THYROID MALIGNANCIES: A PROSPECTIVE STUDY IN A RURAL TEACHING MEDICAL COLLEGE HOSPITALR. Anantharamakrishnan¹, K. Senthil Kumar²**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: Thyroid carcinoma is a heterogeneous disorder which affects all age groups. No single treatment plan exists because of long term survival of most patients with differentiated thyroid carcinoma, regardless of the type and extent of treatment. A prospective study was conducted in a tertiary care teaching hospital in the rural setup involving 38 patients. Diagnosis was proved by FNAC or post op HPE. Patients were divided into three groups. Group I (malignancy), group II (suspicious), group III (benign). Of these the last group was eliminated for the study. Various parameters like age distribution, symptoms and signs, peak incidence, treatment for primary and metastases were completely analyzed. Of these papillary carcinoma was found in 20 cases and medullary in 2 cases. Majority presented with swelling in neck as the commonest complaint. One patient had hoarseness of voice and one vocal cord palsy. All patients were subjected to prep FNAC. Total thyroidectomy was done in 23 patients. Completion thyroidectomy was required in 3 patients. Modified radical neck dissection in 15 patients, palliative radiotherapy in 5 patients and palliative chemo in 3 patients. It was found that the incidence of thyroid cancer approximately correlates with world and Indian literature. Life expectancy following surgery could not be ascertained because of irregular attendance for follow-up and short duration of study.

KEYWORDS: Well differentiated thyroid carcinoma- total thyroidectomy - modified radical neck dissection.

INTRODUCTION: Thyroid Carcinoma is a fascinating tumour because of tremendous variations in tumour aggressiveness. It is a heterogeneous disorder that affects all age groups. It is one of the fastest growing cancers in the United States, showing a 240% increase in incidence for the past thirty years.^[1] 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. Most patients present with a palpable neck swellings which initiates assessment through a combination of history, clinical and cytological evaluation.^[2]

In the past thyroid cancer has been considered relatively rare and indolent disease. Recent reports however indicate an increase in the incidence of disease and this increase is probably the true increase in disease. There are also other probabilities like reporting variability, increase in diagnostic effort, better investigatory technology.^[3]

The aim of this study is to evaluate the following parameters in cases of thyroid malignancies in our institute during the period of June 2010 to November 2013. The parameters include:

1. Role of any specific etiological factor in the development of carcinoma of thyroid.
2. Analyse the clinical presentations.

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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. Histological correlation with clinical activity during follow up.

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 find out 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 lymphnode 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.

OBSERVATION AND RESULTS: 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 yrs of age with peak incidence 31 – 40 years. Follicular carcinoma was present in age group between 36 to 73 years. There was 2 cases of medullary carcinoma.

In this observation patients were admitted for the following Complaints:

1. Swelling in the neck 36 cases (94.7%)
2. Pain was present 6 cases (15.7%)
3. Hoarseness of voice found in one cases. (2.6%)
4. Dysphagia and dysproea were found in two cases. (5.2%)

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5. Deeper fixity was observed in 3 cases. (7.89%)
6. Regional nodes were present during admission in 15 cases. (39.47%)
7. Vocal cord paralysis was one case (2.6%)

Table 1 displays the details of age distribution of various thyroid malignancies majority of the cases were found to be in the age group of 31-40 yrs. The incidence of both male and female was found to be the same above 40yrs of age. There was no case reported in males between 10-20 yrs age group only one case was reported the same age group in females.

Table 2 displays the signs and symptoms with regarding to the various malignancy in our study. It was found that neck swelling was the commonest mode of presentation. Pain the pressure symptoms was the least mode of presentation. 5 cases had regional metastasis. Pressure symptoms were found in anaplastic and papillary carcinoma in the form of hoarseness of voice, dyspnoea and vocal cord paralysis.

Two recent studies involving a large sample size showed the following observation. A prospective cohort study in United States during 1996 by U.S. AND GERMAN CANCER STUDY GROUP of 5538 cases shows papillary carcinoma 81%, follicular carcinoma 10%, medullary carcinoma 4.4%. with regard to the post op complication residual tumor following primary surgery is 11%. Hypocalcemia was noted in 10%. Recurrent laryngeal nerve injury in 1.3%.^[4] SEER STUDY GROUP conducted between 2007-2011 involving 18 areas in U.S involving all races showed papillary carcinoma 87.90%, follicular carcinoma 5.50%, medullary carcinoma 1.80%, anaplastic 0.90%.^[5]

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

Table 1: Age Distribution

Fig. 1: Distribution of male and female patient in carcinoma thyroid.

Fig. 1

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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	-	-	-

Table 2: Distribution of presenting symptoms and signs

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

Table 3: Distribution of patients, Age group, Peak incidence and Sex incidence of different types of carcinoma

Fig 2: DISTRIBUTION OF INCIDENCE OF DIFFERENT TYPES OF CARCINOMA.

Fig. 2

Table 4 displays the various types of thyroidectomies performed in our cases. Total thyroidectomy was done for 23 cases. 15 cases required modified radical neck dissection with total thyroidectomy for lymphnode metastases. 2 patients required completion thyroidectomy following hemithyroidectomy for follicular neoplasm.

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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

Table 4: Type of surgical Treatment for the different types of malignancies

Fig. 3: Type of surgery performed.

Fig. 3

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 lymphonode 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.

DISCUSSION: Worldwide incidence of thyroid cancers varies considerably and even within Europe wide variations are seen.^[6] The highest reported incidence was in north America.^[7] Over the last 30 yrs, there has been an increase in frequency of papillary cancers, with a decrease in follicular and anaplastic cancers, with no change in medullary cancers.^[8] These changes in histology has been partly

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explained by environmental iodine exposure. With iodine deficient areas showing increase follicular and anaplastic cancers and iodine sufficient areas are associated with increased autoimmune thyroid disease and papillary thyroid cancers.^[9] With regard to the relationship between ionizing radiation and thyroid cancer, a clear cut off age at the time of exposure which is at risk of thyroid cancer is yet to be arrived. A pooled analysis of seven studies showed the risk is greatest for those irradiated at younger the 15yrs.^[10]

This is in contrary to a study in U.S. following atomic testing shows that increased risk only if the exposure is below the age of 1.^[11,12] Other environmental factors that might lead to an increase in thyroid cancer development are not clear. As far as diagnostic evaluation, the basic workup begins with thyroid function test and FNA. Ultrasonography provides good information of impalpable nodules for an accurate FNA. When evaluating thyroid nodules TSH and free T4 may be useful. Toxic nodules cause severe TSH suppression and typically very low rate of malignancy.^[13-14] The discovery of suppressed TSH should therefore reduce the clinicians suspicion of malignancy. Calcitonin elevation indicates C-cell hyperplasia or medullary carcinoma. False positive elevation seen in goitre, hyperthyroidism and thyroiditis. So elevation of calcitonin should always be confirmed with pathological examination. Higher imaging studies like CT and MRI useful for locoregional metastases. PET scan is very useful in follow-up to localise metastases when I 131scans are negative.

Total and near total thyroidectomy are the procedures recommended for the treatment of malignant disease. The difference in surgical dissection between both the procedures is otherwise negligible, except for leaving behind tissues surrounding berry ligament in near total thyroidectomy^[15] for medullary carcinoma medial compartment neck node is always recommended along with total thyroidectomy. Ipsilateral lateral neck dissection is done along with thyroidectomy if tumor size <1cms. Total thyroidectomy is the recommended treatment guideline by the ATA and the national comprehensive cancer network.^[15] Both guidelines suggest that thyroid lobectomy is equally effective for low risk disease. There is no role for radioactive iodine in MTC and anaplastic cancer. If radiotherapy is indicated external beam radiotherapy is required. The role of radiation therapy as an adjunct in the treatment of medullary thyroid cancer is unclear. Patients of anaplastic cancer selected for surgery, the therapeutic goal is to allow for locoregional control of disease and preservation of voice, airway, and swallowing with recognition that distant disease is likely to be present.

CONCLUSION: Incidence of various types of thyroid cancers approximately correlates with the world literature and that of Indian literature except for anaplastic variety. (Table 5)

Type	% of the study	World literature	Indian literature
Papillary	57.89	60 – 80	64%
Follicular	15.78	5-28	20%
Anaplastic	21.05	4-10%	4%
Medullary	5.26	5-10	7%

Table 5

Role of FNAC is reference to papillary cancer, the diagnostic accuracy helps in formulating treatment plan preoperatively. Neck dissection in the form of modified radical 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

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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 lesions and undifferentiated lesions 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.

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