She concluded that ATC being an aggressive tumor, needs prompt pre-operative FNAC diagnosis for starting combination therapy of surgery, chemotherapy and radiotherapy. Borgohain R et al(2013) [5] conducted a cross sectional study in the department of ENT – Head and Neck Surgery, Guwahati Medical College & Hospital, Guwahati, Assam, from January 2012 to December 2013 (2 years). In this series of 122 thyroid swellings, on FNAC, 85 cases (70%) were non-neoplastic and 37 cases (30%) were neoplastic disease. Among the non- neoplastic swellings, colloid goiter was most common with 50 cases (41%), followed by multi-nodular goiter (MNG) with 18 cases (15%) and nodular goiter which was 16 cases (13%). Among the neoplastic thyroid swelling, papillary carcinoma was the most common with 17 cases (14%).Thomas T et al (2014) [9] observed that in 144 patients with cytological proven HT/ lymphocytic thyroiditis were studied, 68 percent patients had diffuse goiter, 69 percent were clinically euthyroid and 46 percent cases were biochemically mildly hypothyroid. Antibody levels were elevated in 92.3 percent cases. In majority of patients, the sonographic picture showed heterogeneous echotexture with increased vascularity. Cytological changes were characteristic. Hsieh MH et al [10] cytologically reported a case of mixed medullary-follicullar thyroid carcinoma which is rare variant of medullary thyroid carcinoma. This case had co-expression of thyroglobulin and calcitonin in the same cell, which is rare phenomenon. Such malignant lesions respond poorly to conventional therapy. 90% were diagnosed with benign swellings whereas 10% had malignant swellings, out of them 8% had papillary carcinoma and 2% had follicular carcinoma on FNAC. Kapila K et al [11] conducted FNAC of thyroid nodules in 762 children and adolescents from January 1993 to December 2008(16 years). As the majority of the nodules were cytologically benign, they concluded that FNAC is a reliable and feasible means to help prevent unnecessary surgery. Boler A at el (2011) [12] conducted a retrospective histopathological study of thyroid malignancies over four years and observed that out of 12 thyroidectomies over four years, malignant neoplasm were 35% of the total 40 cases of thyroidectomy. Su DH et al (2004) [13] studied 24 cases of Hashimoto's thyroiditis from June 2002 to January 2003. They concluded that if hypoechoic nodular lesions are found on follow up, these patients should be subjected to guided FNAC to rule out malignancy and if found malignant, surgery is mandatory.

Jayaram G et al (1989) [14] performed a detailed cytological analysis of 54 proven cases of Grave's disease by studying occurrence of various cyto-morphologic parameters like fire-flare appearance of follicular cells, Hurthle cell change, epithelioid cell granuloma and giant cells reaction. They concluded that FNAC by providing cyto-morphological parameters for study may certainly help in understanding the pathogenesis of the thyrotoxic state. Rupp M et al (1989) [15] assessed the presence of nuclear grooves in the aspiration cytology of various pathologic conditions of the thyroid and concluded that it's a reliable criterion for the diagnosis of papillary carcinoma of thyroid when seen in abundance. They concluded that the presence of occasional grooves should be regarded as a non-specific finding. The finding of thyroid nodular infarction in either FNA material or histologic section can suggest the presence of a neoplasm. They concluded that whenever necrotic debris is obtained on FNA, repeat aspiration or open

biopsy is indicated.

Conclusion

Maximum 36% belonged to 31-40 years age group followed by 26% individuals in 21-30 years age group. 100% patients presented with swelling in front of neck. 2nd most common presentation was pain (12%). While being observed for laterality of thyroid swelling, 34% patients had left lobe involvement, 34% patients had whole gland involvement, 30% patients had right lobe involvement and only 2% had midline gland involvement. 58% patients were having solitary thyroid nodule, followed by 18% with Diffuse Multi Nodular Goiter (MNG), 12% with thyroid adenoma, 4% patients each with thyroid swelling with palpable neck nodes, follicular neoplasm and toxic goiter. Majority (90%) patients were Benign and 10% patients were malignant.

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Ethical Approval

The study was approved by the Institutional Ethics Committee.

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