ISSN: 2581 – 3633
PubMed - National Library of Medicine - ID: 101745081

International Journal of Medical Science and Advanced Clinical Research (IJMACR)

Available Online at:www.ijmacr.com

Volume – 9, Issue – 2, April – 2026, Page No.: 128 – 132

Prevalance of Thyroid Lesion: Histopathology Spectrum

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How to citation this article: Dr. Saurabh Chawla, Dr. Nidhi Takkar, Dr. Jai Prakash Takkar, Dr Shivika Mehta, "Prevalance of Thyroid Lesion: Histopathology Spectrum", IJMACR – April – 2026, Volume – 9, Issue – 2, P. No. 128 – 132.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Introduction: Thyroid disorders are most common endocrine disorders seen which exhibit wide range of morphological patterns with few challenges, which explains the great interest of pathologists in these lesions.

Aim: To evaluate the histopathological spectrum of lesions in thyroidectomy specimens.

Material and Methods: A retrospective study was conducted in a tertiary care hospital for a period of two years. All thyroidectomy specimens received in the department of pathology were studied and diseases were classified based on histomorphology.

Results: Total 45 specimens were included in the study. Highest incidence was observed in 5th decade and showed female predominance (91.11 %). Non-neoplastic lesions accounted for 38 cases (84.44 %) and neoplastic lesions constituted 07 cases (15.56 %). The commonest non-neoplastic lesion was multinodular goitre and commonest neoplastic lesion was papillary thyroid carcinoma.

Conclusion: In our study thyroid diseases showed a female predominance. Non-neoplastic lesions predominated over neoplastic lesions. Among the malignant lesions papillary thyroid carcinoma was the commonest.

Keywords: Thyroid lesions, Non-neoplastic lesions, neoplastic lesions, Multinodular goiter and papillary carcinoma thyroid.

Introduction

Thyroid gland is one of the important organs which plays vital physiological role in our body. It is responsible for maintenance of homeostasis and body integrity[1]. Thyroid disorders are most common endocrine disorders seen worldwide, next to pancreatic disorders[2,3]. Recognizable swelling in the neck makes it easier for diagnosis and better management [3].

Classifying thyroid lesions histomorphologically into various non-neoplastic and neoplastic lesions helps to decide further course of action in terms of medical management and surgical intervention. Thyroid lesions exhibit wide range of morphological patterns, which explains the great interest of pathologists in these lesions.

Aim

The aim of this study is to evaluate the prevalence of histopathological spectrum of thyroid lesions in our area.

Material and Methods

A retrospective study was conducted in our hospital for a period of two years. All thyroidectomy specimens received in the department of pathology were studied. They included lobectomy, hemithyroidectomy, subtotal thyroidectomy and total thyroidectomy. Details regarding age and gender were obtained from histopathology request form.

Grossing of the specimens, tissue processing, routine Haematoxylin and Eosin staining were performed following standard protocol[4,5]. Histopathology slides of all the cases were reviewed and lesions were classified on the basis of histomorphology as various non-neoplastic and neoplastic lesions. The data was analyzed by standard statistical methods.

Results

Total 45 specimens were received. The age of the patients ranged from 20 years to 65 years with peak incidence among 5th decade. There were 41 females (91.1 %) and 4 males (8.88 %) with a female to male ratio of 10.2 : 1 Thyroidectomy specimens analyzed histomorphologically showed 38 (84.44 %) non-neoplastic and 07 (15.55 %) neoplastic lesions.

Non neoplastic lesions showed predominance of goiter in 34 cases, of which 27 were multinodular goiters (MNG) and 07 were colloid goiters. The other non-neoplastic lesion was Hashimoto's thyroiditis seen in 4 cases [Table1].

Analyses of neoplastic lesions showed majority were papillary carcinoma and its variants seen in 4 cases. Two cases of follicular carcinoma and a single case of medullary carcinoma were identified.

Table1: Histomorphological Distribution of Thyroid Lesions

	Histomorphologic diagnosis	Percentage %
Non neoplastic lesion (84.44 %)	Multinodular goitre	60.00
	Colloid goitre	15.55
	Hashimoto s thyroiditis	8.88
Neoplastic lesion (15.55 %)	Papillary carcinoma	8.88
	Follicular carcinoma	4.44
	Medullary carcinoma	2.22
	Total	100

Discussion

Occurrence of thyroid diseases varies according to different geographical areas, age and sex [1,7]. Both neoplastic and non-neoplastic diseases of thyroid are common all over the world with varying frequency and incidence.

Total 45 thyroidectomy specimens were received during 2 years of study. Thyroid diseases have historically been known to primarily affect female sex [1,2,3,8]. In our study the most common age group affected was 5th decade followed by 4th decade which was similar to studies done by Sreedevi *et al*[1], Fatima *et al* [3],and Jagadale *et al* [8] i.e. 4th to 5th decade, 3th to 4th decade and 4th to 6th decade respectively.

Distribution of non-neoplastic and neoplastic lesions correlated well with other studies [Table2]. Multinodular goitre is most common non-neoplastic lesion. Iodine deficiency and genetic factors are the two most important factors that influence the development of multinodular goiter [3,7].

Table 2: Comparison of Non-neoplastic and Neoplastic lesions with other Studies

Thyroid Lesions	Sreedevi AR (1) n=520,2018	Fatima A (3) n=120,2016	Jagadale K (8) n= 70,2018	Present study n= 45
Non neoplastic	82	83.33	71.4	84.44
Neoplastic	18	16.67	28.0	15.55

The neoplastic lesions accounted for 07 (15.55 %) case, analysis of which showed predominance of papillary thyroid carcinoma in 4 cases. Comparison with various other studies showed good correlation with Fatima A et al and Sreedevi AR et al whereas study done by Jagadale K et al showed higher incidence of malignant lesions.

Papillary thyroid carcinoma is most common malignant thyroid tumour representing 85 to 90 % of differentiated thyroid carcinomas and occurs across all ages [5]. In the current study papillary thyroid carcinoma accounted for about 57.14 % of all malignancies.

Follicular carcinoma was diagnosed in two cases, both were females. One of the case showed extensive areas of invasion into capsule and adjacent thyroid tissue along with prominent vascular invasion whereas, the other case showed only capsular invasion [Figure 3].

Medullary carcinoma was seen in one case with sheets of polygonal and plump spindle shaped cells were traversed by delicate fibrovascular septa. Focal areas of eosinophilic amyloid material and calcification were identified. [Figure 4].

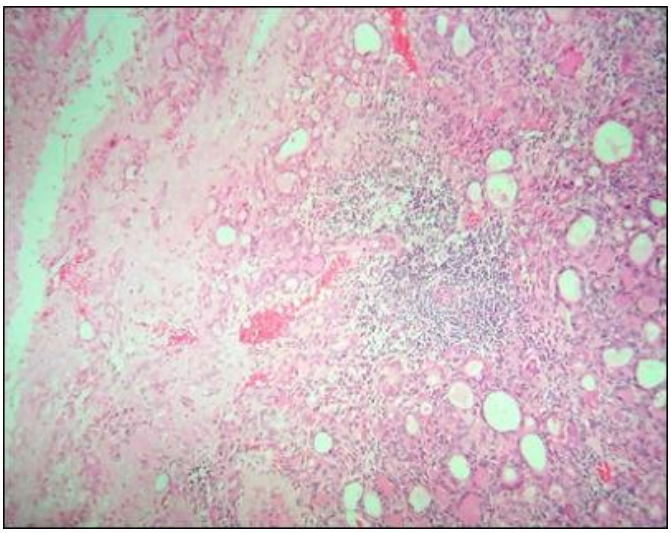

Figure 1: Hashimoto'sThyroiditis (10xH & E)

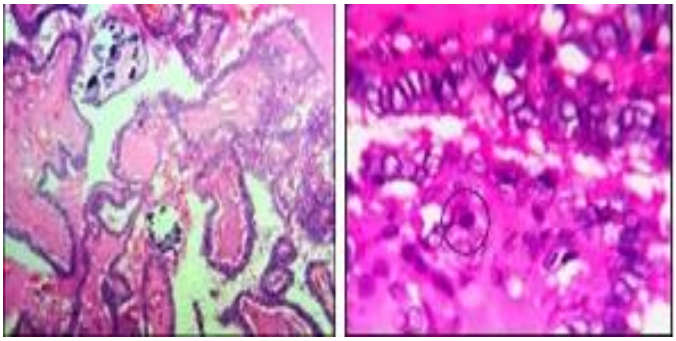

Figure 2 a) Papillary thyroid carcinoma–classical variant with psammoma bodies (10X H&E)
b) Nuclear grooves and inclusion (circle) (40X H&E)

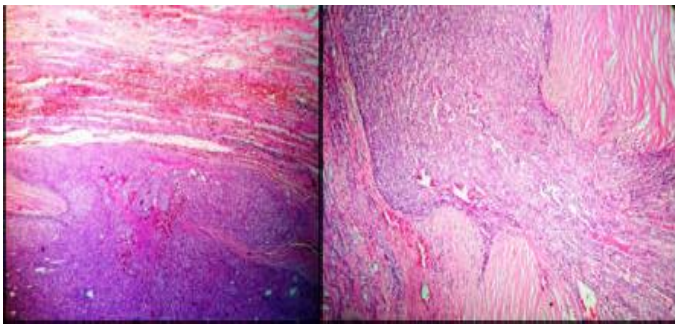

Figure 3: Follicular carcinoma thyroid – extensive capsular invasion (2 X H&E)

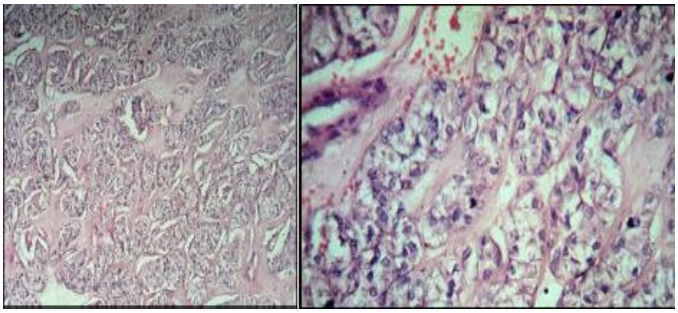

Figure 4: Medullary carcinoma thyroid (10x, 40x H & E)

Conclusion

Our study echoed the historical facts that-

- Thyroid diseases both benign and malignant primarily affect female sex.
- Common age group affected was 5th decade.
- Non-neoplastic lesions predominated over neoplastic lesions, multinodular goitre being commonest.
- Malignant lesions major constituent was papillary carcinoma thyroid. Some of the papillary thyroid carcinomas can present without lymph node involvement and no papillary areas, they should not be missed.

Limitation of the Study

It is a region-specific study, and dietary as well as other environmental factors can affect the distribution of thyroid lesions. Due to the small sample size the variety of lesions were restricted.

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