

# A Study of Incidence of Malignancy in Solitary Nodule of Thyroid in a Tertiary Care Centre

Dr. G. Sagar Reddy<sup>1</sup> Dr. Bharath B<sup>2</sup>

<sup>1</sup>Resident, Department of General Surgery, PES Institute of Medical Sciences and Research, Kuppam, Andhra Pradesh, India

<sup>2</sup>Assistant Professor, Department of General Surgery, PES Institute of Medical Sciences and Research, Kuppam, Andhra Pradesh, India

**Abstract:** ***Introduction:** A discrete swelling in an otherwise impalpable thyroid gland is termed as solitary nodule of thyroid<sup>4</sup>. Solitary nodule of thyroid has increased in incidence in the present day as compared to two decades before. Because of increased preponderance of malignancy, they should be evaluated with necessary investigations and treated appropriately. **Aim:** The aim of the study to determine the incidence of solitary nodule thyroid in relation to age and sex and to determine the incidence of solitary nodule of thyroid turning out to be malignancy. **Materials and Methods:** Data collection by meticulous history taking and clinical examination, appropriate laboratory and radiological investigations, operative findings, histopathological report, and follow-up of cases. **Results:** About, 32 cases with solitary thyroid nodules were studied. Incidence of solitary nodule were observed most in 3rd to 5th decade, constituting 53% of the cases studied. 70.3% of cases presented with euthyroid state. Incidence of malignancy in solitary thyroid nodule was 12.5%. **Conclusion:** Solitary nodule of thyroid is more common in 3rd to 5th decades. Solitary nodules of thyroid are more common in females. Most of the patients presenting with solitary nodule of thyroid are euthyroid and only a small percentage of patient with toxicity or hypothyroidism ultrasonography can be accurately used to detect patients with MNG who clinically present as solitary nodule of thyroid.*

**Keywords:** Euthyroid, Malignancy, Solitary nodule.

## 1. Introduction

Thyroid nodules are a common clinical problem. Clinically palpable nodules are encountered in about 8% of the adult population<sup>7</sup>. With the use of imaging techniques, particularly ultrasound, the chance of detection of thyroid nodules has increased significantly.

Incidence of thyroid nodules is more common in females as compared to males. Thyroid cancers occur in approximately 5% of all thyroid nodules independent of their size<sup>8</sup>.

Solitary nodules of thyroid are about four times more common in women. Overall incidence of malignancy<sup>11</sup> in Solitary nodules of thyroid ranges from 10% to 30%. Thyroid nodule is a palpably or radiologically distinct lesion from the surrounding thyroid parenchyma.

There is a high risk of malignancy in Solitary nodules of thyroid than in multinodular goitre. Because of this reason, solitary thyroid nodules have to be treated with high degree of suspicion and plan treatment in a systematic manner.

The preoperative evaluation of thyroid nodules to distinguish between benign and malignant nodules is very important. Radionuclide imaging has been the mainstay in the evaluation of Solitary nodules of thyroid since 1939 when Hamilton and Soley demonstrated that malignant thyroid tissue concentrates less radioactive iodine than normal thyroid tissue.

Thyroid nodules are further classified into cold, warm, and hot according to their ability to accumulate the radioactive isotope. Cold nodules are considered hypofunctional, whereas warm nodules are normal and hot nodules are hyperfunctional.

Thyroid fine-needle aspiration (FNA) biopsy is the most accurate test for determining malignancy. Results are

superior when FNA is performed with ultrasound-guidance FNA.

## 2. Methods

A prospective study had been carried out from January 2018 to October 2018, in the Department of General surgery, PES Institute Of Medical Sciences & Research, kuppam, Andhra pradesh, India. 32 patients, who presented with solitary thyroid nodule and underwent surgery were selected and included in this study.

### **Inclusion criteria:**

- Patients with solitary thyroid swelling,
- Patients between 10 to 60years of age, both male and female patients.

### **Exclusion criteria:**

- a) Patients with thyroid swellings other than solitary nodules clinically and surgically proved multinodular goiter.
- b) Age below 10 years,
- c) Pregnant females,
- d) Patients unfit for surgery under anaesthesia,
- e) Patients unwilling for the interventions.
  - Patients included in the study were asked about history related to the thyroid swelling and relevant questions.
  - Present, past and family history of thyroid, and other relevant histories were asked.
  - Detailed General physical, clinical examination and thyroid swelling examination was 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- antero-posterior and lateral views, ultrasound neck, chest X-ray and indirect laryngoscopy were done.

Volume 9 Issue 1, January 2020

[www.ijsr.net](http://www.ijsr.net)

Licensed Under Creative Commons Attribution CC BY

- In patients presenting with hypo or hyperthyroidism, medical therapy was planned to attain euthyroid state.
- Patients underwent surgery and the histopathological reports were evaluated and correlated with clinical diagnosis by standard statistical methods.

### 3. Results

This study includes 32 cases of solitary thyroid nodules. Various factors regarding clinical presentation, findings of various investigations, operative treatment and histopathological characteristics had been analyzed.

**Age distribution:** Mean age of presentation was 32.65 years. Minimum age was 17years and maximum age was 60years.

**Table 1:** Age Distribution

Age	Number of Patients	Percentage
< 25 years	2	6.49%
25-40 years	13	40.26%
>40_Years	17	53.25%

**Sex distribution:** Female preponderance was more than male, and the incidence of malignancy in solitary thyroid nodule was more in females.

**Table 2:** Sex Distribution

Sex	Number of Patients	Percentage
Male	2	6.25%
Female	30	93.75%

**Thyroid gland Functional Status:** Most of the patients presented with euthyroid status.

**Table 3:** Thyroid Gland Functional Status

Thyroid Gland Functional Status	Number of Patients	Percentage
Hypothyroid	4	12.5%
Euthyroid	22	68.75%
Hyperthyroid	6	19.2%

### FNAC Diagnosis

**Table 4:** FNAC diagnosis

FNAC Diagnosis	Number of Patients	Percentage
Benign	27	84.4%
Suspicious of malignancy	3	10.3%
Suspicious of follicular Neoplasm	2	6.25%

### Histopathological Examination

**Table 5:** Histopathological examination

Histopathological Examination	Number of Patients	Percentage
Colloid goitre	22	68.75%
Lymphocytic thyroiditis	6	18.75%
Papillary carcinoma	3	9.37%
Follicular carcinoma	1	3.13%
Anaplastic carcinoma	0	0%

### 4. Discussion

The observations and results of the present study were compared with the available previous similar studies.

### Comparison of age distribution:

- In the study done by Quari et al<sup>2</sup> and Talepoor *et al*<sup>1</sup>. separately in 2005, reported the mean age at presentation as 36.7 years and 38.6 years, respectively.
- Anwar *et al*<sup>4</sup>. reported in 2012, the mean age of presentation as 37 years.
- From the present study, the mean age at presentation found to be 37.27 years, correlates with the previous.

**Table 6:** Comparison of age

Authors	Mean age of presentation
Das et al <sup>5</sup>	35
Talepoor et al <sup>1</sup>	38.6
Palani et al <sup>13</sup>	35.6
Present study	32.6

**Table 7:** Comparison of FNAC reports

Authors	Percentage of Malignancy
Sarda et al <sup>7</sup>	10.8%
Fernando et al <sup>14</sup>	7.27%
Present study	12.5%

**Table 8:** Comparison of Histopathology reports

	Khadikar et al <sup>16</sup>	Dhanaram et al <sup>15</sup>	Present study
Benign	79%	97.2%	87.5%
Malignant	21%	2.77%	12.5%

- The major concern in such patients is the potentiality of a thyroid nodule to malignancy. The incidence of thyroid malignancy in patients with a palpable nodule ranges from 11% to 20%, while according to some authors, even up to 50%.
- In the present study incidence of malignancy in patients with solitary nodule of thyroid was reported as 12.5%.

### 5. Conclusion

- Incidence of malignancy of solitary nodule is about 12%.
- The peak age at presentation of solitary nodule thyroid is 3rd to 5th decade, constituting about 60% of the cases.
- Solitary nodule is more common in females.
- The most common malignancy in solitary nodule thyroid is papillary carcinoma.

**Funding:** None

**Conflict of interest:** None

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

### References

- [1] Talepoor M, Karbanksh M, Mirzali FA. Management of Solitary Thyroid Nodules: The Dilemma of Multinodular Goiter as False-Positive Cases. *Medicine On-Line*; 2005, January. Available from: <http://www.priory.com/med/thyroidnodule.htm>. [Last accessed on 2017 Jul 03].
- [2] Quari F. Unnecessary Tests and Delay in the Diagnosis of Solitary Thyroid Nodules at the University Hospital. *April*; 2005. Available

- from:[http://www.bhj.org/journal/april2005/htm/original\\_unnecessary\\_138.htm](http://www.bhj.org/journal/april2005/htm/original_unnecessary_138.htm). [Last accessed on 2017 Jul 03].
- [3] Rehman AU, Lodhi S, Anwar M. Histopathological evaluation of 432 cases of goitre. *Annals* 2009;15:54-6.
- [4] Anwar K, Din G, Zada B, Shahabi I. Single center study. *J Postgrad Med Inst* 2012;26(1):96-101.
- [5] Das DK, Khanna CM, Tripathi RP, Pant CS, Mandal AK, Chandra S, *et al*. Solitary nodular goiter. Review of cytomorphologic features in 441 cases. *Acta Cytol* 1999;43:563-74.
- [6] Gupta C, Sharma VK, Agarwal AK, Bisht D. Fine needle aspiration cytology of solitary nodule of thyroid and its histopathological correlation. *J Cytol* 2001;18(3):151-6.
- [7] Sarda AK, Gupta A, Jain PK, Prasad S. Management options for solitary thyroid nodules in an endemic goitrous area. *Postgrad Med J* 1997;73:560-4.
- [8] Harrison BJ, Maddox PR, Smith DM. Disorders of thyroid gland. In: Cuschieri A, Steele RJ, Moossa AR, editors. *Essential Surgical Practice*. 4th ed. London: Arnold; 2002. p. 95-110.
- [9] Davies L, Welch HG. Increasing incidence of thyroid cancer in the United States, 1973-2002. *JAMA*. 2006 May 10;295(18):2164-7.
- [10] Lundgren CI, Stalberg P, Grodski S, Sidhu S, Sywak M, Delbridge L. Minimally invasive thyroid surgery for diagnostic excision of solitary thyroid nodules. *Asian J Surg*. 2007 Oct 1;30(4):250-4.
- [11] Tai JD, Yang JL, Wu SC, Wang BW, Chang CJ. Risk factors for malignancy in patients with solitary thyroid nodules and their impact on the management. *J Cancer Res Therapeut*. 2012;8(3):379-83.
- [12] Yeung MJ, Serpell JW. Management of the solitary thyroid nodule. *Oncologist*. 2008 Feb 1;13(2):105-12.
- [13] Palani V, Reshma s. *Int Surg J*. 2019 Jan;6(1):293-295 <http://www.ijurgery.com>
- [14] Fernando JR, Raj SEK, Kumar AM, Anandan H. Clinical Study of Incidence of Malignancy in Solitary Nodule of Thyroid. *Int J Sci Stud* 2017;5(4):232-236.
- [15] Dhanaram et al, a clinicopathological study of solitary nodule of thyroid. *int surg j*. 2017;4(7):2288-2290.
- [16] Khadilkar U N, Maji P. Histopathological study of solitary nodule thyroid. *Kathmandu Medical University Journal* 2008 Oct-Dec; vol 6(24):page no:486-490.