

Original Research Article

A clinicopathological evaluation of solitary nodule in thyroid; a retrospective observational hospital based study

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ABSTRACT

Background: The solitary node in thyroid is a palpably discrete swelling within an apparently normal thyroid gland. It is usually a benign lesion but from clinical standpoint the possibility of neoplastic disease is of major concern for surgeon and patient. AS there is variability in the conclusion of various authors and there is no work about clinicopathology of solitary nodules of thyroid in our region. Present study has been designed to evaluate the epidemiology, fine needle aspiration cytology and incidence of malignancy in solitary nodule.

Methods: As per exclusion and inclusion criteria 80 patients with solitary nodule of thyroid were included in this study. Various data like age, sex, family history, duration of nodule, site and size of nodule were recorded. Thyroid function test, fine needle aspiration cytology and ultrasonographic finding were recorded from case record.

Results: Out of all histopathological finding of nodules follicular adenoma was most common followed by multinodular goitre (25%) and Adenomatous goitre (7.5%). Carcinoma was present in (17.5 %) and thyroiditis is 7.5% patients.

Conclusions: Most of the patients were Euthyroid and benign condition was more common than malignancy. Follicular adenoma was most common among benign lesion and papillary carcinoma was more common neoplasm. Most of the patients required hemithyroidectomy.

Keywords: Clinicopathological, Malignancy, Solitary nodule in thyroid

INTRODUCTION

The solitary node in thyroid is a palpably discrete swelling within an apparently normal thyroid gland. It is usually a benign lesion but from clinical standpoint the possibility of neoplastic disease is of major concern for surgeon and patients.^{1,2} The prevalence of solitary thyroid nodule in Indian population is 12.2% but the incidence of malignancy of thyroid is rare that is 8.7 per 100000 people per year.³ The solitary nodule of thyroid is more common in female and in the region where goitre is

endemic.⁴ Majority of solitary nodule of thyroid are benign but they are more likely to be neoplastic than multiple nodules. Various studies are available regarding clinicopathology of solitary nodules of thyroid but with variable result. Jena et al has concluded that solitary thyroid nodules can harbour a malignancy. Solid echogenicity, micro calcification and cervical lymphadenopathy are associated with malignancy.⁵ Haque et al has concluded that 10% of solitary thyroid nodules was malignant with females preponderance.⁶ Gautam et al has concluded that colloid goiter were most

common finding followed by follicular adenoma, adenomatous goiter and thyroiditis in solitary nodule of thyroid.⁷ Thyroid malignancy was very rare histopathological finding.

So, there is variability in the conclusion of various authors and there is no work about clinicopathology of solitary nodules of thyroid in our region. Present study has been designed to evaluate the epidemiology, fine needle aspiration cytology and incidence of malignancy in solitary nodule.

METHODS

Present study is a record based cross sectional study was carried out in the Department of department of general surgery in Konaseema Institute of Medical Science, Amalapuram – a tertiary care teaching hospital in the south-eastern part of India, in the state of Andhra Pradesh during the period from January 2018 to July 2020. Approval from institutional ethics committee was taken before start of study. As the study involved the retrospective evaluation of existing data waiver of informed consent of the study participants was obtained from Ethics Committee.

Selection of patients

For the present study convenience sampling technique was used to enroll the study participants. All the cases of solitary thyroid nodule during the period of the study were included as per the inclusion and exclusion criteria.

Inclusion criteria

Patients age between 15 to 60 years both sex was included in this study. All the cases of solitary thyroid nodule were included.

Exclusion criteria

Patients with pre-existing malignancy, metabolic disorder like diabetes mellitus and pre-existing thyroid disorders.

Procedure

As per exclusion and inclusion criteria 80 patients with solitary nodule of thyroid were included in this study. Various data like age, sex, family history, duration of nodule, site and size of nodule were recorded. Thyroid function test, fine needle aspiration cytology and ultrasonographic finding were recorded from case record. Various surgical procedures like total thyroidectomy, total thyroidectomy with central neck dissection, total thyroidectomy with selective neck dissection, total thyroidectomy with modified radical neck dissection done for treatment of solitary nodule based on histopathological finding was recorded.

Statistical analysis

Data were recorded in excel sheet and statistical Analysis was done with software SPSS-14 version. Data were calculated as percentage and proportions.

RESULTS

In present case record based retrospective study of clinicopathology of solitary nodule of thyroid we have enrolled eighty patients on the basis of inclusion and exclusion criteria.

Table 1: Demography of patients with solitary nodule of thyroid.

variables		Number	%
Age (years)	Less than 20	4	5
	21 to 40	64	80
	41 to 60	12	15
sex	Male	16	20
	female	64	80
Site	Right	44	55
	left	36	45
size	Less 2cm	12	15
	2 to 4 cm	32	40
	4 to 6 cm	30	37.5
	More than 6cm	6	7.5
Duration of symptoms	6 months	18	22.5
	6 to 12 months	39	48.75
	More than 1 yrs	23	28.75

As per Table 1, it is observed that 80% patients were between 21-40 years of age, 15% patients were between 41-60 years of age. There was female predominance and 80% patients were female. In 55% patients lesion was present in right side and in 45% lesion was in left side. Regarding size of nodule, 15% nodules were less than 2 cm in size, 40% nodule were between 2 to 4 cm in size 30% nodule were between 4to 4 cm in size and 7.5% nodules were above 6 cm in size. Duration of symptom was less than 6 months in 22.5% and 6 month to 12 month in 48.75%. Duration of symptom for more than one year was present in 28.75% patients.

Table 2: Thyroid function test of patients with nodules.

Thyroid function test	Number	%
Euthyroid	72	90
Hypothyroid	6	7.5
Hyperthyroid	2	2.5

As per Table 2 most of the patients were euthyroid (90%). Hypothyroidism was present in 7.5% patients and hyperthyroidism was present in 2.5% patients.

Out of all histopathological finding of nodules follicular adenoma was most common followed by multinodular goitre (25%) and adenomatous goitre (7.5%). Carcinoma was present in (17.5%) and thyroiditis is 7.5% patients (Table 3 and Figure 1).

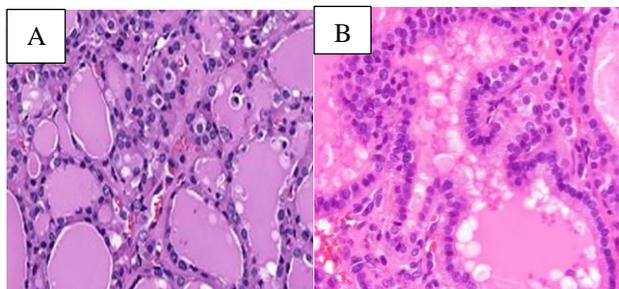


Figure 1: Histopathological finding of nodules follicular adenoma. A) Follicular adenoma, B) Adenomatous goiter.

Table 3: FNAC (histopathology) finding of solitary nodule of thyroid.

FNAC reports	Number	Percentage
Follicular adenoma	32	40
Dominant nodule of multi nodular goitre	20	25
Adenomatous goitre	6	7.5
Carcinoma	14	17.5
Thyroiditis	6	7.5
Simple cyst of thyroid	2	2.5

Out of all neoplastic lesion two types of carcinoma was found in my study, one type was papillary carcinoma (57.24%) that is common and another is follicular carcinoma (42.86%) (Table 4 and Figure 2).

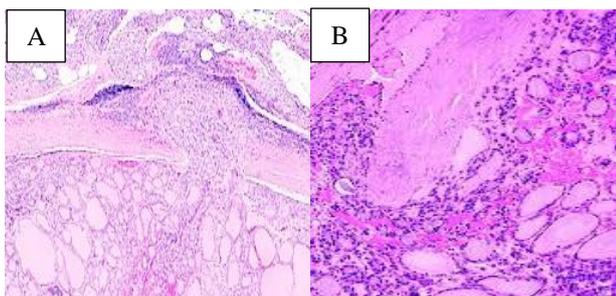


Figure 2: Neoplastic lesion. A) Follicular carcinoma, B) papillary carcinoma or thyroid.

Table 4: Type of malignancy.

	Number (n=14)	Percentage (%)
Medullary	0	0
follicular	6	42.86
papillary	8	57.24
lymphoma	0	0
Anaplastic	0	0

Table 5: Surgery/operative procedure done.

	Number	%
Hemithyroidectomy	46	57.5
Near-total thyroidectomy	4	5
Sub-total thyroidectomy	16	20
Total thyroidectomy	14	17.5

Most of the patients were treated by hemithyroidectomy that is 57.5% which is followed by subtotal thyroidectomy that is 20%. Total thyroidectomy was done in 17.5% (Table 5).

DISCUSSION

In present study we have evaluated clinicopathology of eighty clinically diagnosed solitary nodule of thyroid. We have observed that there was female predominance and was more common in 20 to 40 years of age. Keh et al has reported that Seventy-two per cent of patients were women and the mean age of patients were 52±16 years this finding support our study.⁸ Mohamed et al has reported that most patients were females and mean age was 36.96±11.1 years which corroborates with our finding.⁹ Prevalence of solitary nodule was more in right lobe and most of the nodules were from 2 to 4 cm in size. This finding is similar to the finding of Tan et al and Mohamed et al.^{9,10} Most of the patients were euthyroid but hypothyroidism was more common than hyperthyroidism. This finding corroborates with the study of Mevawalla et al and Gautam et al.^{7,11} Regarding histopathological finding of nodules follicular adenoma was most common followed by multinodular goitre (25%) and adenomatous goitre (7.5%). Carcinoma was present in (17.5%) and thyroiditis is 7.5% patients. Papillary carcinoma was more common than follicular carcinoma. This finding is supported by the work of Al Mamun et al.¹² Lin et al has reported that 23.3% of nodule were malignant and papillary carcinoma was more common which partially support our study.¹³ Khadilkar UN et al has reported that non neoplastic lesions like involuting nodules were common which support our study.¹⁴ Moon HJ et al has reported that 92% of nodules were benign which more than our finding.¹⁵ Basharat et al has concluded that follicular adenoma was most common histopathological finding which support our study and papillary carcinoma was most common neoplasm this finding contradicts our study.¹⁶ In our study hemithyroidectomy was most common surgery performed and sub-total thyroidectomy was next to it, which is depend upon type of lesion this finding is supported by work of Bhama et al.¹⁷

CONCLUSION

From present study we can conclude that solitary nodule is more common in female between 2nd to 4th decade of life and size of nodules was more than 2 cm. Most of the patients were euthyroid and benign condition was more common than malignancy. Follicular adenoma was most

common among benign lesion and papillary carcinoma was more common neoplasm. Most of the patients required hemithyroidectomy.

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Conflict of interest: None declared

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

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