

Clinical and Histomorphological Spectrum of Malignant Lesions of Thyroid in Tertiary Care Centre

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Abstract: ***Background:** Thyroid cancer is a common malignancy and occur more frequently in women. Diagnosis is based on fine needle aspiration cytology (FNAC) /ultrasound guided FNAC in corroboration with ultrasound findings. Papillary carcinoma is the most common thyroid malignancy accounting for 70 - 80% of cases. Here in, we describe the clinical and histo - morphological features of various types of malignant tumors of thyroid seen in our hospital setting. **Materials and methods:** This retrospective observational study was done over a period of 2 years (January 2021 - December 2022) in our department. All the malignant thyroid tumors diagnosed on histopathological examination were included in this study for clinicopathological evaluation. **Results:** A total of 58 cases were included in this study. Majority of cases belonged to 31 - 45 years with female preponderance. Papillary carcinoma was found to be the most common type seen in 45 (77.5%) cases, followed by follicular carcinoma, 8 (13.7%), anaplastic carcinoma, 2 (3.4%), medullary carcinoma, 2 (3.4%) and non - Hodgkin's lymphoma seen in 1 (1.7%) case. There were 24 (41.3%) cases that were showing lymph nodal metastasis. **Conclusion:** This study gives an insight into the role and judicious usage of methods that improve the diagnostic accuracy and their utility in post - operative management of these patients.*

Keywords: Thyroid carcinoma, Fine needle aspiration cytology, Lymphnode metastasis

1. Introduction

Thyroid cancer is the most widespread neoplasm of the endocrine system^[1] Women experience a higher incidence of thyroid cancer than men. In women, the peak occurrence of thyroid cancer is during their reproductive period, and at the time of menopause and post - menopause, incidence rates exhibit of decline.^[1]

In the absence of thyroid disease thyroid gland is not palpable, but with the presence of any thyroid pathology, swelling of thyroid gland occurs and it becomes palpable. This causes pressure symptoms on trachea and oesophagus and also cause cosmetic deformity.^[2]

Diagnostic modalities for thyroid swellings include detailed history, clinical examination, thyroid profile, radiological findings, surgical intervention and microscopic examination.^[2] Ultrasonography is safe and cost effective investigation of choice to determine the extent of thyroid nodule and also to differentiate between benign and malignant nodules. Fnac is the first line of investigation for patient with thyroid swelling before going to surgery.^[3]

Thyroid swellings may be benign or malignant, benign lesions are may be due to congenital anomalies, granulomatous thyroiditis, infections, colloid nodules and adenomas.^[3] About 95% of thyroid cancers originate from the follicular epithelium, and they are papillary, follicular and anaplastic forms. The most common type is papillary which accounts for 70 - 80% for all malignant thyroid tumours. Usually thyroid malignancies occur in individual who are in euthyroid state.^[4]

The prognosis is extremely good for papillary and follicular

thyroid cancer, while the anaplastic carcinoma prognosis is relatively poor.

2. Aims and Objectives

To study the histomorphological patterns of thyroid malignancies in a tertiary care centre. To study the clinical profile of the thyroid malignancies. To correlate clinical and histomorphological patterns of the thyroid malignancies.

3. Materials and Methods

The present study was a retrospective observational study conducted in Department of Pathology, GSL Medical college, Rajamahendravaram, Andhra Pradesh over a period of 2 years (August 2020 to July 2022). A total of 58 cases were included. Patient data were retrieved from the hospital records. Gross and histopathological examination findings of all the surgically excised thyroidectomy specimens were analyzed. Microscopic examination of these specimens were performed on Haematoxylin and Eosin stained sections prepared from formalin fixed paraffin blocks.

4. Results

In our study, out of 58 patients, maximum number of cases was presented in age group of 31 - 45 years (41.3%) followed by 46 - 60 years (34.4%) with a mean age of 46 years. Age wise distribution was shown in Chart 1

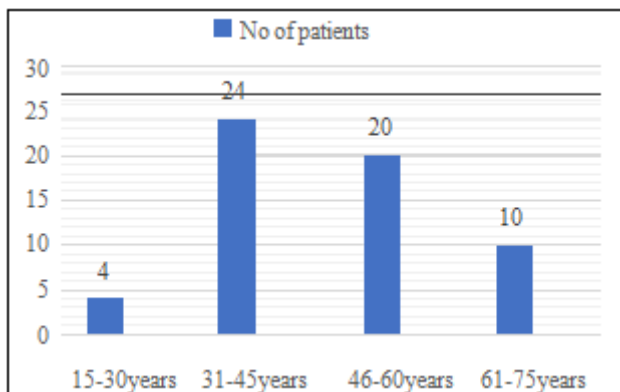


Chart 1: Age wise distribution of total cases

Out of 58 patients who presented with thyroid swelling, 41 (70.7%) are females and 17 (29.3%) are males with female preponderance having an F: M 2.4: 1.

Out of 58 patients, 45 (77.5%) underwent Fine needle aspiration cytology (FNAC) examination. 39 out of 45 cases (86.6%) showed concordance of FNAC with histopathological findings.

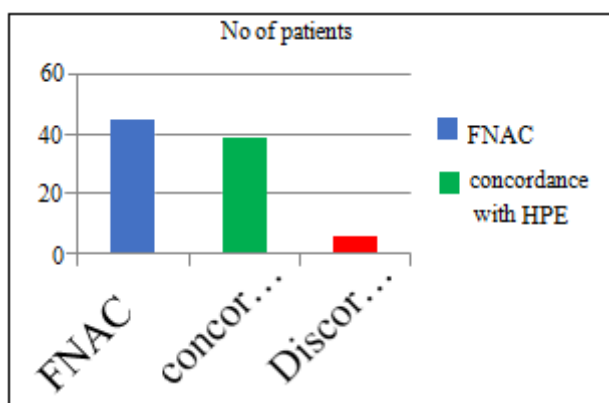


Chart 2: Correlation of FNAC with Histopathological examination

Out of 58 cases 32 patients underwent total thyroidectomy (55.3%), 20 patients underwent hemithyroidectomy (34.4%) right hemithyroidectomy 12 and left hemithyroidectomy 8cases and 6 were small biopsies (10.3%) (Chart 3)

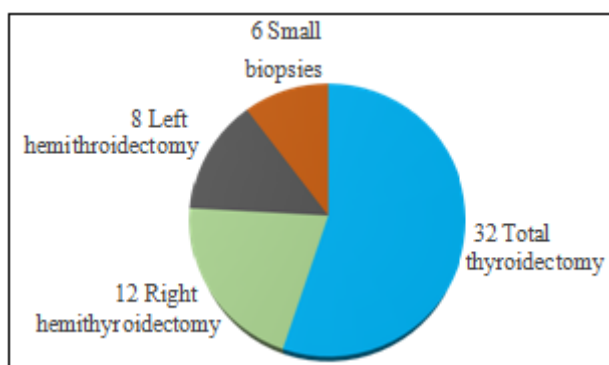


Chart 3: Types of operative procedures

In our study 17 (29.3%) out of 58 cases showed right lobe involvement followed by 24 (41%) showing both lobes involvement and 9cases (15.5%) show left lobe involvement.

Majority of tumors was solid type in right lobe as seen in 13

(76.4%) whereas all the tumors, 9 (100%) in left lobe were solid type. Out of 24 cases involving both lobes, 20 cases (83.3%) show solid areas and 4 cases (16.6%) show both solid and cystic areas. 8 cases (13.7%) involves both lobes and isthmus which shows 75% solid areas and 25% both solid and cystic areas.

Table 1: Gross features of thyroid lesions

Site	No of cases	Gross features		
		Solid	Cystic	Solid and cystic
Right lobe	17	14	0	3
Left lobe	9	9	0	0
Both lobes	24	20	0	4
Both lobes with isthmus	8	6	0	2
Total	58	49	0	9

Out of 58 cases papillary carcinoma consists of 45cases (77.5%), follicular carcinoma 8cases (13.7%), anaplastic carcinoma 2 cases (3.4%), medullary carcinoma 2 case (3.4%) and lymphoma 1case (1.7%). Chart 4.

24 (41.3%) out of 58cases showed cervical lymph node metastases and 34 (58.6%) showed no metastases. Out of which 19 (79%) had papillary histology, 2 (8%) had anaplastic histology, 2 (8%) had follicular histology and 1 (4.1%) was Non - hodgkin lymphoma. Chart 5

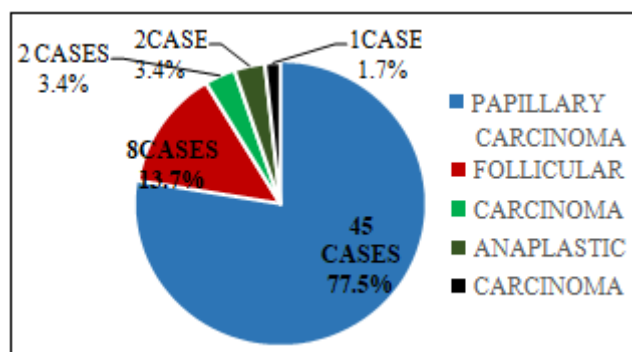


Chart 4: Histomorphological pattern of thyroid malignancies

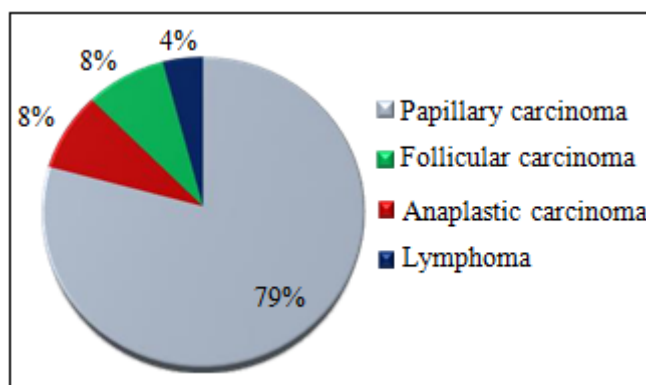


Chart 5: Lymphnode Metastasis



Figure 1: Gross appearance of papillary carcinoma; right lobe.

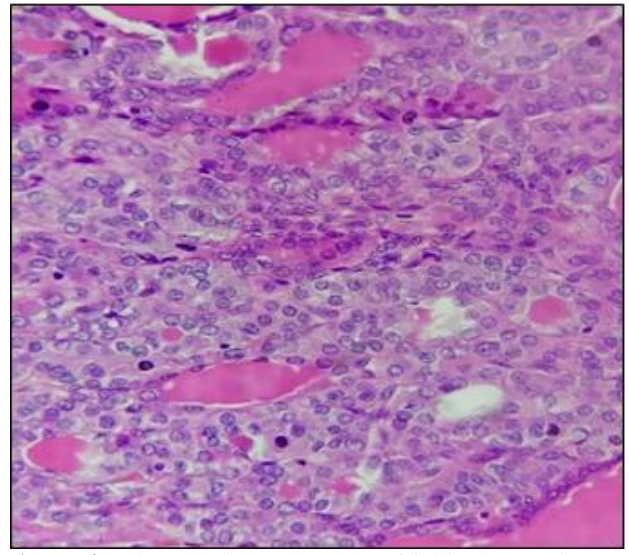


Figure 4: Microscopic appearance of follicular carcinoma. (H&E, 400x)

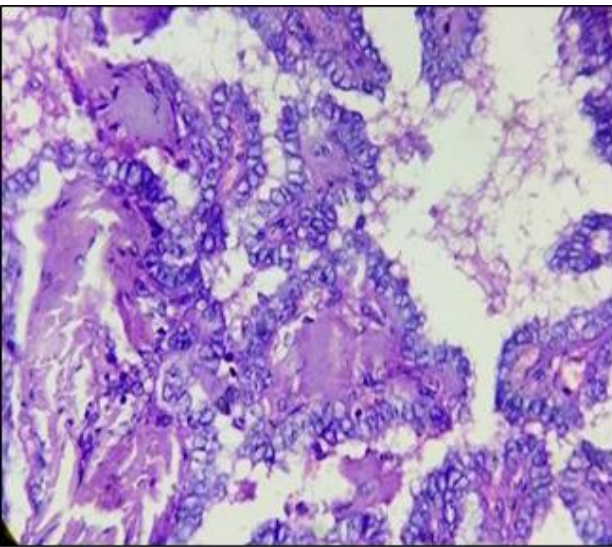


Figure 2: Microscopic appearance of papillary carcinoma thyroid classic variant. (H&E, 400x)



Figure 5: Gross picture of medullary carcinoma of thyroid both lobes



Figure 3: Gross appearance of follicular carcinoma both lobes

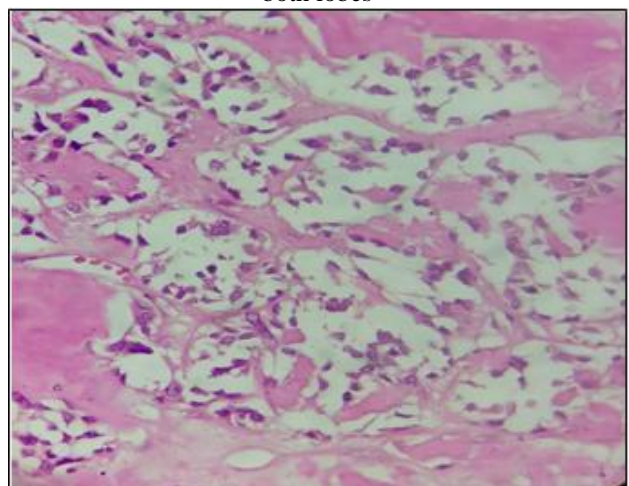


Figure 6: Microscopic appearance of medullary carcinoma thyroid. (H&E, 400x)



Figure 7: Gross appearance of anaplastic carcinoma of thyroid.

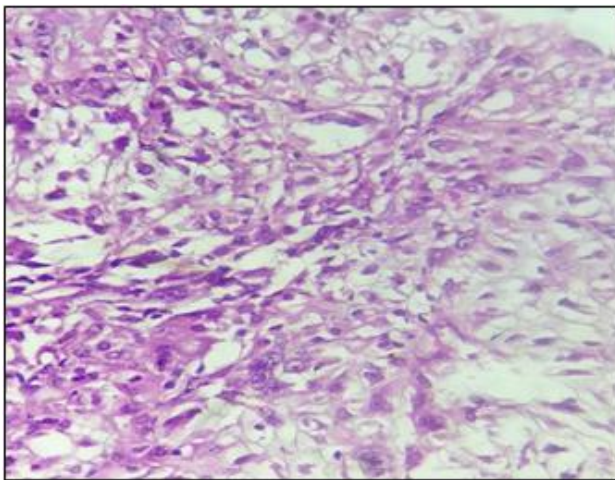


Figure 8: Microscopic appearance of anaplastic carcinoma thyroid.

5. Discussion

The common age group of thyroid lesions in current study was 31 - 45 years with mean age of 46 years similar to study conducted by Jayarajah et al with 30 - 39 years as common age group and mean age of 43 years. [5] and Pham et al [1] with mean age of 42.2 years. Out of 58 patients, female preponderance is noted (70.7%) with M: F ratio 1: 2.4 similar to the study conducted by and Beigh A et al. (78.92%) and Kumar CH et al. (78.9%). [6&4] Concordance of FNAC and biopsy report comes in 39 cases (86.6%) similar to study by Shah et al showing 83.3%. [7] Current study shows 17 cases (29%) show right lobe involvement and 24 cases (41%) show both lobes involvement similar to the study by Choudhary et al [2] which shows 34% right lobe involvement and 30% both lobes involvement. Most common thyroid neoplasm in our study was papillary carcinoma in 45 cases (77.5%) similar to study by Hundahl et al with 77% and Saad et al with 70.5%. [8&9] Present study shows 2 cases (3.4%) of anaplastic carcinoma which is similar to the study by Shah AA et al where anaplastic carcinoma shows 5.2%. [7] Choudhary et al shows 2 case (3.4%) medullary carcinoma similar to study our present study which shows 1 case (2.5%) of medullary carcinoma. [2] Shah et al shows 8 cases (13.7%) of follicular carcinoma

which is higher when compared to our study which shows 5 cases (15%) of follicular carcinoma. [7] Contrast to the study by Choudhary et al where lymphoma constitute 2 cases (4%), current study shows 1 case (1.7%) of lymphoma which is less. [2] Cervical lymph node metastases were seen in 24 cases (41.3%) similar to the study conducted by Shah et al with 44.7%. [7]

6. Conclusion

The present study concludes that incidence of these malignant lesions of thyroid are common among the middle age group (31 - 45 years) population with female preponderance. Central compartment lymph node dissection and modified neck dissection is helpful in all cases of thyroid carcinoma for proper pathological staging.

References

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