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Clinic pathological Profile of Patients Undergoing Thyroidectomy in a Rural Tertiary Care Centre of Northern Kerala

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ABSTRACT

This prospective study was conducted at a rural tertiary care center in northern Kerala to evaluate the clinical profile of patients undergoing thyroidectomy and to assess the correlation between clinical diagnosis, fine needle aspiration cytology (FNAC), and postoperative histopathological examination. A total of 110 patients were included using a convenience sampling technique. Data were collected through a pretested semi-structured questionnaire, patient interviews, clinical examinations, and review of relevant investigation reports, and were analyzed using SPSS trial version 25. The mean age of the study population was 44.81 years, with a marked female predominance (96%). Multinodular goiter was the most common clinical presentation, accounting for 80% of cases. Malignancies constituted 4% of the thyroid lesions identified clinically. FNAC findings predominantly revealed colloid goiter (73%). A statistically significant association was observed between clinical diagnosis and FNAC findings, as well as between FNAC results and postoperative histopathological examination. In the present study, FNAC demonstrated 100% efficacy in differentiating malignant thyroid lesions. Histopathological evaluation showed colloid goiter as the most common benign lesion, while papillary carcinoma and follicular carcinoma were the most frequently encountered malignancies. Clinically suspected malignant cases were consistent with both FNAC and postoperative histopathological findings. The results of this study highlight the reliability and diagnostic accuracy of FNAC in the preoperative evaluation of thyroid lesions. Given its high efficacy and strong correlation with histopathological outcomes, FNAC should be considered a mandatory investigation in patients with thyroid swellings, either alone or in combination with radiological assessments, to guide appropriate surgical decision-making and management.

Keywords*: Fine-needle aspiration cytology, Histopathology, Multinodular goiter, Thyroid lesions, Thyroidectomy.*

INTRODUCTION

Thyroid gland is an important endocrine gland since it is central in the regulation of metabolism, growth as well as development due to the secretion of thyroid hormones [1]. Due to the specific anatomical position and the physiologically determined sensitivity of the thyroid gland to environmental, nutrition and hormonal factors, it is likely to experience a broad range of pathological changes. These alterations can be inflammatory and hyperplastic diseases to benign and malignant neoplasms most of which clinically present as thyroid swellings [2]. These presentations are very likely to be met in everyday clinical practice, especially in an outpatient surgery department, and thus thyroid conditions are a frequent diagnostic and therapeutic dilemma to clinicians [3].

Thyroid nodules are one of the most common endocrine disorders in the entire world. Epidemiological surveys suggest that palpable thyroid nodules are detected in about 4-7 percent of the general population of adult people, the prevalence

figure rises significantly when measured with the help of high-resolution ultrasonography reaching up to 30-70 percent, particularly in women and the old age [4]. This load is even increased in areas that lack iodine and nodular thyroid disease remains a significant social health issue. Most thyroid nodules are benign but the proportion of those that contain malignancy is small yet clinically significant and as such requires proper and on time assessment [5].

Thyroid cancer is now considered to be the most prevalent endocrine cancer worldwide with the percentage of cancer diagnosis steadily growing over the last several decades. Current cancer rates across the globe project a figure of over half a million new thyroid cancer cases each year and a significant number of them are mostly females [6]. The increase in incidence has also been linked to not only the increased prevalence of the disease but also the enhanced diagnostic ability, the increased utilization of the imaging methods and the augmented surveillance. Thyroid cancer incidence has been on a steady increasing pattern in India especially in women whereby the cancer registries have indicated high incidence in urban areas than in rural areas. Though its overall prognosis is favorable, thyroid malignancy significantly adds to disease burden, health care use, and operation [7].

Thyroid disorder is a heterogeneous group of diseases, presenting, behaving biologically, and having different histopathological features in a heterogeneous manner. Most of the malignant lesions are differentiated thyroid cancers, such as papillary and follicular carcinomas, and are common among young to middle-aged adults in the ratio of female to male 2:1. Much more prevalent are benign conditions like multinodular goiter, colloid goiter and thyroiditis which may be treated conservatively in the absence of symptomatic or suspicious findings. As such, the differentiation between benign and malignant lesions of the thyroid gland before the surgery is of utmost importance to prevent unnecessary surgery and the provision of the appropriate oncological treatment when needed [8].

Diagnosis of thyroid swellings is based on the use of both clinical and investigative methods. The first step is clinical examination; this is limited in the ability to distinguish between lesions that are malignant and benign. Consequently, investigations that are ancillary are important in informing the management decisions. Three investigations, which are most frequently used, are ultrasonography (USG) of the neck, fine needle aspiration cytology, and thyroid function tests (TFTs). All of these modalities have a different contribution to the diagnostic algorithm of thyroid nodules [9].

Ultrasonography is a non-invasive imaging type that is readily accessible and offers useful data on nodule size, makeup, echogenicity, vascularity, and the existence of suspicious alterations (microcalcium or irregular margins). Nonetheless, with growing and occasional unselective application of ultrasonography, a large number of clinically insignificant nodules have been found, which are causing the alarm of overdiagnosis and overtreatment. As a result, the imaging results are frequently not enough to make a conclusive diagnosis [10].

The cytoplasmic fine needle aspiration has become the standard investigation in the preoperative assessment on thyroid nodules. It is a minimally invasive, low cost, easy procedure and has a high diagnostic accuracy when used to differentiate benign and malignant lesions. FNAC ensures that the amount of inappropriate unnecessary thyroidectomies is very small and helps to properly plan the surgery on the malignant lesions. Although they are not diagnostic of malignancy, thyroid function tests furnish vital data about the functional status of the gland and assist in determining hyperfunctioning or hypofunctioning nodules thus being complementary to structural assessment [11].

The differences between clinical diagnosis, cytological findings, and end-point histopathological findings could still be present, even though the modalities of diagnosis have improved. The definitive diagnosis of the excised specimen is done by histopathological examination. It is thus necessary to determine the level of concordance between the results of FNAC before and after operations in order to determine the reliability of FNAC and possible diagnostic constraints [12].

When patients have to be accessed in rural areas and may not be able to receive high-level diagnostic facilities, it becomes especially significant to optimize the utilization of relatively affordable and trustworthy investigations. The evidence of clinicopathological correlation of thyroid lesions in rural tertiary care facilities is also relatively scarce, which is why region-specific research is necessary. The knowledge of the pattern of thyroid diseases, the prevalence of malignancy, and the correct diagnostic accuracy of the FNAC in these environments can help to enhance clinical decision-making and patient outcomes [13].

It is on this backdrop that the current research was conducted to evaluate the clinical profile of patients undergoing thyroidectomy in a rural tertiary care institution of northern Kerala, to evaluate the relationship between clinical diagnosis, FNAC results and histopathological analysis, and to evaluate prevalence of benign and malignant thyroid lesions. This type of clinicopathological correlation should add beneficial information to the burden of thyroid diseases and support the importance of FNAC as one of the essential preoperative diagnostic methods in thyroid surgery.

METHODOLOGY

This prospective observational study was conducted among patients undergoing thyroidectomy at a rural tertiary care center. All patients scheduled for thyroidectomy during the study period constituted the study population. A non-probability sampling method, specifically convenience sampling, was adopted for patient recruitment.

Patients who underwent thyroidectomy and provided informed written consent to participate in the study were included. Patients who were deemed unfit for surgery due to medical contraindications or those who did not provide consent were excluded from the study. Thus, clearly defined inclusion and exclusion criteria were applied to ensure appropriate selection of participants.

The primary objective of the study was to evaluate thyroid disease in patients undergoing thyroidectomy and to correlate clinical diagnosis with preoperative fine needle aspiration cytology (FNAC) findings and postoperative histopathological examination (HPE). In addition, statistical data were compiled on various patient-related and surgical parameters, including age, sex, type of thyroid surgery performed, postoperative complications, and other relevant clinical variables.
The minimum required sample size was calculated based on data from a previous study by Behan RB et al. Using the standard formula for estimating sample size in prevalence studies:

$$n = 4pq / d^2$$

where p represents the prevalence of thyroid disease, $q = (1 - p)$, and d denotes the allowable error. The calculated minimum sample size was 83.38, which was rounded up to 84. To account for an anticipated non-response rate and possible dropouts, the sample size was inflated by 30%. Accordingly, the final sample size for the study was set at 113 participants.

Data were collected using a pretested semi-structured questionnaire through patient interviews, clinical examination findings, and review of relevant investigation reports. Preoperative FNAC reports and postoperative histopathological findings were recorded and compared for clinicopathological correlation. The collected data were entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences (SPSS) trial version 25. Descriptive statistics were used to summarize the data, and appropriate inferential statistical tests were applied to assess associations, with a p-value of less than 0.05 considered statistically significant.

RESULTS

A total of 113 patients undergoing thyroidectomy were included in the present study. The age of the study participants ranged widely, with a mean (± SD) age of 44.81 ± 12.59 years. The largest proportion of patients belonged to the 40–49 years age group, accounting for nearly 40% of the study population. This was followed by the 30–39 years age group (19%) and the 50–59 years age group (17%). Patients younger than 30 years constituted 13% of the study population, while those aged 60 years and above accounted for 11% of cases.

There was a marked female predominance among patients undergoing thyroidectomy. Of the total study population, 96% were females, whereas only 4% were males, indicating a significantly higher burden of thyroid disease requiring surgical intervention among women.

Clinically, multinodular goiter (MNG) was the most common indication for thyroidectomy and was observed in 80% of patients. Diffuse thyroid swelling accounted for 12% of cases. Solitary thyroid nodule and clinically suspected carcinoma thyroid were observed in 4% of patients each. The distribution of clinical diagnoses varied significantly across different age groups. Multinodular goiter was the predominant diagnosis across all age categories, with proportions ranging from 60% in patients aged 60 years and above to 87% in the 40–49 years age group. Diffuse goiter was not observed in patients younger than 40 years, whereas its prevalence increased with advancing age, reaching 40% in patients aged 60 years and above. This association between age categories and clinical diagnosis was found to be statistically significant ($\chi^2 = 27.79$, df = 12, $p = 0.006$).

Preoperative fine needle aspiration cytology (FNAC) revealed colloid goiter as the most common diagnosis, observed in 73% of patients. Cystic goiter was the second most frequent FNAC diagnosis, seen in 16% of cases. Other diagnoses, including carcinoma, thyroiditis, and diffuse goiter, constituted a smaller proportion, ranging from 1% to 4%. A statistically significant association was noted between clinical diagnosis and preoperative FNAC findings ($\chi^2 = 176.0$, df = 18, $p < 0.001$). Among patients clinically diagnosed with multinodular goiter, FNAC predominantly showed colloid goiter (79%) and cystic lesions (19%), with a small proportion diagnosed as carcinoma (1%). Patients with solitary thyroid nodules showed FNAC findings of colloid goiter (80%) and diffuse goiter (20%). In patients with diffuse goiter, FNAC revealed colloid goiter (54%), cystic lesions (8%), and thyroiditis (38.5%). All clinically suspected carcinoma cases were confirmed on FNAC, with papillary carcinoma accounting for 80% and follicular carcinoma for 20%.

The duration of thyroidectomy ranged from 105 to 225 minutes, with a mean operative time of 140.44 ± 27.87 minutes. When categorized, 63% of surgeries lasted for more than two hours, while the remaining 37% were completed within two hours.

Postoperative histopathological examination (HPE) demonstrated colloid goiter as the most common diagnosis, observed in 75% of patients, followed by cystic goiter in 15%. Malignant lesions accounted for 4% of cases, with papillary carcinoma being the most frequent malignancy, followed by follicular carcinoma. Thyroiditis constituted a small proportion of postoperative diagnoses. A statistically significant association was observed between clinical diagnosis and postoperative histopathological findings ($\chi^2 = 141.7$, df = 12, $p < 0.001$). Among patients clinically diagnosed with multinodular goiter, postoperative HPE revealed colloid goiter in 83%, cystic lesions in 16%, and follicular carcinoma in 1%. Solitary thyroid nodules showed postoperative diagnoses of colloid goiter (80%) and cystic goiter (20%). Diffuse goiter cases were histopathologically diagnosed as colloid goiter (46%), cystic lesions (15%), and thyroiditis (38.5%). All clinically suspected carcinoma cases were confirmed on postoperative HPE, with papillary carcinoma comprising 80% and follicular carcinoma 20%.

Overall, FNAC demonstrated complete concordance with postoperative histopathological findings in identifying malignant thyroid lesions, indicating an efficacy of 100% in malignancy detection in the present study.

The age distribution of the study participants is presented in **Table 1**, which shows that the majority of patients belonged to the 40–49 years age group, followed by the 30–39 and 50–59 years age groups, with a mean age of 44.81 ± 12.59 years.

The gender distribution of patients undergoing thyroidectomy is summarized in **Table 2**, demonstrating a marked female predominance, with females constituting more than ninety-six percent of the study population.

The clinical indications for thyroidectomy among the study participants are detailed in **Table 3**, which reveals that multinodular goiter was the most common clinical diagnosis, followed by diffuse goiter, solitary thyroid nodule, and carcinoma thyroid.

The association between age categories and clinical diagnosis is illustrated in **Table 4**. A statistically significant relationship was observed, with multinodular goiter being the predominant diagnosis across all age groups and diffuse goiter occurring more frequently in older age categories ($\chi^2 = 27.79$, df = 12, $p = 0.006$).

The distribution of pre-operative fine needle aspiration cytology (FNAC) diagnoses is shown in **Table 5**, where colloid goiter was identified as the most common cytological finding, followed by cystic goiter and other less frequent pathological entities.

The relationship between clinical diagnosis and pre-operative FNAC findings is presented in **Table 6**. A statistically significant association was observed between the two, with FNAC demonstrating high concordance with clinical diagnosis and accurately identifying all malignant cases ($\chi^2 = 176.0$, df = 18, $p < 0.001$).

The duration of thyroidectomy surgery among the study participants is summarized in **Table 7**, indicating that the majority of procedures lasted longer than two hours, with a mean operative duration of 140.44 ± 27.87 minutes.

The distribution of post-operative histopathological diagnoses is depicted in **Table 8**, which shows that colloid goiter was the most common histopathological finding, followed by cystic goiter, while malignant lesions constituted a small proportion of cases.

The association between clinical diagnosis and post-operative histopathological examination is shown in **Table 9**. A statistically significant correlation was observed, with complete concordance between pre-operative FNAC and post-operative histopathological findings in identifying malignant thyroid lesions ($\chi^2 = 141.7$, df = 12, $p < 0.001$).

Table 1. Distribution of Study Participants by Age Group (n = 113)

Age group (years)	Number of patients, n (%)
< 30	15 (13.3)
30–39	22 (19.5)
40–49	45 (39.8)
50–59	19 (16.8)
≥ 60	12 (10.6)
Total	**113 (100)**

Mean age = 44.81 ± 12.59 years

Table 2. Gender Distribution of Study Participants (n = 113)

Gender	Number of patients, n (%)
Female	109 (96.5)
Male	4 (3.5)
Total	**113 (100)**

Table 3. Clinical Diagnosis of Thyroid Swellings (Indication for Thyroidectomy) (n = 113)

Clinical diagnosis	Number of patients, n (%)
Multinodular goiter (MNG)	90 (79.6)
Diffuse goiter	13 (11.5)
Solitary thyroid nodule	5 (4.4)
Carcinoma thyroid	5 (4.4)
Total	**113 (100)**

Table 4. Association Between Age Group and Clinical Diagnosis

Age group (years)	MNG n (%)	Solitary nodule n (%)	Diffuse goiter n (%)	Carcinoma thyroid n (%)
< 30	10 (83.3)	1 (8.3)	1 (8.3)	0 (0)
30–39	18 (81.8)	1 (4.5)	3 (13.6)	0 (0)
40–49	39 (86.7)	3 (6.7)	0 (0)	3 (6.7)
50–59	14 (73.7)	4 (21.1)	1 (5.3)	4 (21.1)
≥ 60	9 (60.0)	6 (40.0)	0 (0)	6 (40.0)

$\chi^2 = 27.79$, df = 12, **p = 0.006**

Table 5. Pre-operative FNAC Diagnosis of Thyroid Swellings (n = 113)

FNAC diagnosis	Number of patients, n (%)
Colloid goiter	82 (72.6)
Cystic goiter	18 (15.9)
Thyroiditis	5 (4.4)
Diffuse goiter	4 (3.5)
Papillary carcinoma	4 (3.5)
Follicular carcinoma	1 (0.9)
Total	**113 (100)**

Table 6. Association Between Clinical Diagnosis and Pre-operative FNAC Findings

FNAC diagnosis	MNG (n=90)	SNT (n=5)	Diffuse goiter (n=13)	Carcinoma thyroid (n=5)
Colloid goiter	71 (78.9)	4 (80.0)	7 (53.8)	0 (0)
Cystic goiter	17 (18.9)	0 (0)	1 (7.7)	0 (0)
Diffuse goiter	1 (1.1)	1 (20.0)	0 (0)	0 (0)
Thyroiditis	0 (0)	0 (0)	5 (38.5)	0 (0)
Follicular carcinoma	0 (0)	0 (0)	0 (0)	1 (20.0)
Papillary carcinoma	0 (0)	0 (0)	0 (0)	4 (80.0)
Undifferentiated carcinoma	1 (1.1)	0 (0)	0 (0)	0 (0)

$\chi^2 = 176.0$, df = 18, **p < 0.001**

Table 7. Duration of Thyroidectomy Surgery (n = 113)

Duration of surgery	Number of patients, n (%)
≤ 2 hours	42 (37.2)
> 2 hours	71 (62.8)
Total	**113 (100)**

Mean duration = 140.44 ± 27.87 minutes

Table 8. Post-operative Histopathological Diagnosis (n = 113)

Post-operative HPE diagnosis	Number of patients, n (%)
Colloid goiter	85 (75.2)
Cystic goiter	17 (15.0)
Thyroiditis	6 (5.3)
Papillary carcinoma	4 (3.5)

Follicular carcinoma	1 (0.9)
Total	**113 (100)**

Table 9. Association Between Clinical Diagnosis and Post-operative Histopathology

Post-operative HPE	MNG (n=90)	SNT (n=5)	Diffuse goiter (n=13)	Carcinoma thyroid (n=5)
Colloid goiter	75 (83.3)	4 (80.0)	6 (46.2)	0 (0)
Cystic goiter	14 (15.6)	1 (20.0)	2 (15.4)	0 (0)
Thyroiditis	0 (0)	0 (0)	5 (38.5)	0 (0)
Follicular carcinoma	1 (1.1)	0 (0)	0 (0)	1 (20.0)
Papillary carcinoma	0 (0)	0 (0)	0 (0)	4 (80.0)

$\chi^2 = 141.7$, df = 12, **$p < 0.001$**

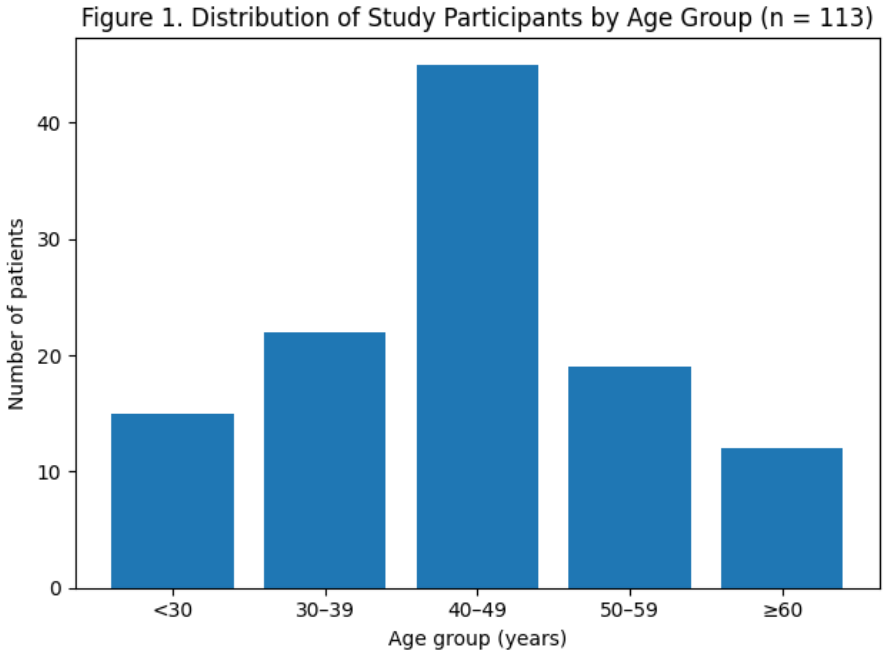

Figure 1 – Age distribution (Table 1)

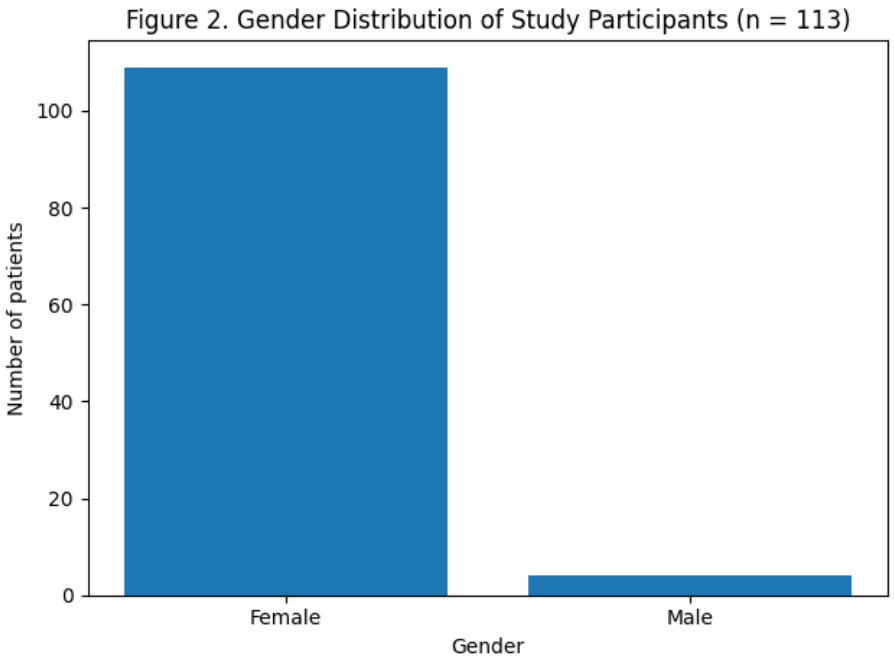

Figure 2 – Gender distribution (Table 2)

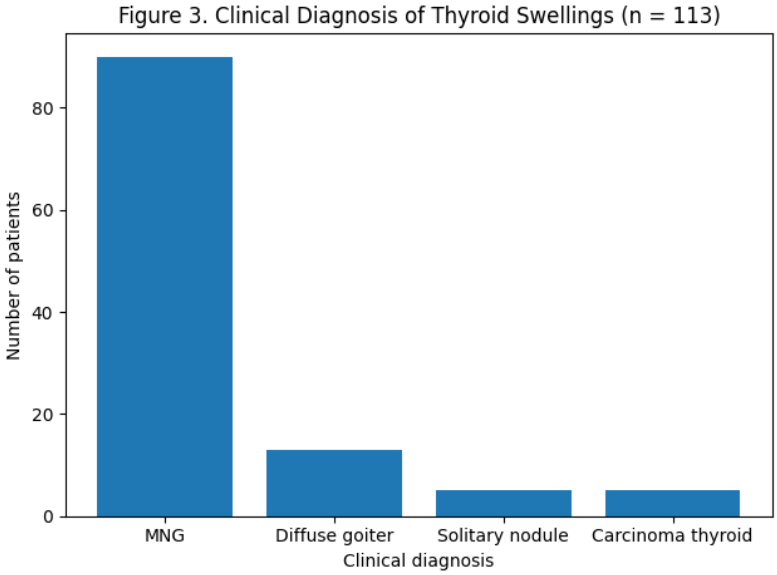

Figure 3 – Clinical diagnosis of thyroid swellings (Table 3)

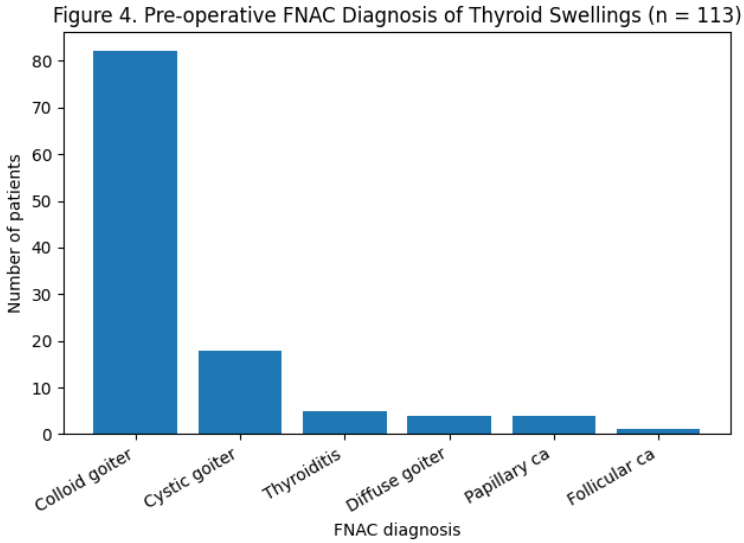

Figure 4 – Pre-operative FNAC diagnosis (Table 5)

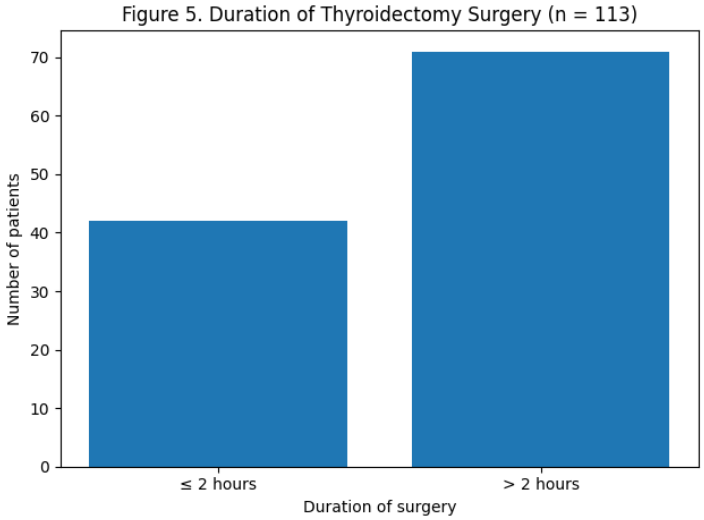

Figure 5 – Duration of thyroidectomy (Table 7)

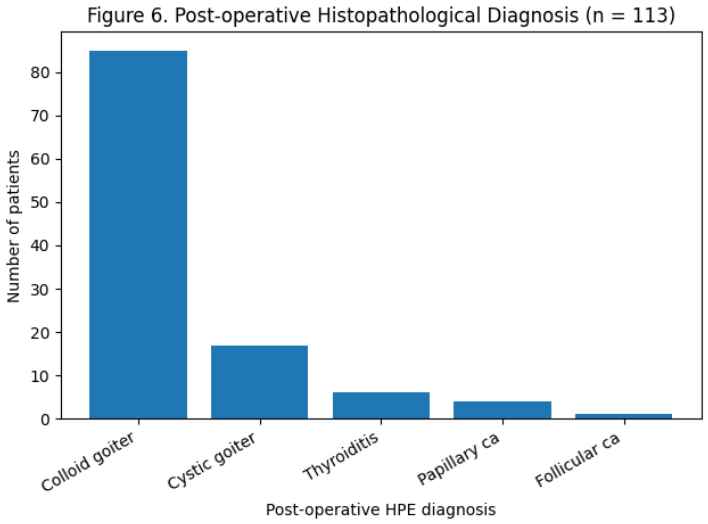

Figure 6 – Post-operative histopathology

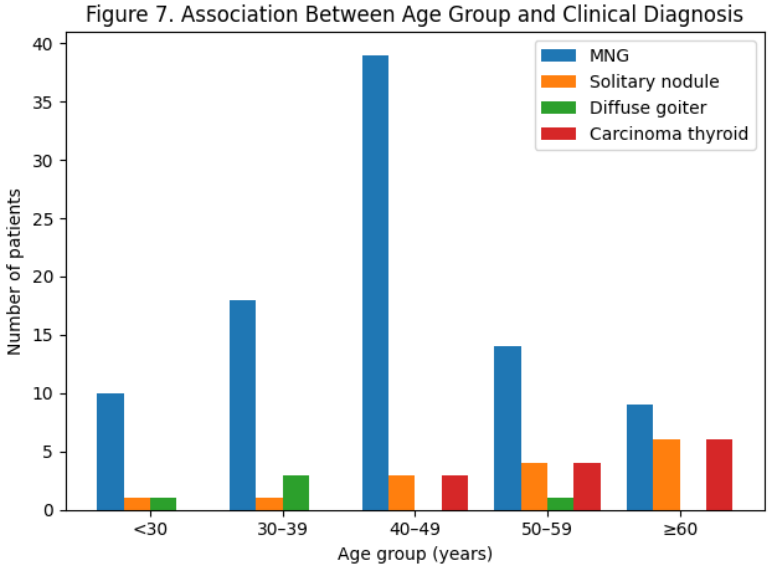

Figure 7 – Association between age group and clinical diagnosis (Table 4) – grouped bar chart

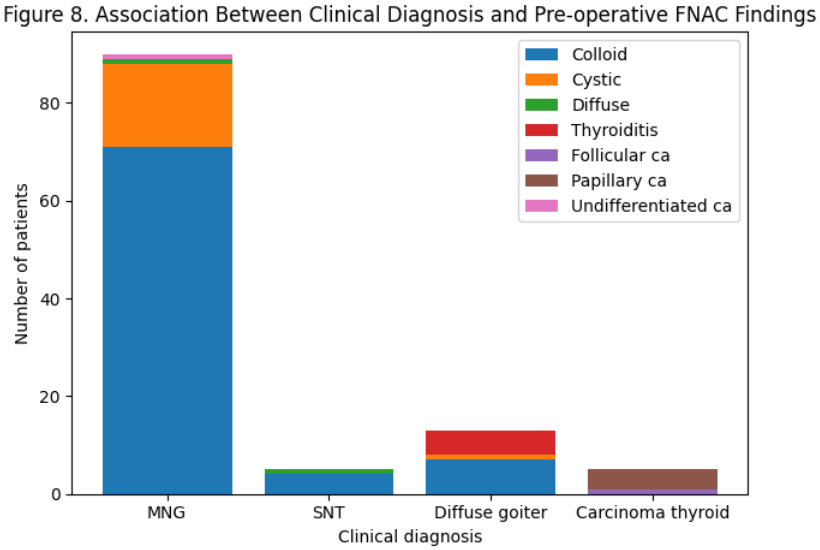

Figure 8 – Association between clinical diagnosis and FNAC (Table 6) – stacked bar chart

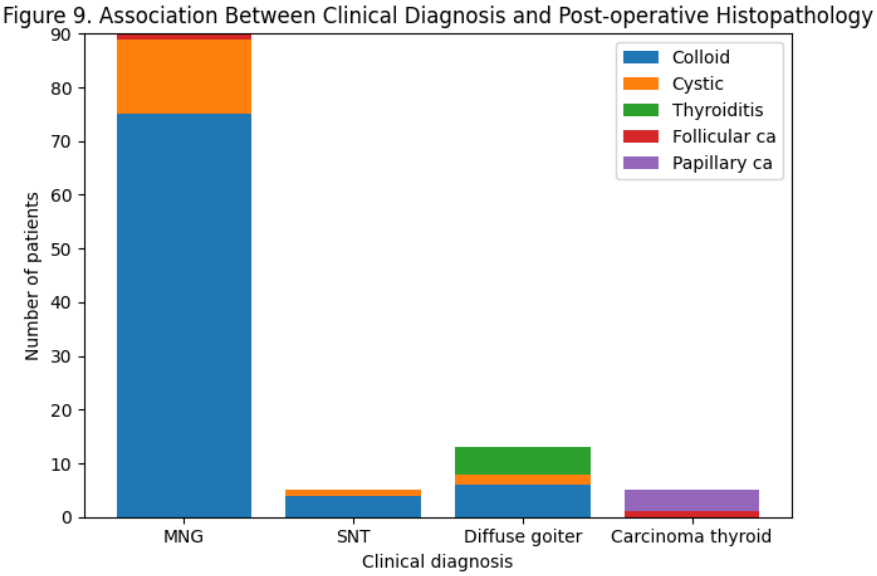

Figure 9 – Association between clinical diagnosis and post-op HPE (Table 9) – stacked bar chart

DISCUSSION

The current study is considered as a detailed analysis of the clinical presentation as well as the diagnostic association of thyroid lesions in patients who underwent thyroidectomy in a rural tertiary care facility. The results have proven a definite female predominance, high rate of multinodular goiter, and high concordance of preoperative FNAC and postoperative histopathological analysis especially in detecting malignant lesions.

The observation of the demographic pattern of the patients in this study where most patients are middle aged women is in line with the global and national patterns reported in the past literature. Previous research has repeatedly had similar findings justifying the fact that thyroid diseases, particularly benign nodular diseases, have been found to be much more prevalent in females which is probably owing to hormonal factors and gender orientation. The age and sex distribution in several regional and international studies has shown similar age and sex distribution, which confirms the common epidemiological picture of thyroid disorders [15].

In this study, multinodular goiter proved to be the most prevalent clinical manifestation making it almost 80 percent. This is a very similar trend as reported by previous studies which has consistently shown that multinodular goiter is the most frequent cause of thyroid enlargement where levels of iodine sufficiency are different. This condition was predominant in the previous studies, which implies a multifactorial etiology, such as nutritional, genetic, and environmental factors, which are likely to be applied to the population studied in this research [16].

The most common results of preoperative FNAC, encountered in this study were colloid goiter and cystic lesions. Such distribution is close to those of other previous publications, in which colloid goiter was always most frequently diagnosed cytologically. Research papers performed in such clinical set ups have indicated similar frequencies of benign cytological outcomes and the importance of FNAC as a convenient, non-invasive instrument to differentiate benign and malignant thyroid swellings. The good correlation between FNAC and clinical diagnosis reported here are also reported in earlier studies, especially in those settings where the use of diagnostic modalities is limited by financial limitations [17].

The concordance of FNAC and the postoperative histopathology in detecting malignant thyroid lesions is observed to be the most significant in this study. The high accuracy, sensitivity, and specificity of FNAC in the diagnosis of thyroid malignancies have been reported in other similar studies, although the concordance is not very high. The high accuracy in diagnosing reported in the current study of 100% is indicative of the strong performance of the FNAC when conducted and interpreted in an ideal setup and reflects its usefulness as a first-line diagnostic tool, particularly in a rural or resource-constrained healthcare setting [18].

Higher histopathological examination of postoperative cases revealed colloid goiter as most common benign lesion, with papillary carcinoma being the commonest malignant lesion. This has been the same trend in the past studies where colloid goiter has been noted to dominant in most cases in benign thyroid pathologies, and papillary carcinoma is the most common malignant tumor in different populations. The similar tendencies in research support the biological predictability of thyroid conditions and histopathology credibility as the gold standard in the unquestionable diagnosis [19].

The high levels of association between clinical diagnosis and FNAC results with histopathological outcomes illustrate the relevance of using a multimodal diagnosis method. Other earlier researches have further pointed out that clinical examination, though imperative, could not be acceptable on its own to make proper diagnosis. Rather, a combination of clinical impression and FNAC have a significant positive impact on preoperative evaluation and decrease unnecessary surgical procedures. This is especially useful in healthcare systems in the rural regions which might lack easy access to advanced imaging modalities or they might be prohibitively expensive [20].

On the whole, results of the given study are highly consistent with the existing literature. The research confirms the already existing applications of FNAC as a very useful diagnostic method and justifies its daily application in the preoperative assessment of thyroid swellings. The fact that the results are consistent with previous research is also another indicator of the fact that FNAC is an essential part of the evaluation of thyroid nodules. This applies in particular to rural tertiary care centers where the optimal diagnostic accuracy is a necessity in the success of surgical planning and the betterment of patient outcomes.

Limitations of the Study

Even though the current work offers meaningful information on clinicopathological correlation of thyroid lesions in a rural tertiary care environment, some limitations have to be mentioned. One, the research sampled was carried out through non-probability convenience sampling approach, which can create a selection bias and restrict the application of research findings to the whole population. Second, the sample size is quite sufficient statistically but rather small when compared to large multicentric research and the results might not fully indicate the variation of thyroid diseases in various geographical or demographic backgrounds.

Third, the research was largely based on the reports of FNAC and histopathology that were located at the institution, and the inter-observer consistency in cytological and histopathological reading was not able to be eliminated completely. Sophisticated methods of diagnostics (e.g. ultrasound-guided FNAC, molecular testing, or radiological risk stratification systems e.g. TI-RADS) were not consistently used, which could have further increased diagnostic accuracy. Also, long-term follow-up of patients was not available, so it could not be assessed on recurrence, clinical outcomes, and long-term prognostic implications.

Lastly, the research was limited to one rural tertiary care facility; hence, there might have been institutional practices, level of expertise, and area health seeking behaviour that might have affected the research. Further studies that would like to take the multicentric data, higher sample sizes, and attention to the introduction of advanced diagnostic modalities would give a more detailed insight into the assessment of thyroid lesions.

CONCLUSION

The current research paper creates an emphasis on the clinical profile and diagnostic patterns of thyroid lesions in patients of the thyroidectomy process in a rural tertiary care unit. The characteristic was the appearance of multinodular goiter with a strong female prevalence in line with the trends in consumption worldwide. FNAC they turned out to be a very reliable preoperative diagnostic aid with a high level of concordance with the postoperative histopathological result and with 100 percent accuracy in the identification of malignant lesions in this study.

The most common benign lesion was colloid goiter and the most common malignancy identified was papillary carcinoma. The statistically significant correlations among clinical diagnosis, FNAC results and final histopathology are evidence of the significance of a combined diagnostic approach. Such results reiterate the critical importance of FNAC in the assessment of thyroid swellings especially in resource-poor rural facilities where sophisticated imaging systems may not necessarily be available.

In general, the article highlights that FNAC must be regarded as a compulsory element of preoperative evaluation of thyroid lesions, as an isolated test or a combination with ultrasonography, to guarantee the correct diagnosis, the proper planning of the surgery, and the positive results in patients. More multicentric studies involving a larger population sample with more sophisticated diagnosis measures would go further in improving the evidence-based and informing uniform treatment procedures.

REFERENCES

1. Girijakumari CP, Koroth A, Rasheed MF, Usman AA, Basheer S, Kareem MR. Clinical, histopathological, and radiological profile of patients presenting with thyroid malignancies among the Kerala population. Cureus. 2024 Mar 23;16(3).
2. Umman P, Mathews MZ, Johnson AK, Varghese N. Clinicopathological spectrum of operated thyroid lesions in a tertiary care centre: a cross sectional study. International Journal Health and clinical research. 2020;3(6):108-15.

3. Karunakaran P, Devadas G. Histopathological pattern of thyroid diseases and its correlation with post-thyroidectomy hypocalcemia: a prospective study in iodine-sufficient Southern India. International Surgery Journal. 2020 Nov;7(11):3749-54.
4. Segalita C, Nindya TS, Rachmah Q, Mahmudiono T. Nutrition education using my plate media to improve self-efficacy and parental support towards children in full-day primary school and non-full-day primary school. Indian Journal of Public Health Research and Development. 2019;10(8):2296-301.
5. Miccoli P, Minuto MN, Panicucci E, Cetani F, D'Agostino J, Vignali E, Picone A, Marcocci C, Berti P. The impact of thyroidectomy on parathyroid glands: a biochemical and clinical profile. Journal of endocrinological investigation. 2007 Sep;30(8):666-71.
6. Behan RB, Mohammed AT, Rasool B, Laghari MU. Clinico-histopathological assessment of patients undergoing thyroidectomy. Journal of Pharmaceutical Research International. 2020;32(6):96-101.
7. Mehrotra PK, Mishra A, Mishra SK, Agarwal G, Agarwal A, Verma AK. Medullary thyroid cancer: clinico-pathological profile and outcome in a tertiary care center in North India. World journal of surgery. 2011 Jun;35(6):1273-80.
8. Thomas JK, Kurian JJ, Cherian AJ, Hephzibah J, Paul MJ, Abraham DT. Papillary thyroid carcinoma in children: clinicopathological profile and outcomes of management. World Journal of Surgery. 2021 Feb;45(2):496-506.
9. Ozer B, Catal O, Ozer SP, Sit M, Erkol H. Clinicopathological Profile of Thyroid Carcinomas: A 10-Year Experience in a Tertiary Care Institute. Middle Black Sea Journal of Health Science. 2016;6(1):24-7.
10. Harness JK, Fung L, Thompson NW, Burney RE, McLeod MK. Total thyroidectomy: complications and technique. World journal of surgery. 1986 Oct;10(5):781-5.
11. Sharma A, Upmanyu A, Ghotkar P, Sawhney H, Rai A. Facial Urticaria Leading to Hypothyroidism Diagnosis: A Case Report. Oral Sphere J. Dent. Health Sci. 2026;2(1):30-35. doi: 10.63150/osjdhs.2026.05
12. Christou N, Mathonnet M. Complications after total thyroidectomy. Journal of visceral surgery. 2013 Sep 1;150(4):249-56.
13. Giddings AE. The history of thyroidectomy. Journal of the royal society of medicine. 1998 Dec;91(33_suppl):3-6.
14. Delbridge L. Total thyroidectomy: the evolution of surgical technique. ANZ journal of surgery. 2003 Sep;73(9):761-8.
15. Thompson NW, Olsen WR, Hoffman GL. The continuing development of the technique of thyroidectomy. Surgery. 1973 Jun 1;73(6):913-27.
16. Edafe O, Antakia R, Laskar N, Uttley L, Balasubramanian S. Systematic review and meta-analysis of predictors of post-thyroidectomy hypocalcaemia. Journal of British Surgery. 2014 Mar;101(4):307-20.
17. Edafe O, Antakia R, Laskar N, Uttley L, Balasubramanian S. Systematic review and meta-analysis of predictors of post-thyroidectomy hypocalcaemia. Journal of British Surgery. 2014 Mar;101(4):307-20.
18. Reeve TS, Delbridge L, Brady P, Crummer P, Smyth C. Secondary thyroidectomy: a twenty-year experience. World journal of surgery. 1988 Aug;12(4):449-52.
19. Khadra M, Delbridge L, Reeve TS, Poole AG, Crummer P. Total thyroidectomy: its role in the management of thyroid disease. Australian and New Zealand Journal of Surgery. 1992 Feb;62(2):91-5.
20. Terris DJ, Snyder S, Carneiro-Pla D, Inabnet III WB, Kandil E, Orloff L, Shindo M, Tufano RP, Tuttle RM, Urken M, Yeh for the American Thyroid Association Surgical Affairs Committee Writing Task Force MW. American Thyroid Association statement on outpatient thyroidectomy. Thyroid. 2013 Oct 1;23(10):1193-202.
21. Rafferty MA, Goldstein DP, Rotstein L, Asa SL, Panzarella T, Gullane P, Gilbert RW, Brown DH, Irish JC. Completion thyroidectomy versus total thyroidectomy: is there a difference in complication rates? An analysis of 350 patients. Journal of the American College of Surgeons. 2007 Oct 1;205(4):602-7.
22. Efremidou EI, Papageorgiou MS, Liratzopoulos N, Manolas KJ. The efficacy and safety of total thyroidectomy in the management of benign thyroid disease: a review of 932 cases. Canadian Journal of Surgery. 2009 Feb;52(1):39.
23. Friguglietti CU, Lin CS, Kulcsar MA. Total thyroidectomy for benign thyroid disease. The Laryngoscope. 2003 Oct;113(10):1820-6.
24. Clark OH. Total thyroidectomy: the treatment of choice for patients with differentiated thyroid cancer. Annals of surgery. 1982 Sep 1;196(3):361-70.