

A Study on The Incidence of Thyroid Malignancy Among Cases Presenting With Thyroid Swelling at a Tertiary Care Center in Bihar

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Abstract

Aims and Objectives: Aims and Objectives of this study was carried out to estimate the incidence of benign and malignant thyroid lesions among the thyroid swellings after histopathological examinations following thyroidectomy. **Methodology:** This cross-sectional follow-up study was done among patients undergoing thyroidectomy between July 2020 to June 2021 by the Department of General Surgery of Darbhanga Medical College and Hospital Laheriasri, Bihar, India. A total of 100 patients were selected for the study. The selected patients were examined clinically. Among routine investigation, their reports of FNAC and histopathological examination after excision were collected and used for analysis in the current study. **Results:** The age of the patients ranged from 12 to 68 years with a mean age 35.5 years. The thyroid lesions were more common in females than male in a ratio of 3.12:1. FNAC findings of 100 cases showed that 59 were benign and rest 41 cases were malignant lesions, hence approximately benign and malignant ratio came to 1.43:1. Among the benign lesions the most common lesion is multinodular or colloid goiter. **Conclusion:** To conclude, it is not unusual to have a diagnosis of thyroid malignancy in a clinically benign thyroid swelling. Incidence of such malignancies is significant. Hence, the patients being treated conservatively for benign thyroid diseases should be followed-up regularly.

Keywords: Thyroid Swelling, Study, Thyroid Malignancy

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Introduction

The incidence of thyroid cancer has increased dramatically during the past three decades and it is now the fastest growing cancer in women [1]. Developing countries including India has high incidence of the cases. Many states in India are an endemic zone for iodine deficiency goitre and one of the aetiologies of thyroid cancer is iodine deficiency. They present as visible neck swelling which moves on deglutition. Any patient presented with thyroid swelling are routinely investigated for ultrasonogram of the thyroid gland, serum TSH and FNAC. Final diagnosis requires morphological examination for which histopathological examination becomes mandatory test [2]. In 1870 Ruge and his associate Johann Vent have first advocated surgical biopsy as an essential tool [3]. The diagnostic method of FNAC was first published in 1883 by Leyden [4]. But the diagnosis of thyroid swellings using aspiration cytology was first reported by Martin and Ellis in 1930 [5]. FNAC, however has limitation related to specimen adequacy, sampling techniques, skill of performing the procedure, interpretation of the aspirate, overlapping cytological features between benign and malignant follicular neoplasm and also in the detection of some papillary carcinoma associated with other pathology like multinodular goiter, cystic changes [6]. Mundsad et al had done a comparative study between FNAC and histopathology and found that FNAC had a sensitivity (52.6%), specificity (86.6%) and accuracy (79.1%) for thyroid malignancy [7]. Aims and Objectives of

this study was carried out to estimate the incidence of benign and malignant thyroid lesions among the thyroid swellings after histopathological examinations following thyroidectomy.

Methodology

This cross-sectional follow-up study was done among patients undergoing thyroidectomy between July 2020 to June 2021 by the Department of General Surgery of Darbhanga Medical College and Hospital Laheriasri, Bihar, India. The patients were selected consequently as and when they presented during the study period with thyroid swelling considering inclusion and exclusion criteria. A total of 100 patients were selected for the study. The selected patients were examined clinically. Among routine investigation, their reports of FNAC and histopathological examination after excision were collected and used for analysis in the current study. Among routine investigations, ultrasonography, TSH, haematological investigations, Chest X-ray ECG, CT scan, if indicated were done. All patients FNACs were done by two senior cytologists. All surgeries were done by the senior surgical staffs and all thyroidectomies' specimens were examined by two senior histopathologists.

Inclusion criteria

Patients with thyroid swelling with normal thyroid hormone profile undergoing thyroidectomy.

Exclusion criteria: Patients of thyroid swelling with hyper or hypo thyroid function, patients with co-morbidities, unfit for surgery, patients who refused surgery and inoperable thyroid malignancy were excluded from the study.

Ethical issues

All the patients were informed about the purpose of the study and informed consent forms were obtained before inclusion. Prior approval from the Institutional Ethics Committee was obtained.

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Statistical analysis

The data collected was analysed using SPSS version 20 and depicted using descriptive statistics.

Results

The age of the patients ranged from 12 to 68 years with a mean age 35.5 years (Table I). The thyroid lesions were more common in females than male in a ratio of 3.12:1. FNAC findings of 100 cases showed that 59 were benign and rest 41 cases were malignant lesions, hence approximately benign and malignant ratio came to 1.43:1.

Among the benign lesions the most common lesion is multinodular or colloid goiter (Table II). Figure I show out of 41 malignant cases of FNAC finding, majority were papillary carcinoma. Histopathological examinations of all 100 thyroidectomy specimens have been shown in Figure II. Histopathological examinations of all thyroidectomy specimens showed majority were colloid goiter followed by papillary carcinoma. 45% of the cases were malignant on histopathological examination.

Table 1: Age distribution of the study participants

Age group	Number
12-22 years	7
23-33 years	25
34-44 years	42
45-55 years	15
56-68 years	11

Table 2: Distribution of study participants based on their diagnosis on FNAC

Diagnosis based on FNAC	Number
Nodular or colloidal goiter	76
Papillary thyroid	20
Follicular lesion	1
Lymphocytic thyroiditis	1
Medullary carcinoma of thyroid	2

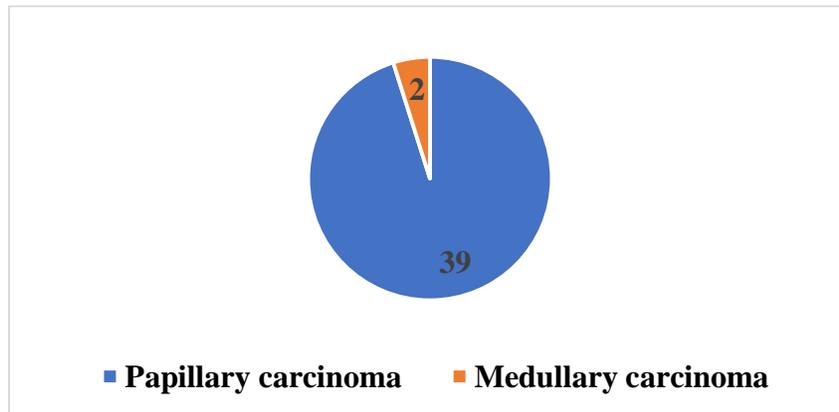


Fig 1: Pie chart showing distribution of malignant cases based on FNAC findings

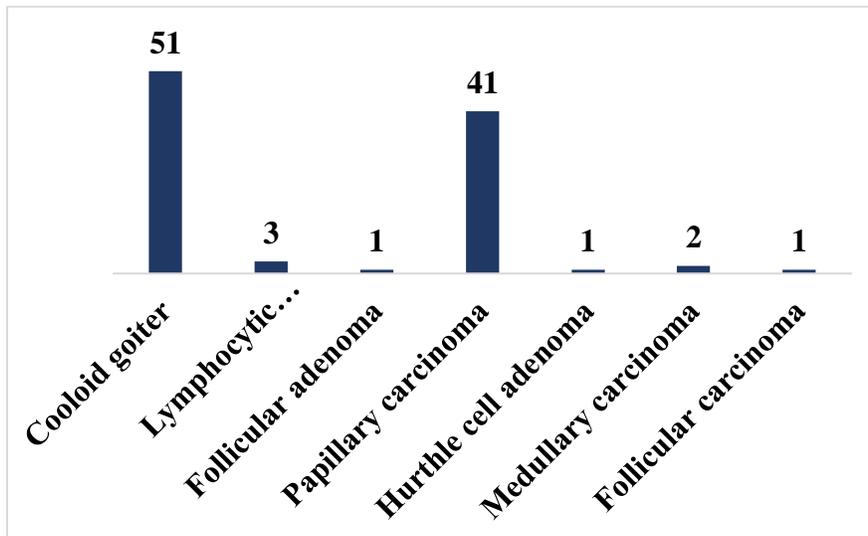


Fig 2: Distribution of study participants based on their histopathological findings

Discussion

The incidence of thyroid cancer has rapidly increased in the developed countries over the past 30 years [8]. Although some researchers postulate this to be a true increase in thyroid cancer [9], but this increase may be due to better diagnostic testing such as ultrasonography and fine-needle aspiration biopsy, resulting in the detection of disease that is unlikely to cause symptoms or death of the patient [10]. Other countries have seen similar increases in thyroid cancer. From 1993 to 2011, South Korea witnessed a 15-fold increase in thyroid cancer with nearly the entire increase attributed to papillary cancers [11]. Davies and Welch also showed, using the SEER program and data, that the rates of follicular, medullary and anaplastic thyroid cancers show no significant change from 1973 to 2002 [12]. Our study also found similar result of increasing incidence of thyroid cancer and most of which are papillary carcinoma. The most important part of our study is limitation of FNAC over histopathological examination, that is the gold standard for diagnosis. Sikder had done accuracy of fine needle aspiration cytology and had found that accuracy was 90% and sensitivity was 68.75% [13]. Bloch had done a comparison study between FNAC and histopathology and had found accuracy of FNAC was 91.6% [14].

Conclusion

As the incidence of thyroid cancer is increased over the last decade. It has also increased in this part of the country. Our study observed that around one-third cases are thyroid cancer among the thyroid swelling underwent thyroid surgery. Ultrasonography and FNAC are both essential diagnostic tool for thyroid swelling but final diagnosis to rule out thyroid cancer is surgical excision and biopsy. To conclude, it is not unusual to have a diagnosis of thyroid malignancy in a clinically benign thyroid swelling. Incidence of such malignancies is significant. Hence, the patients being treated conservatively for benign thyroid diseases should be followed-up regularly. Patients who opt out of surgery should be put on diligent screening of the swelling and any suspicious change in the swelling has to be tackled aggressively.

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