

# **Original Research Article**

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#### STUDY OF PATHOLOGICAL LESION OF THYROID FROM AUTOPSY CASES

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### Abstract

Α

Background: The thyroid gland is a butterfly shaped organ that is located below and anterior to the larynx. It has two bulky lateral lobes connected by a relatively thin isthmus. People with thyroid pathology may present with thyroid enlargement, which can be diffuse or nodular. Materials and Methods: This was a prospective study of unsuspected thyroid lesions following post-mortem examination of 200 individuals who had no clinical history of thyroid disease. These examinations were performed at the Department of Pathology, SKMCH, Muzaffarpur, and Bihar. The duration of the study was from June 2018 to May 2019. Out of 200 subjects 126 were male and 74 were female. The specimens were preserved in containers filled with 10% neutral buffered formalin to fix (1:10) for 8-14 hours. The tissue sections were routinely processed using an automated tissue processor. The prepared slides were stained with haematoxylin and Eosin. These slides were examined under a light microscope. Ethical committee clearance was obtained before the study. The data collected in this study was analysed using the Statistical Package for Social Science (SPSS IBM) version 20. Continuous variables were analysed using descriptive statistics (mean and range). Percentage and proportions were determined for all other categorical variables. **Result:** Total 200 subjects were included out of which 126 were male (63%) and 74 were female (37%). The mean age for this study was  $53.44 \pm 15.7$ years while the minimum and maximum age was 18 and 80 years respectively. Out of 200 subjects 90 cases were Normal (45%), 35 were Follicular Adenoma (17.5%), 45 were Lymphocytic Thyroiditis (22.5%), 30 were Nodular Hyperplasia (15%). Conclusion: This study shows predominance of male over female. The Thyroid lesions were seen in all age group and the peak age for Thyroid lesion in this study was age group of 25 -45 years. Out of 200 subjects 90 cases were Normal (45%), 35 were Follicular Adenoma (17.5%), 45 were Lymphocytic Thyroiditis (22.5%), 30 were Nodular Hyperplasia (15%).

# **INTRODUCTION**

The thyroid gland is a butterfly shaped organ that is located below and anterior to the larynx. It has two bulky lateral lobes connected by a relatively thin isthmus.<sup>[1]</sup> Thyroid pathology is the second most common endocrine disorders in Nigeria.<sup>[2]</sup> People with thyroid pathology may present with thyroid enlargement, which can be diffuse or nodular.

Several post-mortem studies on the thyroid gland have been carried out in United States of America (USA) and these studies have provided the gold standard in determining the true prevalence of thyroid lesions.<sup>[3]</sup> Schlesinger et al evaluated autopsy specimen from three teaching hospitals in Boston (Massachusetts) area and noted the prevalence of 82 thyroid lesion per 1000 specimen.<sup>[4]</sup>

Thyroiditis was classified by Fabrinzio to comprise of acute thyroiditis, sub acute thyroiditis, chronic thyroiditis, post-partum or silent thyroiditis and Riedel thyroiditis.<sup>[5]</sup> In 2010, the prevalence rate of thyroiditis in Ibadan, South-western region of Nigeria was found to be 9.3% in 107 autopsy cases.<sup>[6,7]</sup> In Zambia, an autopsy based study of thyroid gland in HIV infected adults showed a high prevalence rate of thyrioditis which was 21.0% of all cases.<sup>[6]</sup> Avetisian et al in Ukraine identified 3 cases (4.9%) of follicular adenoma in an autopsy study of 162 thyroid glands while Fleishman et al in Russia recorded a prevalence rate of 2.4% of 420 autopsy cases.<sup>[8,9]</sup>

Thyroid carcinoma is a major cause of death among endocrine cancers.<sup>[10]</sup> Thyroid cancer is a relatively neoplasm worldwide rare accounting for approximately 1.0 -5.0% of all cancers in females and less than 2.0% in males.<sup>[11]</sup> The prevalence of thyroid carcinoma has been reported to range from 1.0% to 35.6% in different systematic autopsy series. This incidence is much higher than that of clinically evident carcinomas of the thyroid. Katulanda et al study of 248 autopsy cases in Sri Lanka revealed a prevalence rate of 10.4%.<sup>[12]</sup> Other autopsy based study in Greece, Ukraine and Italy reveal rates of 7.0%, 11.7% and 6.5%.<sup>[11-14]</sup>

# **MATERIALS AND METHODS**

This was a prospective study of unsuspected thyroid lesions following post-mortem examination of 200 individuals who had no clinical history of thyroid disease. These examinations were performed at the Department of Pathology SKMCH, Muzaffarpur and Bihar. The duration of study is from June 2018 to May 2019.Ethical committee clearance was obtained before the study.

The thyroid glands of subjects were examined and removed as a whole by performing gross and fine standard neck dissection. The gland was separated from its bed and cleaned from non-thyroid tissue. The glands were then sectioned in the coronal plane at 2.5mm to 3.5mm intervals. Selected sections were taken and placed in labelled fenestrated cassettes for fixation. The specimens were preserved in containers filled with 10% neutral buffered formalin to fix (1:10) for 8-14 hours. The tissue sections were routinely processed using an automated tissue processor. The prepared slides were stained with haematoxylin and Eosin. These slides were examined under a light microscope.

The data collected in this study was analysed using the Statistical Package for Social Science (SPSS IBM) version 20. Continuous variables were analysed using descriptive statistics (mean and range). Percentage and proportions were determined for all other categorical variables. Tables, bar chart and histogram were used where applicable. Pearson's Chi square or Fischer exact (X2) was used to test association between categorical variables. Statistical significance was taken as p value <0.05.

# RESULTS

Total 200 subjects were included out of which 126 were male (63%) and 74 were female (37%), [Table 1]. The mean age for this study was  $53.44 \pm 15.7$  years while the minimum and maximum age was 18 and 80 years respectively, [Table 1]. The study shows age category of  $\geq$ 25 years in which 20 cases were identified (10%), 25-45 years in which 65 cases were identified (32.5%), 46-65 years in which 55 cases were identified (27.5%), 66-75 years total 40 cases were accounted (20%) and age above76 years total 20 cases were accounted (10%), [Table 2].



Figure 1: Shows the type of thyroid lesions.



Figure 2: Normal Thyroid tissue the histology shows fairly uniform Thyroid follicles which are lined by cuboidal epithelium. The follicular lumen contains eosinophilic colloid material.

Table 1: Distribution of sex in two groups.			
Gender	Number	Percentage	
Female	74	37%	
Male	126	63%	
Total	200	100%	

Table 2: Age category			
Age	Number	Percentage	
≤25	20	10%	
25-45	65	32.5%	
46-65	55	27.5%	
66-75	40	20%	
>76	20	10%	
Total	200	100%	

Table 3: Showing relationships between Thyroid Lesions and Subjects.				
Thyroid Lesions	Number	Percentage		
Normal	90	45%		
Follicular Adenoma	35	17.5%		

Lymphocytic Thyroiditis	45	22.5%
Nodular Hyperplasia	30	15%
Total	200	100%



Figure 3: Nodular Hyperplasia The histology shows fairly uniform Thyroid follicles which are lined by cuboidal epithelium. The follicular lumen contains eosinophilic colloid material.

## DISCUSSION

Total 200 subjects were included out of which 126 were male and 74 were female, our present study shows predominance of male over female with thyroid lesions which shows completely different result in other study.<sup>[7,14-17]</sup>

The study shows age category of  $\geq 25$  years in which 20 cases were identified (10%), 25-45 years in which 65 cases were identified (32.5%), 46-65 years in which 55 cases were identified (27.5%),66-75 years total 40 cases were accounted (20%) and age above76 years total 20 cases were accounted (10%). Age group of 25 -45 has the highest number of Thyroid Lesions [Table 2]. Our present study of Pathological Thyroid shows slightly different results than the other studies.<sup>[13,18-20]</sup>

Out of 200 subjects90 cases were Normal (45%), 35 were Follicular Adenoma(17.5%), 45 were Lymphocytic Thyroiditis (22.5%), 30 were Nodular Hyperplasia (15%) [Table 3]. This study shows similar results.<sup>[17,21-25]</sup>

The reason for the higher rate is however unclear, nevertheless lymphocytic thyroiditis has been associated with environmental factors such as viral infection, trauma, chemical or radiation exposure.<sup>[5]</sup> The rate in this study also correlates with similar frequencies of total autopsy cases as reported by Lang et al, Gulden et al and Mortensen et al in Germany, Turkey and USA respectively.<sup>[24,23]</sup>

# **CONCLUSION**

This study shows predominance of male over female. The Thyroid lesions were seen in all age group and the peak age for Thyroid lesion in this study was age group of 25 -45 years. Out of 200 subjects 90 cases were Normal (45%), 35 were Follicular Adenoma (17.5%), 45 were Lymphocytic Thyroiditis (22.5%), 30 were Nodular Hyperplasia (15%). Thyroid carcinoma was not diagnosed in this study.

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