

A Study of Malignant Thyroid Neoplasms

Ravinthar A¹, Saravanan P S², Jaiganesh³

¹Associate Professor, Department Of General Surgery, Meenakshi Medical College Hospital And Research Institute, Enathur, Kanchipuram.

²Professor, Department Of General Surgery, Meenakshi Medical College Hospital And Research Institute, Enathur, Kanchipuram.

³Final Year Post Graduate, Department Of General Surgery, Meenakshi Medical College Hospital And Research Institute, Enathur, Kanchipuram.

Abstract: Thyroid Carcinoma is a fascinating tumour because of tremendous variations in tumour aggressiveness. Recent reports however indicate a 50% increase in the incidence of disease and this increase is probably the result of irradiation related thyroid disease and better investigatory procedures.

Aim: The aim of this study is to evaluate the Role of any specific etiology factor in the development of carcinoma of thyroid and to study malignant neoplasms of thyroid and analyse the clinical presentations, to evaluate a suitable therapeutic approach for treatment of thyroid cancer, role of neck dissection for treating nodal metastasis, role of suppressive treatment with thyroxine in suppressing the TSH and Histological correlation with clinical activity during follow up.

Materials and Methods: In this case study thirty eight was of carcinoma thyroid were studied. All patients with thyroid disease were studied carefully with a detailed clinical examination. Fine needle aspiration cytology, thyroid scan and clinically hard swellings with fixity to the surrounding structure and cold nodules were studied in great detail to findout the presence of malignancy. In multinodular goiters the nodule hard on clinical examination and cold in the scan were subjected of FNAC.

Results: Findings were tabulated according to age, sex, clinical pathological findings and therapeutic aspects.

Conclusion: Incidence of various types of thyroid cancers approximately correlates with the world literature and that of Indian literature except for anaplastic variety. Role of FNAC is reference to papillary cancer, the diagnostic accuracy helps in formulating treatment plan preoperatively. Neck dissection in the form of modified radial functional neck dissection is indicated in cases of clinically positive nodal involvement. Papillary carcinoma was found to be commonest and anaplastic carcinoma was found to be increasing in incidence. Total thyroidectomy was the commonest surgery performed. There was an increase in the number of neck dissection. Combination of radiotherapy and chemotherapy used in inoperable lesion and undifferentiated lesion seems to improve quality of life.

Keywords: TSH, FNAC, DTC – Thyroid Stimulating hormone, Fine needle aspiration and Cytology, Differentiated Thyroid Cancer

I. Introduction

Thyroid Carcinoma is a fascinating tumour because of tremendous variations in tumour aggressiveness. It is a heterogenous disorder that affects all age groups. But is more serious in the elderly. No single treatment plan exists because of the high long-term survival of most patients with differentiated thyroid cancer regardless of the type or extent of treatment. The essential challenge in the management of thyroid disease is to identify the malignant tumours. In the past thyroid cancer has been considered relatively rare and indolent disease. Recent reports however indicate a 50% increase in the incidence of disease and this increase is probably the result of irradiation related thyroid disease and better investigatory procedures.

Aim Of Study

The aim of this study is to evaluate the incidence and disease pattern of Malignant Thyroid Neoplasms in Meenakshi Medical College Hospital during the period of June 2012 to November 2015.

1. Role of any specific etiology factor in the development of carcinoma of thyroid.
2. To study malignant neoplasms of thyroid and analyse the clinical presentations.
3. Role of fine needle aspiration cytology in the diagnosis especially in cases of malignancy like papillary carcinoma.
4. To evaluate a suitable therapeutic approach for treatment of thyroid cancer.
5. Role of neck dissection for treating nodal metastasis.
6. Role of suppressive treatment with thyroxine in suppressing the TSH.

7. Histological correlation with clinical activity during follow up.

II. Materials And Methods

In this case study thirty eight was of carcinoma thyroid were studied. This study includes those who proved to have carcinoma in the thyroid either by FNAC (or) by Histopathological examination following surgery.

All patients with thyroid disease were studied carefully with a detailed clinical examination. Fine needle aspiration cytology, thyroid scan and clinically hard swellings with fixity to the surrounding structure and cold nodules were studied in great detail to findout the presence of malignancy. In multinodular goiters the nodule hard on clinical examination and cold in the scan were subjected of FNAC.

For convenience and comparisons the cases were divided into three groups. According to Eddis classification 1981.

Group I (Malignancy)

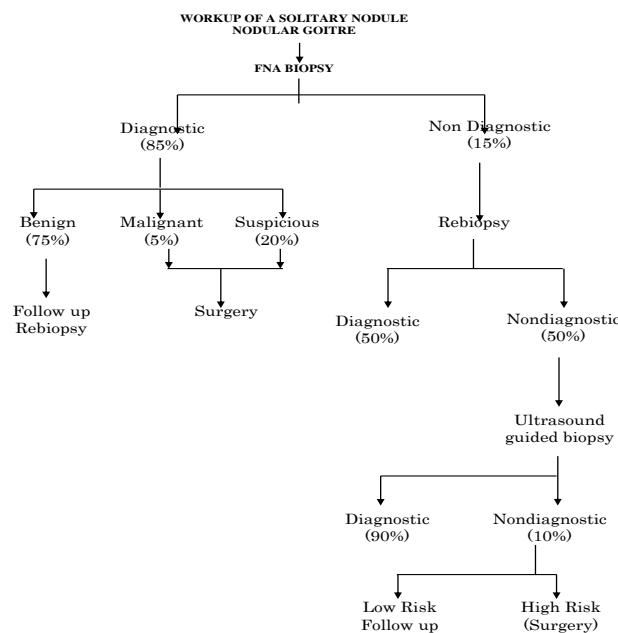
1. Patients with either one or all the clinical features were included in the group I. History of recent change in voice, difficulty in breathing or swallowing or pain.
2. Swelling found to be fixed to deep structures
3. Palpable cervical lymph node enlargement suggestive of secondaries.
4. Paralysis of vocal cords.

Group II Suspicious for malignancy

This includes all nodular disease of thyroid not associated with any of the above feature. Clinically freely mobile. FNAC of scan were done to pick up malignancy.

Group III Benign

Patients without any history suggestive of symptoms and signs and negative by FNAC and scan were excluded from the study.



III. Observation And Discussion

In this observation patients were admitted for the following complaints

1. Swelling in the neck 36 cases
2. Pain was present 6 cases
3. Hoarseness of voice found in one cases.
4. Dysphagia and dysproea were found in two cases.
5. Deeper fixity was observed in 3 cases.
6. Regional nodes were present during admission in 15 cases.
7. Vocal cord paralysis was one case

IV. Observation And Discussion

In this observation patients were admitted for the following complaints

8. Swelling in the neck 36 cases
9. Pain was present 6 cases
10. Hoarseness of voice found in one cases.
11. Dysphagia and dysproea were found in two cases.
12. Deeper fixity was observed in 3 cases.
13. Regional nodes were present during admission in 15 cases.
14. Vocal cord paralysis was one case

Age distribution

Age in years	Male	Female
10 – 20	0	1
21 – 30	1	4
31 – 40	2	8
41 – 50	3	5
51 – 60	4	3
Above 60	5	2

Symptoms and signs	Papillary	Follicular	Anaplastic	Medullary
Thyroid swelling	20	6	8	2
Unilateral	8	12	2	2
Bilateral	6	2	4	-
Pain	1	1	-	-
Dysphagia	-	-	-	-
Dyspnoea	-	-	1	-
Hoarsness of voice	-	-	1	-
Regional metastasis				
Vocal cord paralysis	1	-	-	-

Distribution of patients, Age group, Peak incidence and Sex incidence of different types of carcinoma

Type of carcinoma	No. of cases	Male	Female	Age	Peak incidence	%
Papillary carcinoma	22	9	13	20-65	31-40 yrs	57.89
Follicular carcinoma	6	2	4	36-73	41-50 yrs	15.78
Medullary carcinoma	2	0	2	29-35	29-35	5.26
Anaplastic carcinoma	8	4	4	40-70	60-70 yrs	21.05

Treatment of primary

Types of surgery	Papillary	Follicular	Anaplastic	Medullary
Total thyroidectomy	17	6	-	-
Neartotal thyroidectomy	1	-	-	-
Hemithyroidectomy	-	-	1	-
Completion thyroidectomy	1	-	-	2
Modified radical neck dissection	13	1	-	1

Treatment of regional metastasis

1. Excision of nodes was performed in one case of papillary carcinoma and two cases of follicular carcinoma at the end of initial surgery.
2. Functional lymphnode dissection was performed in two cases of papillary carcinoma where nodes appeared later during follow up of the treatment of primary thyroid tumour.
3. Treatment of distant metastasis in one case of follicular carcinoma.
4. Palliative radiotherapy was given for three cases of anaplastic carcinoma and 2 cases of papillary carcinoma because of involvement of local structure like trachea and encasement of common carotid artery.
5. Palliative chemotherapy (Adriamycin) was administered for three cases of Anaplastic carcinoma along with radiotherapy.

V. Discussion

Out of the thirty eight cases of thyroid carcinoma 15 were males and 23 were female. Malignancy was more common in females.

In this study papillary carcinoma was common in 20 – 65 years of age with peak incidence 31 – 40 years. Follicular carcinoma was present in age group between 36 to 73 years. There were two cases of medullary carcinoma.

In the one of the studies by Kim DS *et al.* the prevalence of thyroid cancer with concurrent hyperthyroidism varies from 0.21% to 9%. Final histological examination revealed 7% papillary and 1% other. Even single toxic nodule may occur with concurrent thyroid cancer.[4] In our study papillary carcinoma was found be commonest followed by Anaplastic carcinoma

In a retrospective study by Shoup M. and Missam A. *et al.* on the prognostic indicators of outcomes in patients with distant metastases from DTC found that age of 45 years or more; site other than lung only or bone only and symptoms at the time of diagnosis are associated with poor prognosis. In our study Papillary carcinoma has peak incidence in 31-40 years age group and Follicular carcinoma in 41-50 year age group

Castro MR, Gharib H. updated the progress, practice and pitfalls of thyroid FNAC. Thyroid nodules are a common clinical problem, with an estimated prevalence ranging from 19 to 35%. Most thyroid cancers manifest as thyroid nodules; however, only small fraction of all thyroid nodules harbor malignant disease. Certain clinical features increase the likelihood of malignant involvement, but the absence of such features does not exclude the possibility of cancer. Of all currently available methods of evaluating nodular thyroid disease, FNAC has been found to have the greatest diagnostic accuracy, approaching 95% and its widespread use has resulted insubstantial cost savings and has allowed a much better selection of patients in need of surgical treatment. The procedure, however, has two major limitations: nondiagnostic yield and indeterminate results. In Our study FNAC was useful in formulating the plan preoperatively[6]

The influence of dietary patterns on the development of thyroid cancer has been recently studied and a significant positive association were observed for tomatoes, lemons and pasta. Dietary patterns of fruits saw vegetables and mixed raw vegetables and fruits led to a reduced risk for all thyroid cancers and similar figures were obtained for papillary thyroid cancer. A dietary patterns of fish and cooked vegetables led to an increase risk.

Amedeo C. and Cagler P. in the studies on undifferentiated carcinoma of the thyroid said that there is still controversy as to what constituted adequate treatment for anaplastic thyroid carcinoma and combined multimodal therapy seems to be the most common management strategy for this aggressive disease. In Our study Combination of radiotherapy and Chemotherapy was used in inoperable and undifferentiated lesion which increase the quality of life

Gurneberger *et al.* studied the effects of smoking on the thyroid gland for the years. The consequences of smoking on thyroid function and size are still controversial. Despite the fact that smoking decreases both thyroid secretion and thyroid hormone action, paradoxically there is evidence of reduced risk for thyroid cancer in smokers.[7]

Mahmood *et al.* studied it has been proved that frozen section does not provide any further information in suspected cases of papillary, un differentiated or medullary carcinoma. Frozen section can confirm FNAC findings and guides surgical therapy.[8]

Rubino C. *et al.*, in their studies showed an increased risk of both solid tumour and leukemias was found with increasing cumulative activity of iodine 131 administered, with an excess absolute risk of 14.4 for solid cancers and of 6.8 for leukemias per GBq of I¹³¹. A relationship was found between I¹³¹ administration and occurrence of bone and soft tissue, colorectal and salivary gland cancers.[9]

In one of the studies by Davidson J. *et al.*, it has been proved that children and young adults with DTC should undergo periodical I¹³¹ therapeutic doses in cases of positive scans. The use of radio iodine is effective and safe in the follow up of children and young with DTC.

Salvatoriet *al.* proved the value of radio iodine I¹³¹ and a gammoprobe for radio guided surgery to detect and then radically dissect lymphnode recurrences. [10]

Lin CH *et al.*, recommended that hereditary thyroid cancer in childhood occurs in the setting of MEN 2A and 2B and familial MTC. Prophylactic thyroidectomy in childhood for patients found to have inherited mutation in the RET protooncogene to prevent the development of MTC. In Our study 2 cases of medullary thyroid cancer was present in 29-35 years age group.[12] No prophylactic thyroidectomy was done in our study.

VI. Conclusion

Incidence of various types of thyroid cancers approximately correlates with the world literature and that of Indian literature except for anaplastic variety. Among malignant thyroid lesions, papillary carcinoma is

the commonest and medullary carcinoma is the least in incidence. Role of FNAC in reference to papillary cancer, the diagnostic accuracy helps in formulating treatment plan preoperatively. Neck dissection in the form of modified radical functional neck dissection is indicated in cases of clinically positive nodal involvement. Female : Male Ratio is 4:3. Papillary carcinoma has a peak incidence in 31-40 years follicular carcinoma in 41 – 50 years. Papillary carcinoma was found to be commonest and anaplastic carcinoma was found to be increasing in incidence. Majority of patients presented with swelling and only few presented with pain or locally advanced disease. Total thyroidectomy was the commonest surgery performed. There was an increase in the number of neck dissections. Combination of radiotherapy and chemotherapy used in inoperable lesion and undifferentiated lesion seems to improve quality of life. Life expectancy following surgery could not be ascertained because of irregular attendance of patients for follow up and short duration of the study. Well differentiated carcinoma treated by surgery behaves well without metastasis during follow up.

References

- [1]. Cohon JB., Kaliyak JR., McDougall IR. Modern Management in DTC) – Cancer BiotherPadiopharm 2003 Oct., pp.689-705.
- [2]. Shah AR., Ferlito A., Renold A. Otorhinlarygal relations Sep. 2001 – July-August.
- [3]. Kebeber E., Clark OH. World J. Sugary 2000 1942-51. Differentiate Hospital Cancer “complete” Rational approach.
- [4]. Kin DS., MC Cab. Clinical Otolarygeal 2003 Oct. pp.386-395
- [5]. Lips P. Comans EF., Van Mourik – Netherland J. Med. 2000 Oct., pp.150-156.
- [6]. Casto MR., Gaham H – End Pract. 2003 Mar. April, FNAB – Proges, Pitfall, 128-36.
- [7]. McDougall IR., Davidson J., Segoll GM. Nucl. Med. Commun. 2001 May 22, pp.485-92 - PET in DTC.
- [8]. Nucl. Med. Rev. Cent East EWO 2000, pp.157-60.
- [9]. Grune Berger F., Vinzio S., Goichot. Ann Endocrical 2003 Oct., pp.309-15 - Smoking and Thyroid.
- [10]. Mahmood S., Bagher L., Mohammed AS., Endocrical Pathology 2003, pp.263-81.
- [11]. Rubino C, de vathaire F., Dottorini ME – Br. J. Cancer, Nov.2003, pp.634-44 – Secondary primary malignancies in thyroid.
- [12]. Salvatori M., Ruffini V., Ardeto G. World J. Sur. 2003 July 710-775 – Radio guided for lymphnode surgery for metastasis.
- [13]. Lin CH., Chang FG., Wang LF. Management of Hereditary MTC in children. Kaohsiung J. Med. Sci. 2003 Aug.19, pp.399-84.
- [14]. Kebeber E. Clark OH – Surgery Onclo. 2003 Aug. 91 – 9 – Locally advanced DTC.
- [15]. SegevDL., Umbricht C. Surgical Onclo. 2003 Aug. 12 pp.69-9 – Molecular pathogly of thyroid cancer.
- [16]. Stoecki SJ., Schmidsos – Sentinal node biopsy in thyroid cancer. Eur. Arch. Orthrino. Larygel 2003 Aug.
- [17]. Williams Text book of Endocrinology, ed.10, pp.464-484.
- [18]. Schwartz Text book of surgery, 7th ed. pp.1661-1714.
- [19]. Sabiston Text book of surgery, 16th ed. pp.603-628.
- [20]. Oxford Text book of surgery 2nd pp.1089-96.
- [21]. Bailey and Love short practice of surgery, 23rd Ed.
- [22]. RJ Last Text book of anatomy.
- [23]. Nyhus text book of operative surgery.
- [24]. Robbins pathological basis of disease.
- [25]. Devita – Principle and practice of oncology, 6th edition.