

## Original Article



# Clinico Pathological Study of Solitary Thyroid Nodule- A Prospective study of 50 cases

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### Abstract

**Background:** Common Presentation of thyroid disorder is solitary nodule. A discrete swelling in an impalpable gland is termed as solitary nodule of thyroid. The majority of solitary thyroid nodule are benign. The incidence of malignancy is more common in female with mean age 35 years. Timely intervention in nodular lesion of thyroid can significantly reduce morbidity and mortality.

**Objectives:** The objectives of this study was to evaluate the clinicopathological aspects of solitary thyroid nodule.

**Materials and Methods:** This study was conducted in the department of otolaryngology and general surgery of Shaheed Monsur Ali Medical College and Hospital in 50 patients with Solitary Thyroid Nodule from July 2016 to July 2019. All the patients those who were diagnosed solitary thyroid nodule underwent thyroid surgery after through clinical evaluation, USG and FNAC. The histopathological reports were evaluated and correlated with clinical diagnosis and discussed.

**Results:** Out of 50 patients' majority were female only 8 were male patients. Peak incidence observed in the age group 30 to 40 years. Most of the patients presented with a swelling in front of neck 100% followed by pain 8%, dysphagia 4% and change of voice 4%. Swelling is located in the right lobe 70% followed by left lobe 26%. On Fine Needle Aspiration Cytology (FNAC) examination they were presented with colloid nodular goitre 66%, follicular neoplasm 14%, thyroiditis 8%, papillary carcinoma 4% & cystic lesions 8%. But final histopathological report showed highest 30 (60%) cases was nodular goiter then follicular adenoma 10 (20%) and 6 (12%) were malignant.

**Conclusion:** From this study we considered that Solitary thyroid nodule (STN) is present most commonly in female. Most of them are benign, but remarkable proportion 12% of solitary thyroid nodule were malignant, so careful assessment of thyroid nodule is important for early diagnosis and treatment.

**Key words:** Solitary Thyroid Nodule, Papillary Carcinoma, Follicular Adenoma, Discrete Swelling.

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### Introduction

Thyroid swellings are common clinical problem throughout the world. Thyroid nodules are also common in clinical practice. There may be solitary with in normal thyroid gland or dominant with in a multinodular goitre.<sup>1</sup>

Solitary thyroid nodule may be defined as "A thyroid swelling which on clinical examination appears to be a single palpable nodule in an otherwise normal gland".<sup>2</sup> About 70% of discrete swelling are clinically isolated and 30% are dominant.<sup>3</sup> The importance of solitary thyroid nodule lies in the significant risk of malignancy compared with other thyroid swelling. So proper diagnosis and appropriate treatment of thyroid nodule are mandatory.<sup>4</sup> Solitary palpable nodule are four times more prevalent in women than in men. A thyroid nodule larger than 1 cm in

diameter is usually palpable. It has been estimated that when examined by ultrasound as many as 50-70% of subject with no history of thyroid disease, have been found to have incidentally discovered thyroid nodules many of which are not palpable.<sup>5</sup> FNAC is highly sensitive for diagnosis in most cases and play a crucial role in the selection of patient for operation. It is simple, quick to perform, readily repeated and excellent patient compliance.<sup>4</sup> Now a day it is the first line screening in diagnosis of thyroid diseases.<sup>6</sup>

Presenting complaints are swelling in front of neck, dysphagia, dyspnea, hoarseness of voice.<sup>3</sup> A firm to hard, painful, rapidly growing nodule fixed to the surrounding structure and associated with lymphadenopathy are suggestive of malignancy.<sup>7</sup>

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A significant proportion of solitary thyroid nodule may turn into malignancy which demand significant medical attention.<sup>8,9</sup> Treatment options depend on type of thyroid nodule. This study was conducted to find out various factors affecting solitary thyroid nodule like age, sex, clinical parameters etc. and to know about correlation of FNAC and histopathology in diagnosing them and also to determine the frequency of malignancy in solitary thyroid nodule which emphasis on early diagnosis and adequate treatment.

**Material and Methods**

The study was conducted in the department of ENT–Head & Neck surgery of Shaheed Monsur Ali Medical College Hospital, Uttara, Dhaka, during the period of July 2016 to July 2019. Total 50 cases of solitary thyroid nodules were analyzed. The diagnosis of solitary thyroid nodules was based on detail history, clinical examination and relevant investigations such as thyroid function tests (serum T3, serum T4 & serum TSH level), ultrasonogram, isotope scanning and fine needle aspiration cytology(FNAC). Indirect laryngoscopic examination or video laryngoscopic examination done before and after surgery. All patient was operated and the specimen sent for histopathological examination.

1. Patient presenting with solitary thyroid nodule based on USG and clinical evaluation.
2. Solitary thyroid nodule is a single swelling involving either lobe or isthmus of the thyroid gland.

1. Patients presenting with multinodular goiter or diffuse colloid goiter.
2. Patients not willing for surgery

This study was approved by ethical committee of the hospital. A valid written consent was taken from patients after explaining about the study and operative procedure. Data regarding age, sex, detailed history was collected with pretested questionnaire. Through clinical examination and all routine investigations was carried out. Medical therapy was started in patients presenting with hypo or hyperthyroidism.

**Results**

In this study age of patient ranged from 10 years-60 years. But most of the patient were aged between 3rd and 4th decade. Out of 50 cases 42 patients (84%) were female and 8 patients (16%) were male. Female to male ratio 5.25:1. Minimum age of the subject was 10 years and maximum age was 60 years (table I). ( Figure 2) Location of swelling right lobe 70% Left lobe 26% and isthmus 4%. All the patient present with visible or palpable swelling in front of neck (100%). Among them 8% patients present with cervical lymphadenopathy, 8% patient present with pain, and 4% presented with hoarseness voice and dysphagia (table II). Most of the nodule 80% were firm in consistency, 12% were hard & 8% were cystic (table III). FNAC is the most important step in the workup of thyroid nodule and it was done in all patient 100%. It showed 33 patients (66%) were colloid nodular goitre followed by follicular neoplasm 7 patient (14%) and

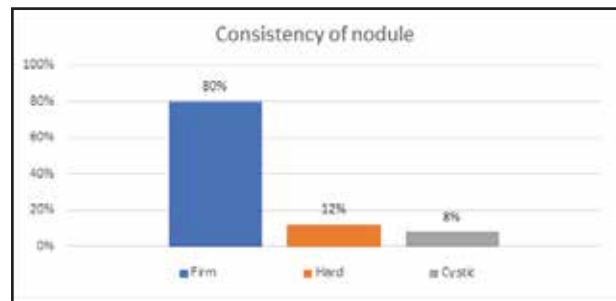
thyroiditis 4 patient (8%). Final diagnosis was confirmed by histopathological report. Most of the patient were diagnosed colloid nodular goiter 27 (54%), then follicular adenoma 10 (20%). In this study 88% thyroid nodule were benign and 12% were malignant (Table IV).

**Table I:** Distribution of patient according to age and sex.

Age	Male	Female	Total	Percentage
<20 years	0	2	2	4%
21- 30 years	3	15	18	36%
31- 40 years	2	18	20	40%
41-50 years	2	4	6	12%
51 -60 years	1	3	4	8%
Total	8	42	50	100%

**Table II:** Presenting Symptoms (n=50)

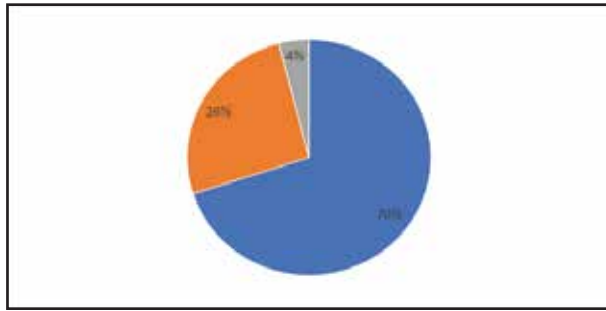
Symptom	No of patient	Percentage
Swelling in front of neck	50	100%
Pain	4	8%
Cervical lymphadenopathy	4	8%
Hoarseness of voice	2	4%
Dysphagia	2	4%
Dyspnoea	1	2%



**Figure 1:** Consistency of nodule (n=50)

**Table III:** FNAC findings (n=50)

Diagnosis	No of patient	Percentage
Colloid nodular goitre	33	66%
Follicular neoplasm	7	14%
Thyroiditis	4	8%
Cystic Degeneration	4	8%
Papillary carcinoma	2	4%



**Figure 2:** Location of swelling (n=50)

**Table V:** Histopathological report of this study.

Diagnosis	No of patients	Percentage
Nodular colloid goitre	27	54%
Multinodular goitre	3	6%
Follicular adenoma	10	20%
Thyroiditis	4	8%
Papillary carcinoma	4	8%
Follicular carcinoma	2	4%
Total	50	100%

## Discussion

Thyroid swelling is common clinical problem in our country.<sup>8</sup> Thyroid nodule are 3 to 4 times more frequent in women than men. The majority of the patient were from 31 to 40 years of age group 40%, followed by 21 to 30 years' age group 36% this result is comparable with the result obtained.<sup>1,2</sup> In this series out of 50 patient males were 8 (16%) female 42 (84%), male female ratio was 1:5.25 this ratio was 1:5 by Rahman MJ.<sup>10</sup> Female preponderance is reflected in all studies including the present.

All solitary nodule is not a single clinical entity, so it is very difficult to comments regarding the nature of solitary nodule on clinical ground. But hoarseness of voice, hard irregular nodule, palpable cervicle lymph nodes, extreme age, male sex is always suspicious for malignancy in STN.<sup>5,11</sup> Most common symptoms among all patient was swelling in front of the neck 100%, followed by cervicle lymphadenopathy & pain 8% similar observation was done S M Nazmul Huque et al.<sup>7,12,13</sup> In our study other symptom like dysphagia 4%, hoarseness of voice 4%, dyspnea 2% this finding was similar to Abdullah Al Mamun et al.<sup>14</sup> In this study 40 nodule were firm in consistency and 6 were hard and 4 were cystic out of 50 STN. Among 6 hard nodules 04 were diagnosed as malignancy and 2 were multinodular goitre. So hardness is not conclusive but are important indication for malignancy.<sup>4,15</sup> All the patient of this study have thyroid hormone profile and show value within normal limit. Ultrasonography is needed to established physical characteristics and to exclude clinically undetectable nodule of a dominant

nodular goitre. FNAC is very important, highly specific, most sensitive and minimally invasive diagnostic tool.<sup>8</sup> In our study FNAC of STN we found colloid nodule 66% and colloid degeneration 8% and follicular neoplasm 14%. Similar results were observed in Abhijit S, Ruyte et al.<sup>2</sup> FNAC diagnosis of this series was supported by post-operative histopathological report. Final diagnosis in this study was on the basis of histopathological confirmation. Out of 50 cases most common diagnosis colloid nodular goitre 30(60%), follicular adenoma 10 (20%), thyroiditis found in 4 patients (8%), papillary carcinoma 4 (8%) and follicular carcinoma 2 (4%). It was almost similar to study of the Abul Hasan at al.<sup>1,16</sup> In this series frequency of malignancies 6 (12%) and multinodular goitre was 3 (6%) which is also similar to study of M. Abul hossain et al.<sup>1,10</sup>

As this study had been carried out over a limited period of time with limited number of patients all the facts and figures mentioned here may considerably vary from those of large series covering wide range of time but still then as the case of this study were collected from tertiary level of hospital in our country. this study had some credentials in reflecting the facts of solitary thyroid nodule.

## Conclusion

Solitary thyroid nodules are more common in females but more worrisome in males due to the increase incidence of malignancy. FNAC is a very useful procedure for preoperative assessment of solitary thyroid nodule, but malignancy can be still come as a surprise in post-operative histopathological examination. Combined opinion on the nature of the thyroid nodule should be done based on history, clinical examination, ultrasound feature and FNAC. Definitive diagnosis is possible only with excision and post-operative histopathological examination of the nodule. It is concluded that as significant proportion of solitary cold nodules was malignant, so it is essential to emphasizes on the early diagnosis and adequate treatment

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