

Original Research Article

Clinico pathological aspects of solitary thyroid nodule: a hospital based prospective study

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ABSTRACT

Background: Nodular goitre is a common endocrine problem in the world today. Solitary thyroid nodule is defined as the presence of a palpable nodule in the otherwise normal thyroid gland. Solitary nodules are one of the most frequent presentations of thyroid disorder. The aim of this study was to study the incidence and other clinical parameters of solitary thyroid nodules and to correlate between clinical diagnosis and histopathological examination of solitary nodule thyroid.

Methods: A prospective study was done in patients with solitary thyroid swelling, after taking a detailed history, were examined clinically and confirmed with FNAC and underwent thyroid surgery were included in this study. The histopathological reports were evaluated and correlated with clinical diagnosis by standard statistical methods.

Results: Majority of the patients were between 21-30 years of age. Female: male ratio was about 11.5:1. Swelling in front of the neck was the most common presentation. Most common solitary thyroid swelling was the colloid goitre. Commonest surgery performed was hemithyroidectomy.

Conclusions: The majority of the solitary nodule of the thyroid was found to be benign, and this illustrates that hemithyroidectomy is the preferred surgery unless malignancy is suspected by fine needle aspiration cytology.

Keywords: Fine needle aspiration cytology (FNAC), Solitary nodule thyroid, Thyroid nodule histopathological examination

INTRODUCTION

The thyroid gland is the most accessible and largest endocrine gland in the body. The normal thyroid gland is impalpable. It was one of the earliest endocrine glands to be recognized, investigated and researched into. It is situated in the lower part of the front and the sides of the neck.¹ Its main function is regulation of the basal metabolic rate, stimulation of somatic and psychic growth. Solitary thyroid nodule is defined as the presence of an only palpable nodule in an otherwise normal thyroid gland.² Solitary nodules are one of the commonest presentations of thyroid disorder. The

frequency of the appearance of the thyroid nodules increases with age. These cases of solitary thyroid nodule are evaluated clinically as well as pathologically (fine needle aspiration cytology and histopathological examination). As compared to histopathological examination, fine needle aspiration cytology (FNAC) and clinical diagnosis have come up as a parallel, but separate discipline for diagnosis of the solitary thyroid nodule. Diagnosis is obtained quickly; complications are almost negligible and diagnostic accuracy is high.

The aim of this study was to study the incidence and other clinical parameters of solitary thyroid nodules and

to correlate between clinical diagnosis and histopathological examination of solitary nodule thyroid.

METHODS

A prospective study had been carried out in the Department of General Surgery, Chennai Medical College and Hospital, Trichy, India. Patients with solitary thyroid swelling and underwent some form of surgery were selected and included in this study.

Inclusion criteria

- Patients with solitary thyroid swelling
- Patients between 11 to 60 years of age
- Both male and female patients.

Exclusion criteria

- Patients with thyroid swellings other than solitary nodules clinically and surgically proved (multinodular goitre)
- Thyroiditis cases
- Patients unfit for surgery under anesthesia
- Patients unwilling for the interventions.

Patients included in the study were asked about history related to the thyroid swelling and relevant questions to the etiological cause. Present, past and family history of thyroid and other relevant histories were asked. Detailed General physical, clinical examination and thyroid swelling examination were done. The patients were investigated. Apart from routine investigations, all patients had a thyroid profile, fine needle aspiration cytology (FNAC), X-ray of the neck-anteroposterior and lateral views, chest X-ray and indirect laryngoscopy were done. In patients presenting with hypo or hyperthyroidism, medical therapy was planned to attain euthyroid state. For inclusion in this study, a solitary thyroid nodule is defined as a single swelling involving either lobe or isthmus of the thyroid gland. Patients underwent surgery, and the histopathological reports were evaluated and correlated with clinical diagnosis by standard statistical methods.

RESULTS

This study includes 50 cases of solitary thyroid nodules. Various factors regarding clinical presentation, findings of various investigations, histopathological characteristics and operative treatment had been analyzed. Most of the cases were in the age group of 21-30 years (86%). The minimum age was 11 years, and maximum age was 60 years. Female preponderance was more than males with the ratio of 11.5:1. All patients (100%) had swelling over the anterior aspect of the neck, therefore presented with swelling as the chief complaint. Other complaints were dyspnea (2%), dysphagia (2%) pain over swelling (1%) (Figure 1).

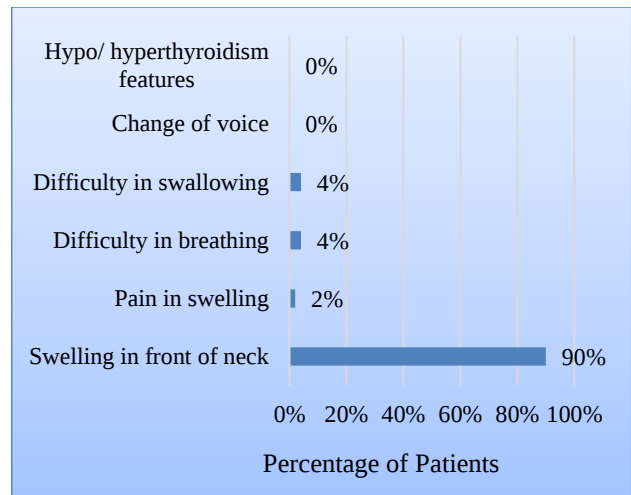


Figure 1: Presenting complaints of patients.

Routine thyroid function test (TFT) was done in all patients, and all were found to be in the euthyroid state. Fine needle aspiration cytology (FNAC) showed 42 (84%) cases of colloid goitre and 7 (14%) showed papillary carcinoma followed by follicular neoplasm 1(2%) (Figure 2).

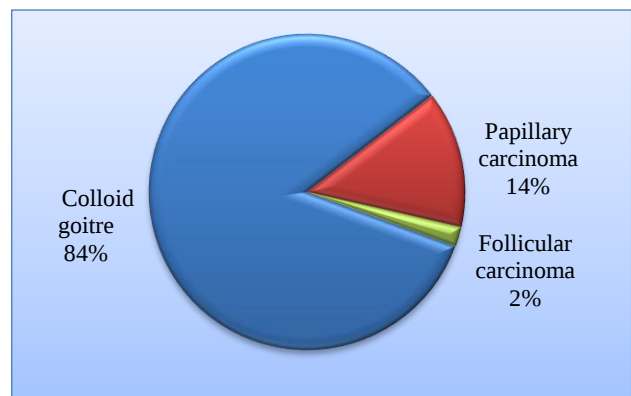


Figure 2: Classification of FNAC lesions.

The most common surgical procedure was hemithyroidectomy which accounts for 36(72%) (Figure 3).

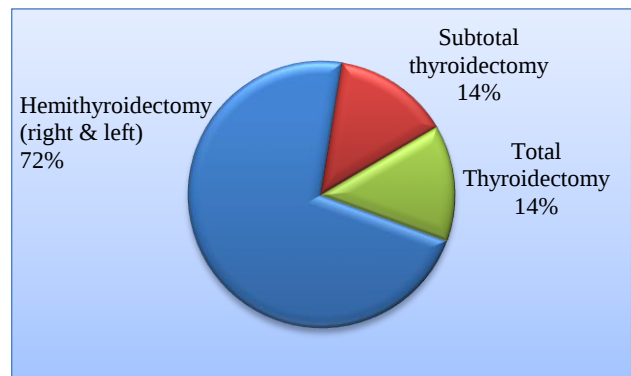


Figure 3: Types of Surgeries performed.

Histopathological diagnosis of solitary thyroid nodule of patients showed that 42 patients had the colloid nodular goitre on histopathological examination. When FNAC reports of 8 patients with thyroid carcinoma are checked with the histopathological examination, it was found that 6 out of 8 cases had a correct preoperative diagnosis and 1 case was suspicious, and 1 case was reported benign. Finally, the diagnosis provided by histopathological examination (biopsy) and fine needle aspiration cytology (FNAC) was correlated. Specificity, sensitivity of fine needle aspiration cytology (FNAC) was 100%, 87.5% respectively. Most of the solitary nodules in this study were benign, and 12% were malignant in this study.

DISCUSSION

Thyroid enlargement, whether diffuse or nodular leads to a battery of investigations, mainly to rule out the possibility of a neoplastic or nonneoplastic lesions. Timely intervention in nodular lesions of thyroid can significantly reduce morbidity and mortality.³ In the present study, the highest incidence of solitary thyroid nodule was found in the age group of 21-30 years. This result is comparable to the results obtained by Venkatachalapathy TS et al.⁴ The observed female to male ratio was 11.5:1. This female preponderance is reflected in all studies including the present. A similar observation was made by Vyas CS et al on 100 patients with thyroid nodule where the ratio was 7:1.⁵ In this study, all patients (100%) had swelling over the anterior aspect of the neck. A similar observation was done by Huque SMN et al on 118 patients with solitary thyroid nodules and found that thyroid swelling was the most common presentation in all cases (100%).⁶ After swelling, other complaints were dyspnea (2%), dysphagia (2%), pain over the swelling (1%). Dyspnea, dysphagia is the pressure symptoms, usually present in malignancy but it may be found in the very large nodule. Pain associated with nodule indicates hemorrhage into an adenoma. This is in accordance with Al Mamun A et al, where some patients also presented with symptoms like cervical lymphadenopathy in 6 (5.08%) cases, and dysphagia in 2 (1.69%) cases.⁷

Routine thyroid profiles were done in each patient to find out the functional status of the thyroid. In this study, all cases were in the euthyroid state. Majority of fine needle aspiration cytology (FNAC) showed colloid goitre (84%), 14% showed papillary carcinoma followed by follicular neoplasm (2%). The main benign lesion in this study was colloid goitre followed by papillary carcinoma. Fine needle aspiration cytology (FNAC) findings of the benign lesions of this study were comparable with the study by Gupta M et al, on 75 patients where results revealed 39 (52%) cases as colloid nodular goitre, 12 (16%) as the follicular neoplasm.⁸ In this study, the most common procedure was hemithyroidectomy (72%) which is almost consistent with the observation of Satihal SN et al, where hemithyroidectomy (84%) was the commonest procedure followed by total thyroidectomy (16%).⁹

Similar comparable observations were done by Priyadarshi N et al on surgical management of solitary thyroid nodule.¹⁰ Histopathological findings of the lesions of this study were compared with Chetan RV et al and the results displayed that there is a higher incidence of colloid goitre (43.8%) among all the 73 solitary nodules of thyroid cases.¹¹ In present study of 50 patients, 42 patients had colloid nodule on FNAC, out of which 42 was colloid on histopathological examination, when FNAC reports of 8 patients with thyroid carcinoma are checked with histopathological examination, it was found that 6 out of 8 cases had a correct preoperative diagnosis and 1 case was suspicious, and 1 case was reported benign.

Specificity and sensitivity in this series were 100% and 87.5% respectively which can be compared with findings with Satihal SN et al, where specificity and sensitivity were 100% and 95% respectively.⁹ In this study incidence of malignancy was found to be 16% which is almost comparable with Khairy GA et al on his study on 172 patients with solitary thyroid nodule where the incidence of malignancy was 10%.¹²

CONCLUSION

The majority of the solitary nodule of the thyroid was found to be benign, and this illustrates that hemithyroidectomy is the preferred surgery unless malignancy is suspected by fine needle aspiration cytology.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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