ORIGINAL RESEARCH PAPER

Volume-7 | Issue-5 | May-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A STUDY ON INCIDENCE OF MALIGNANCY IN SOLITARY NODULE THYROID

General Surgery

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ABSTRACT

Background: Thyroid nodules are very frequently found and their prevalence steadily increases with age. They can be either benign or malignant. Solitary thyroid nodules (STN) have a high likelihood of being malignant. They should be characterized properly for optimum management.
Aim: To know the incidence of malignancy in cases of solitary nodule thyroid.
Methods: A total of 100 cases were admitted and studied during period from August 2010 to November 2012 in Sri Venkateswara Medical College, Tirupathi. All patients with STN identified by ultrasonography were included. Pre-operatively, Fine Needle Aspiration Cytology (FNAC) were done and the results were compared post-operatively with histopathology.
Results: Incidence of malignancy in STN was 19%. Incidence of solitary nodule was more common in females (72%) than males (18%) and mean age of presentation was between 20 and 50 years. Incidence of malignancy was more common in males than females.
Conclusion: STN should be investigated thoroughly with a high index of suspicion because there was a high probability (19%) of malignancy.

KEYWORDS

Malignancy, solitary nodule thyroid, incidence.

INTRODUCTION:

Solitary nodule in thyroid has aroused interest of the thyroidologist since the time Warren H.cole (1949)[1] by his study concluded that the incidence of malignancy is higher when compared with that of multinodular goitre. Thyroid nodules are very common entities, though varying in incidence in different geographical regions. The prevalence of palpable nodules in general population was found to be 4-7%.[2] Patients clinically suspected as having solitary nodules have one or more additional nodules in 16-48% of cases as assessed by pre-operative ultrasonography and in 29-48% of cases on careful histological examination.[3,4]

Thyroid nodules are common in clinical practice. There may be solitary within a normal thyroid gland or dominant within a multi-nodular goitre. The incidence of thyroid nodule has been on rise in recent decades mainly due to the wider use of neck imaging.[5] Nodules are usually multiple, forming a multinodular goitre. Occasionally, only one macroscopic nodule is found, but microscopic changes will be present throughout the gland, this is one form of clinically solitary nodule. Nodules appear early in endemic goitre and later (between 20 and 30 years) in sporadic goitre.[6] Nodules in the thyroid gland are important for their malignant potential. It is the highest among the cancer affecting endocrine glands. Cancer of the thyroid gland occurs at earlier ages in most parts of the world. It is commonest between 20 and 40 years of age.[7]

MATERIALS AND METHODS:

A prospective study was conducted where only clinically palpable solitary thyroid nodules were studied. A total of 100 cases were admitted and studied during the period of 2 years from August 2010 to November 2012 in Sri Venkateswara Medical College, Tirupati. Patients less than 10 years of age, pregnant females, patients with history of radiation exposure to neck, and those patients with family history of thyroid cancers were excluded from the study. Although it is said as a clinical study, it has been supplemented with pathological details both by FNAC and tissue biopsy after surgical resection. Ultrasound was performed pre-operatively and results were verified during surgical exploration and pathological study. FNAC results were verified with subsequent histopathological reports. Indirect laryngoscopic examination was done and the surgery was performed in all cases under general anaesthesia.

RESULTS:

A total of 100 patients were studied, out of which 18 were males and 82 were females (Table-1). Nearly one third of the participants were between 30 and 40 years (Table-2). Approximately one third of the patients were above the age of 50 years. All the patients have an obvious neck swelling, while 2% of the patients had pain and dysphagia/dyspnoea respectively(Table-3). Majority (72%) of the patients had a firm neck swelling(Table-4). Most of the patients (88%) do not have the cervical lymph node enlargement (Table-5). Pre-operative FNAC report showed that 61% of the swellings were benign and 17% were malignant (Table-6). Histopathologic examination revealed that, 37% of the swellings were adenomas and 34% as colloid nodule (Table-7).

DISCUSSION:

Most of the participants studied were in the age group between 30 and 40 years. Similar results were observed in the studies conducted at Hyderabad and Dhaka.[8,9] Regarding the gender, present study includes 82 females and 18 males. 21.5% of females and 38.8% of males had cancer thyroid. The most common presentation of STN was as a swelling in the anterior aspect of the neck. Other less common symptoms were pain, dysphagia. Similar findings were recorded in a study conducted in south India.[10] Cervical lymph node enlargement is commonly seen in papillary carcinoma thyroid and anaplastic carcinoma. The present study shows 61% of malignancy with enlarged lymph nodes. While another study revealed that 12.5% of the benign swelling and 29.3% of the malignant swelling has cervical lymphadenopathy.[10]

FNAC is the most reliable and widely used diagnostic tool in clinical work up of STN.[11] In this study, FNAC results were benign in 61%, malignant in 17%, suspicious in 20% and unsatisfactory in 2% of cases. In a study done by Fernando et al., FNAC showed that 64% and 6% of the swelling were of benign and malignant nature respectively.[12] Histopathology examination revealed that 18% of the swellings were malignant. Similar findings were found in a study done by Anitha et al.[8] Whereas in other studies, it was recorded as 15.3%[13], 10.83%[14] and 12%.[12]

FNAC is a sensitive and highly specific method of evaluating thyroid nodules for malignancy. In our series, the analysis of the data revealed the sensitivity 93.3% which is similar to Harun.A. Nggada et al.[15] and D Andrea V et al.[16] 88.9% and 91.6% respectively. In this study, the specificity is 73.5% which is less than the results of Harun.A. Nggada et al.[15] and D Andrea V et al.[16] where it was found to be 96.1% and 94.7% respectively. In another study done at Hyderabad, the accuracy of FNAC is 98.1%.[8]

CONCLUSION:

The present study incidence of malignancy in cases of STN is aimed at analyzing the different treatment modalities in the management of thyroid disorders and to know the incidence of malignancy.

A total of 100 patients examined, investigated and cyto-histological features compared with clinical features.

The following conclusion can be drawn from this study.

1. Incidence of malignancy in STN is 19%,
2. Incidence of STN is more in females than males (72% >18%),
3. Incidence of malignancy in case of STN is 21%, which is more

common in males (38%) than females (19%),
4. The common age of incidence of malignancy in a case of STN is between 20 and 50 years,
5. The most common clinical presentation is swelling in front of neck,
6. Most of the swellings are firm in consistency,
7. Involvement of the cervical lymph nodes is rare,
8. Colloid goitre is the most common type of non-neoplastic disease entity,
9. Follicular adenoma is the most common benign disease,
10. Male sex is a high risk factor, as they constitute 60% malignant swellings when compared to 7.14% of benign swellings,
11. A size of > 4 cm is a risk factor for malignancy.
12. Hardness of the swelling is associated with malignancy, though this is not comparable with other studies (30% in this study compared to 50% in other studies).

Table 1: Gender distribution

Sex	Number of patients	Percentage
Males	18	18%
Females	82	82%

Table 2: Age distribution

Age	Number of patients	Percentage
< 30	21	21%
30-40	29	29%
40-50	18	18%
50-60	17	17%
> 60	15	15%

Table 3: Distribution of clinical manifestations

Clinical manifestation	Number of patients	Percentage
Neck swelling	100	100%
Pain	02	02%
dysphagia / Dyspnoea	02	02%

Table 4: Consistency of swelling

Consistency	Number of patients	Percentage
Firm	72	72%
Hard	18	18%
Cystic	10	10%

Table 5: Cervical lymph node enlargement

	Number of patients	Percentage
Absent	88	88%
Present	12	12%

Table 6: Distribution of pre-operative FNAC report

	Number of patients	Percentage
Benign	61	61%
Malignant	17	17%
Suspicious	20	20%
Unsatisfactory	02	02%

Table 7: Distribution of Histopathology report

	Number of patients	Percentage
Benign		
Colloid nodule	34	34%
Adenoma	37	37%
Cyst	06	06%
Thyroiditis	04	04%
Malignant		
Papillary carcinoma	11	11%
Follicular carcinoma	08	08%

Table 8: Accuracy of FNAC

	Number of patients	Percentage
Benign		
Colloid nodule	34	34%
Adenoma	37	37%
Cyst	06	06%
Thyroiditis	04	04%
Malignant		
Papillary carcinoma	11	11%
Follicular carcinoma	08	08%

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