International Surgery Journal
Palani V et al. Int Surg J. 2019 Jan;6(1):293-295
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20185490

Original Research Article

A clinical study of incidence of malignancy in solitary thyroid nodule in a tertiary care hospital

Palani V., Reshma S.*

Department of General Surgery, ACS Medical College, Chennai, Tamil Nadu, India

Received: 11 November 2018
Accepted: 11 December 2018

***Correspondence:**
Dr. Reshma S.,
E-mail: surgeonreshma@gmail.com

ABSTRACT

Background: Thyroid nodules are common endocrine problem. A discrete swelling in an otherwise impalpable gland is termed as solitary nodule of thyroid. Solitary nodules have a high likelihood of being malignant. They should be characterized properly for optimum management. Aim of the study is to identify the incidence of malignancy in solitary nodule thyroid.
Methods: A prospective study had been carried out from January 2018 to October 2018, in the Department of General surgery, ACS Medical College and Hospital, Chennai, India. Fifty patients, who presented with solitary thyroid swelling were examined clinically and confirmed after taking a detailed history and underwent thyroid surgery were included in this study. The histopathological reports were evaluated by standard statistical methods.
Results: There were 50 cases of clinically detected solitary thyroid nodule with female preponderance more than males. The mean age of the incidence of solitary thyroid nodule is 35years. The incidence of malignancy in solitary thyroid nodule is 20%.
Conclusions: It is concluded from the present study that 20% of solitary thyroid nodules are malignant, with female preponderance and a mean age of solitary thyroid nodule is 35years.

Keywords: Age, Incidence, Malignancy, Sex, Solitary thyroid nodule

INTRODUCTION

Thyroid nodules are a common clinical problem. Clinically palpable nodules are encountered in about 8% of the adult population. With the use of imaging techniques, particularly ultrasound, the chance of detection of thyroid nodules has increased many folds.[1-6] Thyroid nodule is a palpably or radiologically distinct lesion from the surrounding thyroid parenchyma. They are more common in females as compared to males. Thyroid cancers occur in approximately 5% of all thyroid nodules independent of their size. The recent data suggest that the incidence of thyroid malignancy is increasing over the years. The occurrence of malignancy is more in solitary thyroid nodules compared to multinodular goiter.[7,8] 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. It helps to avoid unnecessary extensive surgery and potential surgery related adverse effects, such as hypothyroidism, hypocalcemia, and recurrent laryngeal nerve injury. The aim of the present study was to evaluate the incidence of malignancy in clinically detected Solitary thyroid nodule and to determine the incidence of solitary nodule of thyroid in relation to age and gender.

METHODS

A prospective study had been carried out from January 2018 to October 2018, in the Department of General surgery, ACS Medical College and Hospital, Chennai, India. Fifty 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

- Patients with thyroid swellings other than solitary nodules clinically and surgically proved multinodular goiter,
- Thyroiditis cases,
- Age below 10 years,
- Pregnant females,
- Those with history of radiation exposure to neck,
- Those patients with family history of thyroid cancers,
- Patients unfit for surgery under anaesthesia,
- 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 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. In patients presenting with hypo or hyperthyroidism, medical therapy was planned to attain euthyroid state. For the purpose of 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, operative treatment and histopathological characteristics had been analyzed. Mean age was 35years. Minimum age was 10years and maximum age was 60years. Female preponderance was more than male (Table 1), and the incidence of malignancy in solitary thyroid nodule was more in females. After the final histopathology, colloid goiters were observed in 17 patients, followed by Nodular goiter in 13 patients. There were 10 patients who had Follicular adenoma. Of the 50 specimens examined, 9 were papillary carcinomas, 1 were follicular carcinomas (Table 2). The incidence of malignancy in the present series is 20%. In the present series, papillary carcinoma is the commonest malignancy of Solitary Thyroid nodule 9 (90%) of the total of 10 malignancies. The mean age of the incidence of solitary thyroid nodule is 35 years. All patients (100%) had swelling over the anterior aspect of neck, therefore presented with swelling as chief complaint. Routine thyroid function test (TFT) was done in all patients and all were found to be in euthyroid state.

Table 1: Distribution of age and sex in the incidence of solitary thyroid nodule.

Age distribution	Males	Females
10-19	-	3
20-29	2	5
30-39	1	18
40-49	1	10
50-60	2	8
Total	6	44

Table 2: Results of histopathology of the biopsies in solitary thyroid nodule (n=50).

Histopathologic diagnosis	Number of patients	%
Benign lesions	-	
Colloid goitre	17	34
Nodular goitre	13	26
Follicular adenoma	10	20
Malignant lesions		
Papillary CA	9	18
Follicular CA	1	2

DISCUSSION

The solitary thyroid nodule is rather a common disease having an incidence of 4-7% reported in the general population and mostly benign.[9,10] 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%. However, Stoffer et al, reported that 13.8% of glands resected in thyroid operation for any reason contained carcinoma. Many surgeons would advise routine surgical resection for every solitary thyroid nodule. Such a policy resulted in many patients undergoing unnecessary operations for what was subsequently shown to be benign thyroid disease. It is therefore logical to propose a more selective surgical policy for patients with solitary thyroid nodules. At present, fine needle aspiration cytology (FNAC) is the most reliable and widely used diagnostic tool in the clinical work up of solitary thyroid nodules. In this study, the accuracy of FNAC is 98.1%. In 1964 Veith FJ, Brooks JR, Grigsby WP, et al: reported a series of 299 patients who were found to have single thyroid nodules at

the time of surgery, there was a 5:1 female to male ratio. The great majority of which were papillary adenocarcinoma. In another study by Dr Aimal Munir Tarrar et al, from April 2002 to April 2003, 60 patients with clinical solitary thyroid nodule were included. Maximum malignant cases were (50%). Papillary CA was the common malignancy (50%). Khairy GA, studied on the surgical and histological data of 172 patients with solitary thyroid nodules who underwent surgery were reviewed.[11] Thirteen-point nine percent (13.9%) of patients were found to have malignancy; most of them were papillary type. In the present series, after final histopathology, papillary carcinomas were frequent 9 of 10, and the remaining 1 were follicular carcinoma. The highest numbers of thyroid nodules were seen in the age group of 30-40years, the mean age of patients was 35 years. The youngest patient was of 11years. The age distribution pattern is important as the incidence of malignancy in solitary nodule thyroid is high at both extremes of age. Hence the nodules occurring in patients younger than 20 years and older than 50 years have to be considered malignant until proven otherwise. In 1975 Gogas JG, Skalheas GD, in their study on 1300 thyroidectomies of which 70 had carcinoma. The incidence of malignancy in solitary nodule was 9.7% the risk of malignancy was higher in males (9.2%) than in females (4.3%). Hossain MA et al, observed that male to female ratio was 1:7 and the highest number of patients with thyroid nodule were found in age group 31-40years.[12] The relative frequency of malignancy in solitary thyroid nodule was 28%. Akhtar N et al, in their study noted that majority of the patients i.e. 53 (42.7%) were between 31-40years.[13] Malignancy in solitary thyroid nodule shows 19 (15.3%). Babu R et al, in 2015 studied on malignant incidence in solitary nodule thyroid.[14] The female-male ratio is 8:1. The peak age incidence is in 21-30yrs of age group. The incidence of malignancy being 10.83%.

CONCLUSION

It is concluded from the present study that 20% of solitary thyroid nodules are malignant, with female preponderance and a mean age of solitary thyroid nodule is 35 years.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. 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 Therpeut. 2012;8(3):379-83.
2. Hegedüs L. The thyroid nodule. New Eng J Med. 2004 Oct 21;351(17):1764-71.
3. Yeung MJ, Serpell JW. Management of the solitary thyroid nodule. Oncologist. 2008 Feb 1;13(2):105-12.
4. Usha VM, Sundaram KR, Unnikrishnan AG, Jayakumar RV, Nair V, Kumar H. High prevalence of undetected thyroid disorders in an iodine sufficient adult south Indian population. Journal of the Indian Med Assoc. 2009 Feb;107(2):72-7.
5. Unnikrishnan AG, Kalra S, Baruah M, Nair G, Nair V, Bantwal G, et al. Endocrine Society of India management guidelines for patients with thyroid nodules: a position statement. Indian J Endocrinol Metabolism. 2011 Jan;15(1):2.
6. Davies L, Welch HG. Increasing incidence of thyroid cancer in the United States, 1973-2002. JAMA. 2006 May 10;295(18):2164-7.
7. Gupta M, Gupta S, Gupta VB. Correlation of fine needle aspiration cytology with histopathology in the diagnosis of solitary thyroid nodule. J Thyroid Res. 2010;2010:379051.
8. Iqbal M, Mehmood Z, Rasul S, Inamullah H, Shah SS, Bokhari I. Carcinoma thyroid in multi and in inodular goiter. J Coll Physicians Surg Pak. 2010;20:310-2.
9. Aggarwal SK, Jayaram GI, Kakar AR, Goel GD, Prakash RA, Pant CS. Fine needle aspiration cytologic diagnosis of the solitary cold thyroid nodule. Comparison with ultrasonography, radionuclide perfusion study and xeroradiography. Acta Cytologica. 1989;33(1):41-7.
10. Anitha S, Ravimohan TR. A study of incidence of malignancy in solitary nodule of thyroid. J Contemp Med Res. 2016;3(4):993-5.
11. 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.
12. Hossain MA, Sarkar MZ, Dutta UK, Karim MA, Alam MZ. Frequency of Malignancy in solitary Thyroid nodule and Multi-nodular Goitre. Bangladesh J Otorhinolaryngol. 2015 Feb 9;20(2):55-9.
13. Akhtar N, Buzdar MU, Khan MA. Frequency of Malignancy in solitary thyroid nodule. PJMHS. 2015;9(3):983-5.
14. Babu R, Shyamala M, Reddy SK. Malignant incidence in solitary nodule thyroid - a clinical study. IJAR. 2015;5(2).

Cite this article as: Palani V, Reshma S. A clinical study of incidence of malignancy in solitary thyroid nodule in a tertiary care hospital. Int Surg J 2019;6:293-5.