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CLINICAL STUDY OF NEOPLASTIC THYROID SWELLINGS IN NORTHERN 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: Cross sectional record based study at Dept. of Surgery, S.P.Medical College and P.B.M Hospital, Bikaner
Results: Maximum 35% belonged to 31-40 years age group followed by 27% individuals in 21-30 years age group. Minimum 6% individuals were found in 11-20 years and >60 years age group.Among 100 patients, 69% were euthyroid, 27% were hypothyroid and 4% were hyperthyroid.
Conclusion: Thyroid lesions were more common more in the age group of 3rd-4th decade years. Majority of the patients were females. Multinodular goiter was the most common non-neoplastic lesion and papillary carcinoma was the most common neoplastic lesion.Thus fine needle aspiration is a very useful and indispensible test in the diagnosis of thyroid lesions.
Keywords: Thyroid swelling, goiter, FNAC.

Introduction

The thyroid, an endocrine gland can be afflicted by various diseases of endocrine, inflammatory or neoplastic origin. It is the nodular thyroid that is a diagnostic enigma for the clinician in view of the fact that a few are malignant and many benign. The incidence of malignancy in multinodular goitre is 0.5% and 2% in solitary nodular goitre .[1-2]

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

Study Population: All patients reporting with thyroid swelling

Sample Size: 100 patients reporting to the Surgery dept. within study duration and eligible as per inclusion criteria were included in the study.

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 20.0 data were analyzed with the help of frequencies, figures, proportions, measures of central tendency, appropriate statistical test wherever required.

Results

Table 1: Distribution of study population according to Age

Age Group	No.	%
11 – 20	6	6
21 – 30	27	27
31 – 40	35	35
41 – 50	16	16
51 – 60	10	10
>60	6	6
Total	100	100.0

Table 1. shows distribution of study population according to age. Maximum 35% belonged to 31-40 years age group followed by 27% individuals in 21-30 years age group. Minimum 6% individuals were found in 11-20 years and >60 years age group.

Table 2: Distribution of study population according to presentation of Symptoms

Symptoms	No.	%
Swelling in front of Neck	100	100
Hoarseness of voice	2	2
Difficulty in swallowing	6	6
Difficulty in breathing	2	2
Pain	13	13
Cervical LN enlargement	4	4
Pulmonary metastasis	2	2

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 (13%) 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: Distribution of study population according to Laterality of Swelling

Swelling	No.	%
Left	35	35
Right	29	29
Midline	2	2
Whole gland	34	34
Total	100	100.0

Table-3 shows laterality of thyroid swelling that in 35% patients had left lobe involvement, 34% patients had whole gland involvement, 29% patients had right lobe involvement and only 2% had midline gland involvement.

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

TFT	No.	%
Euthyroid	67	67
Hypothyroid	29	29
Hyperthyroid	4	4
Total	100	100.0

Table-4 shows that among 100 patients, 67% were euthyroid, 29% were hypothyroid and 4% were hyperthyroid.

Table 5: Distribution of study population according to FNAC report

FNAC	No.	%
Benign	89	89
Malignant	11	11
Total	100	100.0

Table-5 shows that majority (89%) patients were benign and 11% patients were malignant.

Discussion

In present study, maximum 35% belonged to 31-40 years age group followed by 27% individuals in 21-30 years age group. Minimum 6% individuals were found in 11-20 years and >60 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. 2nd most common presentation was pain (13%) 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).While being observed for laterality of thyroid swelling, 35% patients had left lobe involvement, 34% patients had whole gland involvement, 29% patients had right lobe involvement and only 2% had midline gland involvement. While being tested for thyroid function by means of T3, T4, TSH; 67% were euthyroid, 29% were hypothyroid and 4% were hyperthyroid.

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

Thyroid lesions were more common more in the age group of 3rd-4th decade years. Majority of the patients were females. Multinodular goiter was the most common non-neoplastic lesion and papillary carcinoma was the most common neoplastic lesion.Thus fine needle aspiration is a very useful and indispensible test in the diagnosis of thyroid lesions.

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