

ORIGINAL RESEARCH

A study to evaluate the incidence of thyroid malignancy among cases of thyroid swelling presenting at a tertiary care center in Delhi

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ABSTRACT

Globally the most common indication for thyroid operation is a solitary nodule with the possibility of malignancy. Thyroid nodules are common in clinical practice. This study was carried out to estimate the incidence of benign and malignant thyroid lesions among the thyroid swellings after histopathological examinations following thyroidectomy.

Materials and Methods: This cross-sectional follow-up study was done among patients undergoing thyroidectomy between July 2017 to June 2019 by the Department of General Surgery, Institute Base Hospital, Delhi Cantt. 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 50 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: FNAC findings of 50 cases showed that 39 were benign and rest 11 cases were malignant lesions, hence approximately benign and malignant ratio came to 3.55:1. Among the benign lesions, the most common lesion is multinodular or colloid goiter. Out of 11 malignant cases of FNAC finding, majority were papillary carcinoma. On histopathological examination of the excised mass, out of 11 cases that showed malignancy on FNAC, 7 cases (14%) were found to be malignant.

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. 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.

Key Words: Incidence, Thyroid malignancy, Thyroid swelling

INTRODUCTION

Globally the most common indication for thyroid operation is a solitary nodule with the possibility of malignancy. Thyroid nodules are common in clinical practice. The patient may seek medical advice due to cosmetic deformity or the thyroid swelling may also present as obstructive symptoms of trachea and esophagus or change of voice. They may be solitary within a "normal" thyroid gland or dominant within a multinodular goiter. The incidence of

thyroid nodules has been on the rise in recent decades, mainly due to the wider use of neck imaging. Therefore, the incidental finding of a thyroid nodule in an asymptomatic patient is not rare. The differential diagnosis of a thyroid nodule is crucial, as malignancy necessitates surgery, while strict patient follow-up is necessary in the case of benignity.[1]Developing countries including India has high incidence of the cases. Many states in India are an endemic zone for iodine deficiency goiter and one of the etiologies of thyroid cancer is iodine deficiency.

Clinically thyroid nodules are noted as an incidental finding during routine physical examination or during any non-invasive procedure. Several disorders may be the cause of a thyroid nodule. The majority of thyroid nodules are asymptomatic. Their clinical importance is primarily necessitates to exclude a thyroid malignancy.[2–4] Any patient presented with thyroid swelling are routinely investigated for ultra sonogram of the thyroid gland, serum TSH and FNAC. Final diagnosis requires morphological examination for which histopathological examination becomes mandatory test [5]. In 1870 Rugu and his associate Joham Vent have first advocated surgical biopsy as an essential tool [6]. The diagnostic method of FNAC was first published in 1883 by Leyden [7]. But the diagnosis of thyroid swellings using aspiration cytology was first reported by Martin and Ellis in 1930 [8]. 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 [9]. Mundasad et al had done a comparative study between FNAC and histopathology and founded that FNAC had a sensitivity (52.6%), specificity (86.6%) and accuracy (79.1%) for thyroid malignancy [10].

AIMS AND OBJECTIVES

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

MATERIALS AND METHODS

This cross-sectional follow-up study was done among patients undergoing thyroidectomy between July 2017 to June 2019 by the Department of General Surgery, Institute Base Hospital, Delhi Cantt. 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 50 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, hematological 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.

STATISTICAL ANALYSIS

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

RESULTS

The age of the patients ranged from 16 to 73 years with a mean age 43.2 years (Table I). The thyroid lesions were more common in females than male in a ratio of 1.38:1. FNAC findings of 50 cases showed that 39 were benign and rest 11 cases were malignant lesions, hence approximately benign and malignant ratio came to 3.55:1. Among the benign lesions, the most common lesion is multinodular or colloid goiter (Table II). Figure I show that out of 11 malignant cases of FNAC finding, majority were papillary carcinoma. Histopathological examinations of all 50 thyroidectomy specimens have been shown in Figure II. Histopathological examinations of all thyroidectomy specimens showed majority were colloid goiter followed by papillary carcinoma. On histopathological examination of the excised mass, out of 11 cases that showed malignancy on FNAC, 7 cases (14%) were found to be malignant.

Table 1: Age distribution of the study participants

Age group	Number
16-35 years	7
36-45 years	21
46-55 years	8
56-65 years	12
66-73 years	2

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

Diagnosis based on FNAC	Number
Nodular or colloidal goiter	22
Papillary thyroid	15
Follicular lesion	1
Lymphocytic thyroiditis	1
Medullary carcinoma of thyroid	1

Figure I: Pie chart showing distribution of malignant cases based on FNAC findings

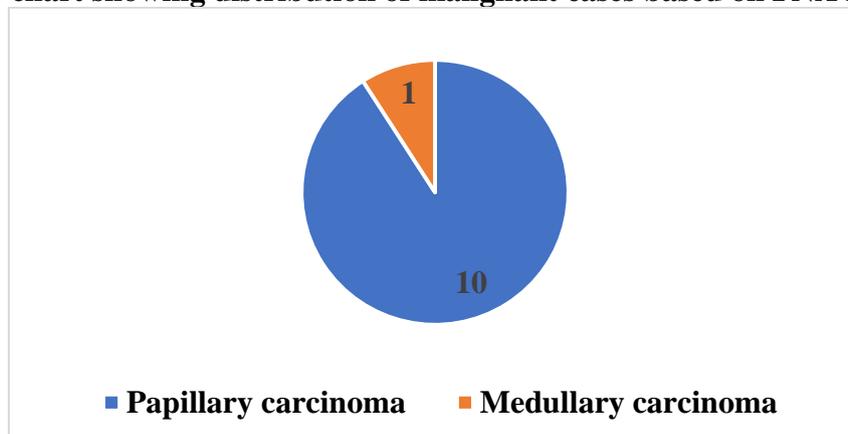
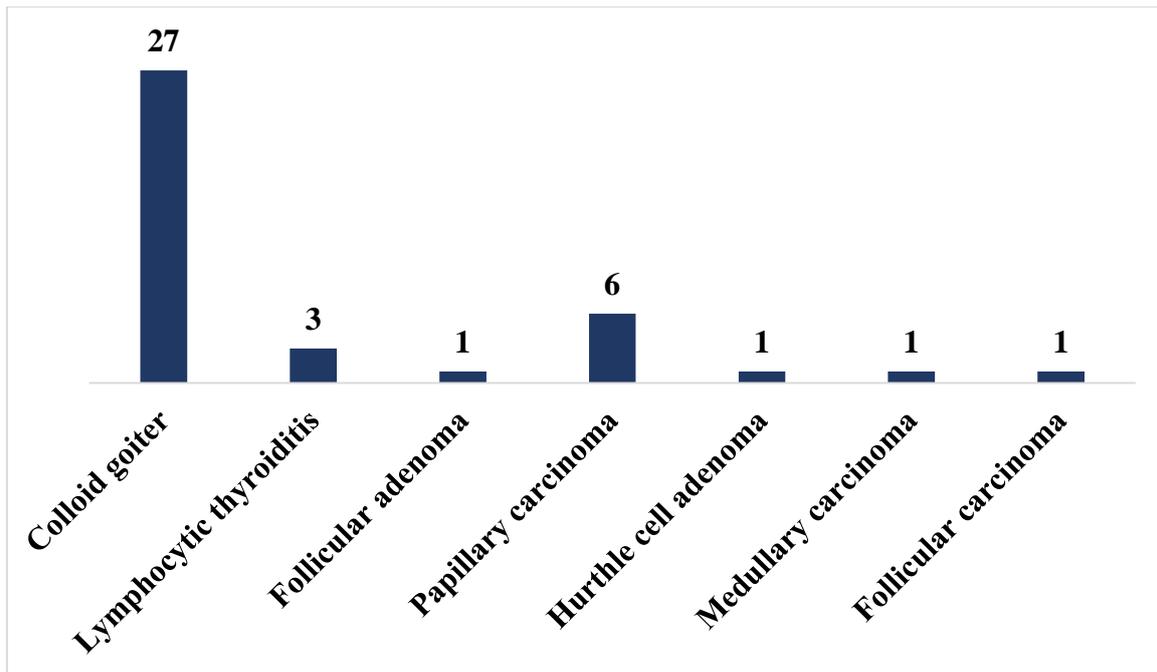


Figure II: Distribution of study participants based on their histopathological findings



DISCUSSION

The incidence of thyroid cancer has rapidly increased in the developed countries over the past 30 years [11]. Although some researchers postulate this to be a true increase in thyroid cancer [12], 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 [13]. Due to the wide use of ultrasound imaging diagnostic techniques, the prevalence of thyroid nodules was greater than before up to 67% in randomly selected populations, with a higher frequency in women and the elderly. This means that a thyroid nodule found incidentally in an asymptomatic patient (thyroid incidentaloma) is not rare [14-17]. 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 [18]. 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 [19]. A prospective study of 245 patients indicated that 35% of them had thyroid nodules and at least 3.3% had thyroid malignancy, most of which were micropapillary carcinomas (one of eight carcinomas was palpable). In other words, 9.2% of thyroid nodules were malignant with the risk of malignancy was higher in patients over 45, regardless of the duration or severity of hyperthyroidism or goiter size [20, 21]. 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. Skidder had done accuracy of fine needle aspiration cytology and had found that accuracy was 90% and sensitivity was 68.75% [22]. Bloch had done a comparison study between FNAC and histopathology and had found accuracy of FNAC was 91.6% [23].

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.

CONFLICT OF INTEREST

None declared by any of the authors

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