



The Incidence of malignancy in multinodular goiter:A Prospective study in 60 cases

KEYWORDS

Multinodular goiter ,Incidence, Carcinoma thyroid

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ABSTRACT

Introduction: Multi nodular goiter is probably the most common endocrine problem in the world today generating enormous enthusiasm amongst the medical community of surgeons and physicians. Prevalence of nodular goiters are so common these days (occurring in about 4 -7% of population)^{1,2,3,12} and varies considerably depending in large part on the iodine intake of population studied.

MATERIAL AND METHODS: This prospective study was carried out in the department of general surgery at Alluri Sita rama raju institute of medical sciences ,Eluru, Andhra Pradesh from Sep 2014 – 2016 .Based on Clinical examination, FNAC, Ultrasonography , Thyroid profile , goiters are operated for appropriate indications and further subjected to histopathological examinations. Results of intra operative findings and histopathological examinations are evaluated for malignancy.

RESULTS: Over a period of two years sixty patients with goiters were studied. Based on clinical examination and noninvasive investigations the thyroid swellings were classified into, STN (43.33%), MNG (46.66%) and diffused goiter (10%) and histo-pathological revealed increase in the number of MNG to 70%, of while solitary nodule and diffused goiter each dropped to 25% and 5% respectively. Malignant changes were seen in 9.52% of MNG after histo-pathological examination. 75% of carcinoma seen in MNG were of the papillary type, 25% follicular type.

INTRODUCTION

Multi nodular goiter is probably the most common endocrine problem in the world today generating enormous enthusiasm amongst the medical community of surgeons and physicians . Prevalence of nodular goiters are so common these days (occurring in about 4 -7% of population)^{1,2,3,12} and varies considerably depending in large part on the iodine intake of population studied.

Nodular goiter may become cosmetically distressing to the patient and as a consequence of its site and size results in the generation or pressure symptoms like dyspnea (pressure on trachea) dysphonia (RLN compression) and dysphagia (esophageal compression) warranting surgical intervention. However the area of growing concern to the medical community and anxiety on the part of the patient is its malignant potential and the escalating incidence of thyroid cancer.

Thyroid cancer is a relatively uncommon malignancy with an incidence of 3.7 - 4.7/1,00,000 population (Thomas et al 1978) comprising less than 1% of all malignancies. In India , the nation wide relative frequency of thyroid cancer among all cancers was 0.1 – 0.2 %.(INDIAN JOURNAL OF ENDOCRINOLOGY AND METABOLISM JULY 2011). Thyroid cancer make no more than an insignificant contribution to cancer deaths, responsible only 0.5% of all cancer deaths^{4,7}

Common mode of presentation of thyroid cancer is as nodules, commonest being a solitary nodule, that is notorious for its higher incidence of malignancy. Multinodular goitres (MNG) are more often looked upon as potentially benign type. But the incidence of malignancy in MNG is on the rise range from 4-17%^{1,2,12} .

This study has been undertaken in this part of the state with the available investigative techniques for accurate diagnosis and better understanding of pathology .will definitely throw some light on the behavior of multinodular goiters (MNG) with regard to malignancy.

Materials and methods :

The present study is prospective study done in 60 patients carried from sep2014- 2016 in Alluri sita ramaraju institute of medical sciences detailed history of patients are taken .and thoroughly investigated sonologically and pathologically,

Patients with hypothyroid, hyperthyroid, euthyroid state with multinodular goiter were selected.

Patients with solitary nodular goiter, those who were diagnosed with malignancy, prior radiation, prior thyroid surgery were excluded from the study.

Detailed history of patents was taken and a thorough clinical examination was done in all patients, biochemical and radiological investigation by ultra sound, indirect laryngoscopy, and fnac were done.

All patients underwent surgery. and resected specimens were sent for histopathological examination.

Results:

Table 1 Age distribution

Age group in years	No of cases	Male	Female
< 20 yrs	06	02	04
21-30	12	05	07
31-40	18	06	12
41-50	09	02	07
>51	15	05	10
Total	60	20	40

Table 2 -FNAC

Type of lesion	No:of cases	Percentage
Colloid goiter	34	56.66
Adenoma	14	23.33
Follicular neoplasm	05	08.33
Suspicious neoplasm	02	03.33
Thyroiditis	01	1.66
Carcinoma	04	06.66

Table 3 Histological types of carcinoma found in 42 cases of MNG (N=4).

Histological type	No of cases	Percentage
Papillary	02	50
Follicular	01	25
Mixed	01	25

Medullary	-	-
Lymphoma	-	-
Anaplastic carcinoma	-	-

Discussion:-

Multi nodular goiter is defined as the palpation of multiple discrete nodules in the enlarged thyroid gland. The etiology and pathogenesis of the MNG is not very clear. A mild dietary deficiency of iodine, slight impairment of hormone synthesis, increases iodide clearance from the kidney and the presence of thyroid stimulation immunoglobins have been suggested as the various causes.

In the present study most common age of presentation is 31-40 years 30%.

In this study 60 patients predominantly females with 40(66.6%) patients and males 20 patients with male to female ratio 3:2. female preponderance was also found in other studies.

Patients presented with different complaints. among them most common complaint is swelling in the neck (95%)., other complaints are pain in the swelling rapid increase in size, change in voice, dysphagia, hypothyroid history, hypertyroidism history, neck nodes, bone pain, dysnoea.

As with history, physical examination though important, is not sufficient for a thorough evaluation of nodular thyroid diseases. Most of the patients with thyroid nodules either benign or malignant, were eu-thyroid with normal serum concentration of TSH, T3, and T4.

High frequency real time USG examination of thyroid is an important investigative tool in detection of thyroid nodules. USG can detect nodules as small as 1mm but cannot reliably predict the malignancy. Ultrasound examination of thyroid adds to the evaluation determined by isotope scan, as it can readily diagnosed unsuspected multinodular and distinguish a solid lesion from a cystic one. In our study 10 cases (16.66%) presented clinically as MNG, later on 18 detected by USG and scintiscan were found to be multinodular and finally 14 more cases of MNG were detected after histopathological examination.

So the attempt to determine sonographic criteria for MNG have not fully been successful but ultrasound of thyroid is mandatory in thyroid goiters. Although USG is not of value for histological examinations of thyroid nodule, it is of extreme assistance to surgeons in demonstrating unexpected presence of a multinodular gland, thyroid cyst and location of a mass either intra or extra thyroidal, for screening of high risk patients and for assisting difficult FNAC (James E, 1985).

In our series the result of FNAC TABLE 2 done in all 60 cases. Majority of cases were found to be benign. Only 4 cases (6.66%) were detected as malignant (Papillary carcinoma). Two cases were detected as suspicious lesion. 5 cases were detected as follicular neoplasia However the FNAC findings were later confirmed by histopathological studies (4 papillary, 1 follicular neoplasm and one suspicious lesion are confirmed to be malignant).

The controversial issue whether MNG is significantly associated with carcinoma or not, depends on several factors which includes but not limited to the following.

1. Method of diagnosis; whether surgical excision or aspiration biopsy
2. Expertise in interpretation of aspiration biopsy.
3. Care in microscopic section.
4. The ambiguity in pathogenesis of MNG.

Thyroid carcinomas account for 1% of all the malignancies and they are the most common endocrine tumours¹¹. The incidence

of TC varies considerably in different regions of the world. Globally, the incidence of TC has increased by up to five-fold during the past 60 years⁵. The tumours are rare in children and their frequency increases with age. Overall, females have a higher incidence of TC¹¹. Ionizing radiation, iodine deficiency and other factors have been attributed for the increase in TC, but these findings are inconsistent⁵. Hormonal factors, lactation suppressant drugs and fertility medications have been implicated for the high incidence of TC in females¹¹. However, recent studies have reported no significant risk which has been associated with the use of hormone replacement therapy or fertility drugs.

However the incidence of carcinoma was twice as much in males than females, which signifies that males with MNG are at higher risk of malignancy than females as reported by other authors (Al-Saleh, Al-Khatah). In this series we could not corroborate the significance of sex distribution as we had 2 females and 2 males with a ratio of 1:1, as the number of cases studied are very less and duration of study, was short. From our study, little could be inferred concerning the possibility of cancer from the duration of goiter. Similarly the history of increased size of goiter was inconsistent in case of malignant lesions.

Therefore considering above facts a nodule harboring malignancy in MNG cannot be distinguished clinically or radiologically but can be assessed by FNAC and histopathology in combination. 14 of our patients with STN and diffuse goiter under clinical and USG examination were found to have additional nodules at operation and by histopathological examination.

In our study Papillary carcinoma was the commonest type, accounted for 75%(2 papillary, and 1 mixed cellular type) in our study and one of our patient had follicular type. This was consistent with the observations which were made by Benzarti et al in Tunis¹¹.

Conclusions:

The lack of agreement in recent reports concerning the incidence of carcinoma in cases of nodular goitre and the current tendency to minimize the incidence of malignant change in MNG led us to conclude that patients with thyroid enlargements should have surgical exploration and appropriate excision of the diseased gland followed by accurate management. Multinodularity of the goitre should not be considered as low risk of malignancy, the reason for relaxation and delayed surgical intervention.

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