

# A Clinical Case Study on Thyroid Malignancies

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**Abstract:** This study clinical case study on thyroid malignancies conducted in the Department of General Surgery, Government General Hospital, guntur Medical College, guntur, over a period of two years from May 2013 to May 2015. Iodine deficiency is known to produce thyroid hyperplasia, adenoma formation and ultimately malignancy. Goitrogenic pockets are also common in this part of Andhra Pradesh, where the incidence of carcinoma is on the rise. **Background:** To study the cases of thyroid malignancies attending our General Surgery OP. To correlate the thyroid swellings with the clinical and pathological findings. To study the prognosis in the thyroid malignancies. **Material and Methods:** This study was conducted in the Department of General Surgery, Government General Hospital, GUNTUR Medical College, Guntur, over a period of two years from May 2013 to May 2015.: With clinical examination, Ultra sonography, FNAC. **Results:** The range was from 14 to 72 years. 54.7% of the patients in our study were in between the age groups of 21-60years. 2) Resulting in a female to male ratio of 5.81:1. 3) 54% of the patients had dyspnoea, 39% of the patients had dysphagia, 2 patients had hoarseness of voice at presentation. In our study, 2 patients had all the three pressure symptoms. 4) 4% of the patients presented with skeletal swellings, one with a mandibular swelling and 2 with scalp swellings. 40% of them had lymph nodal swellings in addition to the thyroid and 6.7% without a thyroid swelling. 5) 45% of the patients had symptoms of metastases, one of them had symptoms of lung metastases, 3 of them had skeletal swellings, 28 of them had lymph nodal swellings. **Conclusion:** The percentage of thyroid malignancies among thyroid disorders is 9.4. Females continue to overrun males. 21-60 years is the commonest age group of Carcinoma of the Thyroid. Thyroid swelling is the commonest presentation ranges from a diffuse swelling to a solitary nodule to a multi nodular goitre. Carcinoma of the Thyroid commonly presents as a Solitary Thyroid Nodule. Lymph nodal swellings are commonly associated with the thyroid swelling. Skeletal metastases is a common feature in Follicular Carcinoma of Thyroid

**Keywords:** Thyroid swelling, FNAC, Thyroid carcinoma, Thyroidectomy

## 1. Introduction

Cancer of the endocrine glands is rare. Carcinoma thyroid is the most common endocrine malignancy, accounting for 94.5% of the total new endocrine cancers, and 65.9% of the deaths due to endocrine cancers. The discrepancy between the total number of cases of all endocrine cancers arising in the thyroid (94.5%) and the total proportion of endocrine cancer deaths (65.9%) reflects the relatively indolent. Thyroid cancer is responsible for six deaths per 1 million persons annually. The general categories of thyroid carcinoma are well-differentiated, anaplastic and medullary and unusual cancers such as lymphoma, sarcoma and other rare malignancies. Prognostically, the least malignant variety of thyroid cancer is papillary carcinoma with a very long natural history, giving ample scope for the surgeon to effect complete cure; given diagnosed early. While, the most malignant variety is the anaplastic carcinoma, where the surgeon has very little to do. At one end, there is papillary adenocarcinoma occurring in young individuals with good lease of life, while at other end, the anaplastic carcinoma occurring in older individuals with poor prognosis long-term survival associated with thyroid malignancy. Carcinoma of the thyroid shows a familial relation to iodine status of the individual. Iodine deficiency is known to produce thyroid hyperplasia, adenoma formation and ultimately malignancy in experimental animals. Follicular carcinoma continues to be the most common variety of differentiated thyroid carcinoma in iodine deficient geographic area. Goitrogenic pockets are also common in this part of Andhra Pradesh, where the incidence of carcinoma is on the rise.

Diagnosed early, treated properly, most forms of differentiated carcinomas of thyroid are curable. Being the

most common endocrine carcinoma, it generates consider. This study consists of cases of thyroid swellings, suspected clinically to be carcinoma of thyroid and proved by FNAC and post-operative biopsy. A few cases of clinically benign swellings were found to be carcinomas on FNAC and post-operative biopsy. Most of the cases were submitted to total thyroidectomy with or without modified radical neck dissection, proved to have satisfactory results. All patients were put on Eltroxin post operatively. In this study, two cases of medullary carcinoma of the thyroid were detected and treated.

In this study, we came across two unique cases - One case of papillary carcinoma thyroid with a secondary deposit in the mandible and another case of papillary carcinoma thyroid with synchronous squamous cell carcinoma of the post cricoid region.

## 2. Material and Methods

This study was conducted in the Department of General Surgery, Government General Hospital, GUNTUR Medical College, Guntur, over a period of two years from May 2013 to May 2015.

All the patients with thyroid related disorders, attending our OP were observed. A clinical examination was done and a provisional diagnosis was made and all of the swellings were subjected to FNAC.

Cases were included in the study only when the clinical examination or the FNAC proved to be malignancy. For the period stated, 75 patients were studied and they were analysed based on the age and sex distribution, their dietary

habits, past history, provisional diagnosis on clinical examination, tissue diagnosis based on FNAC, treatment, the final diagnosis based on the post operative biopsy, and follow up on a 3 month period basis. The percentage of thyroid diseases when compared to total number of admissions in General Surgery wards is 2.2%.

Disorder	No.	Percentage
MNG	450	56.25
Follicular adenoma	125	15.75
Hashimoto's thyroiditis	100	12.5
Others	50	6.25
Malignancies	75	9.35
TOTAL	800	

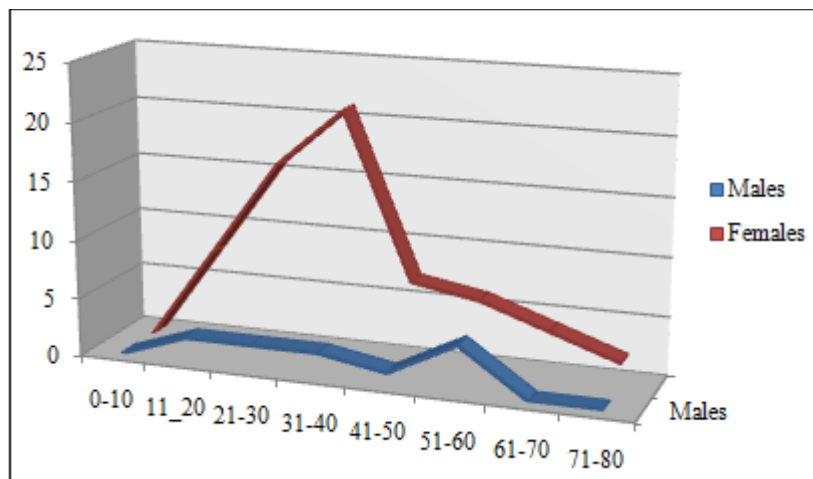
### 3. Results of the Study

#### 1) Age and Sex Distribution

S.No.	Age in Years	Males	Females	Total	Percentage
1.	0-10	0	0	0	0
2.	11-20	2	8	10	13.3
3.	21-30	2	16	18	24
4.	31-40	2	21	23	30.7
5.	41-50	1	7	8	10.7
6.	51-60	4	6	10	13.3
7.	61-70	0	4	4	5.3
8.	71-80	0	2	2	2.7

The range was from 14 to 72 years. 54.7% of the patients in our study were in between the age groups of 21-60 years. The youngest patient was of 14 years age and the oldest were 2 patients of 72 years age and both were females.

There were 51 female and 24 male patients, resulting in a female to male ratio of 5.81:1. This ratio varied throughout the various age groups, and females predominate and females predominated greatly in all the age groups.



#### 2) Type of Swelling

94.6% of the patients presented with thyroid swelling, only 4% presented with other swellings.

28 patients presented with lymph nodal swellings, 2 patients presents with scalp secondaries, one of the patient had a mandibular swelling and one presented with an ulcer over the neck.

3 patients presented with lateral nodal swellings without a gross abnormality in the thyroid.

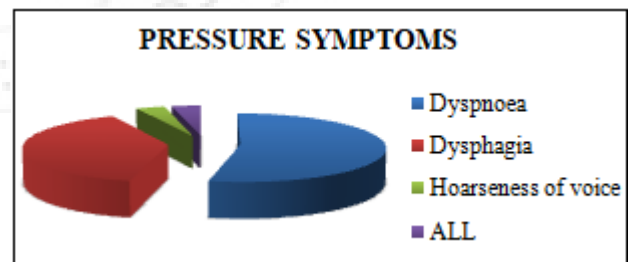
33.4% of the patients had the complaint for about 8 months – 1 year before they came to our hospital. 29.3% had the complaint for about 4-5 months. One patient had the complaint of lymph nodal swelling, following a total thyroidectomy for about 30 years.

#### 3) Rapid Increase in Size

33.3% of the patients had a rapid increase in size.

#### 4) Pressure Symptoms

54% of the patients had dyspnoea, 39% of the patients had dyphagia, 2 patients had hoarseness of voice at presentation. In our study, 2 patients had all the three pressure symptoms.



One patient presented with hyperthyroid symptoms but her thyroid profile was within normal limits.

#### 5) Other Swellings:

4% of the patients presented with skeletal swellings, one with a mandibular swelling and 2 with scalp swellings. 40% of them had lymph nodal swellings in addition to the thyroid and 6.7% without a thyroid swelling.

#### 6) Loss of Weight and Loss of Appetite

13.3% of the patients had both loss of appetite and loss of weight.

**7) Symptoms of Metastases**

45% of the patients had symptoms of metastases, one of them had symptoms of lung metastases, 3 of them had skeletal swellings, 28 of them had lymph nodal swellings.

**a) H/O. Similar complaint:**

5 patients had a H/O. Similar complaint in the past and H/O. surgery done for that. 4 of them underwent hemithyroidectomy for follicular neoplasm, the post operative biopsy came as follicular carcinoma and hence were subjected to completion thyroidectomy. One patient underwent total thyroidectomy 30 years ago and had a swelling in the neck few months after the surgery and since then hadn't consulted a doctor.

**b) H/O. Irradiation in childhood:**

None of the patients in our study had H/O. irradiation in their childhood.

None of the patients in our study had a family history of thyroid disorders .

**8) Personal History:**

**a) Excessive eating of Brassica family vegetables:**

12% of our patients had H/O. excessive eating of Brassica vegetables.

**b) Type of salt used:**

57% of the patients in our study were using rock salt, 12% were using iodized salt and 31% were using a combination of both.

**c) Water source:**

64% of our patients were drinking ground water.

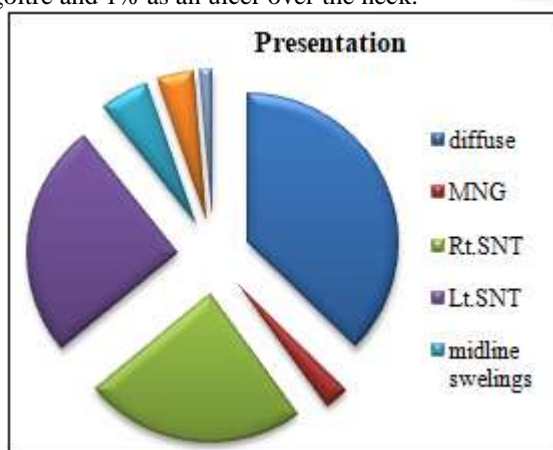
**9) General Examination:**

Anaemia: 95% of the patients in our study were anaemic with haemoglobin percentage less than 8gm.

**10) Local Examination of Neck**

**a) Presentation of the swelling:**

37% of Carcinoma thyroids presented as diffuse swelling of the thyroid, 25% as a left solitary thyroid nodule, 24% as a right solitary thyroid nodule, 5% as a midline swelling, 4% as other swellings, 3% as multi nodular goitre and 1% as an ulcer over the neck.



**a) Borders:**

77% of the swelling had regular borders and 23% of the swellings had irregular borders.

**b) Consistency:**

65% of the swellings were soft in consistency, 27% were firm, 7% were hard and 1% were of variable consistency.

**c) Moving up with deglutition:**

5.3% of the swellings didn't move up with deglutition and 94.7% moved up with deglutition.

**d) Skin over the swelling:**

93.7% of the swellings had normal skin, 5.3% had previous scars, one of the swelling had an ulcer and one had a sinus following total thyroidectomy.

**e) Trachea position:**

13.3% of the patients had tracheal deviation, 5.3% of them had right sided shift of trachea and 8% of them had left sided shift of trachea.

**f) Kocher's test:**

13.3% of the patients had Kocher's test positive.

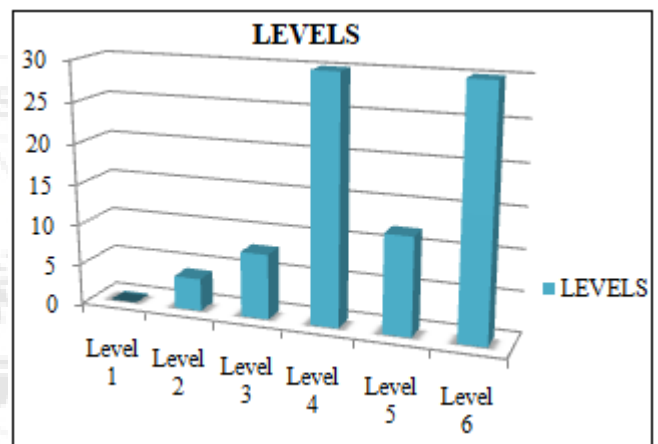
**g) Berry's sign:**

2.7% of the patients had Berry's sign positive.

**h) LYMPH NODAL EXAMINATION:**

**• Level :**

In 40% of cases, the level 4 and 6 were involved. Level 5 was involved in 16%, level 3 in 10.7%, level 2 in 5.3% and level 1 was not found to be involved in any of our patients.



**• Matting:**

8% of the lymph nodal swellings had matting, 92% had were discrete.

**• Mobility:**

4% of the nodes were fixed. 96% were mobile.

**• Percussion over the Sternum and parasternal regions:**

All the cases had a resonant note over the sternum and parasternal regions.

**Auscultation over the thyroid swelling:**

A bruit at the superior pole of the thyroid could be heard in 13.3% of the swellings.

**11) Systemic Examination:**

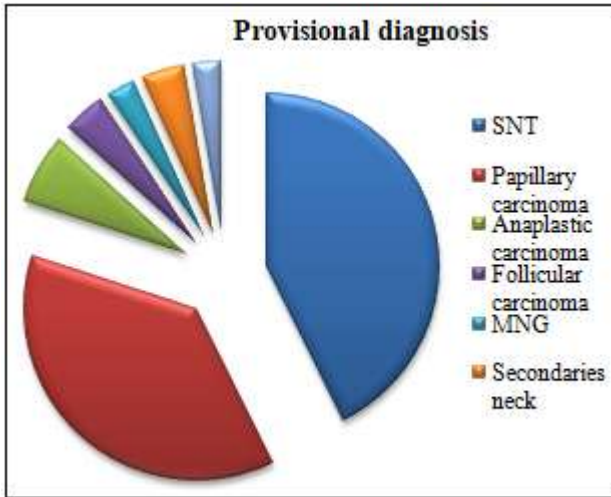
**a) MUSCULO SKELETAL :**

3% of the patients had scalp secondaries and 1% had mandibular secondary.

**b) Chest:**

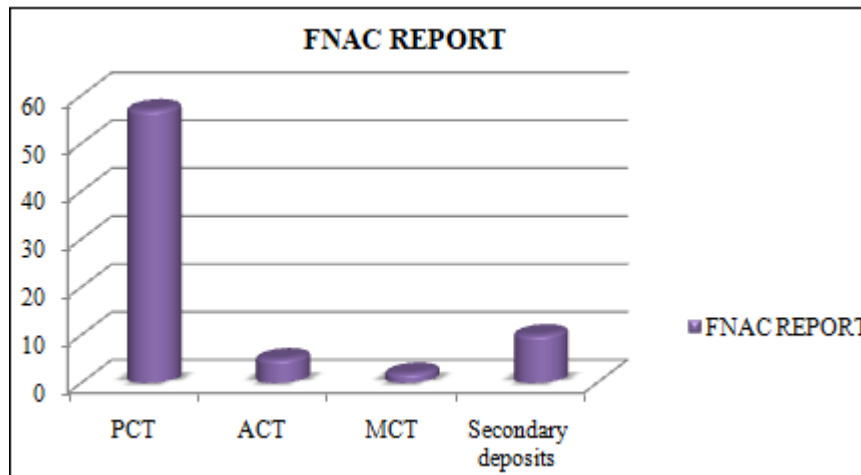
**12) One patient had malignant pleural effusion and lung secondaries PROVISIONAL DIAGNOSIS:**

37% were provisionally diagnosed as papillary carcinoma thyroid, 4% as follicular carcinoma thyroid, 7% as anaplastic carcinoma and 4% as secondaries in cervical lymph nodes. Whereas, 43% were provisionally diagnosed as solitary thyroid nodule-probably adenoma, 3% as multi nodular goitre and 3% as Hashimoto's thyroiditis, simple goitre etc.



**1. FNAC**

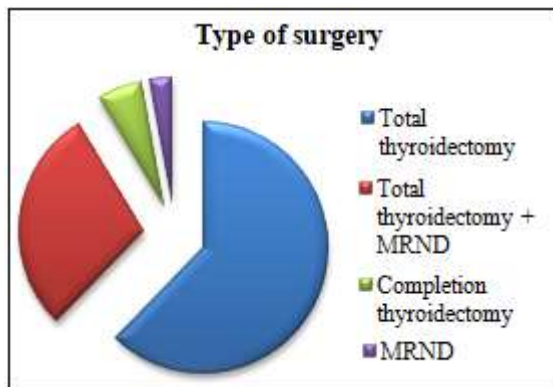
Fine Needle Aspiration Cytology showed 76% as papillary carcinoma thyroid, 6.7% as anaplastic carcinoma thyroid, 2.7% as medullary carcinoma thyroid and 10% of the lymph nodal swellings as positive for metastases. Scalp swellings showed deposits of follicular carcinoma, and the mandibular swelling showed deposits of follicular variant of papillary carcinoma thyroid. 3 of the neck swellings showed deposits of papillary carcinoma thyroid with no gross abnormality of the thyroid gland.



**2. Surgical Treatment**

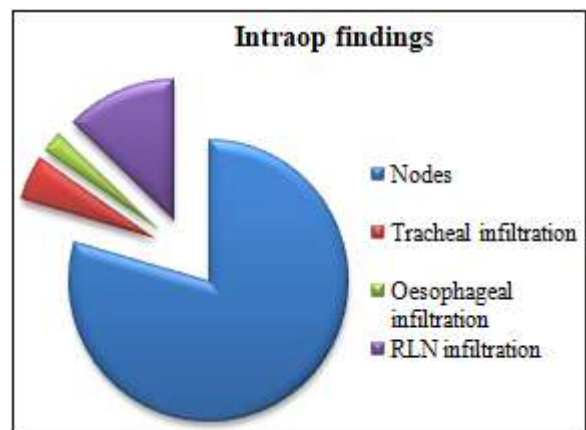
Total thyroidectomy was done in 43 of the patients and in 20 of the patients total thyroidectomy combined with a modified radical neck dissection was done. Completion thyroidectomy was done in 6% of the patients.

SURGERY	No.	Percentage
Total thyroidectomy	43	62
Total thyroidectomy + MRND	20	29
Completion thyroidectomy	04	06
MRND	02	03



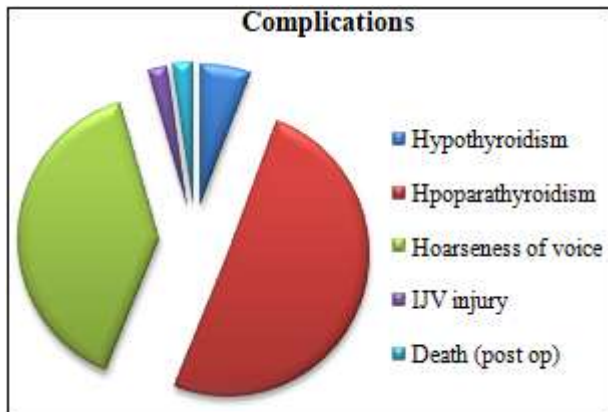
**3. Intra Operative Findings:**

Lymph nodes are found to be involved (identified by their blackish discoloration) in 86% of the patients intraoperatively. Recurrent laryngeal nerve is found to be infiltrated with tumour tissue in 5 cases mostly bilateral and 2 cases had tracheal infiltration. One case was found to have oesophageal infiltration which was found to be a synchronous malignancy of the post cricoid region on post operative upper gastrointestinal endoscopy.

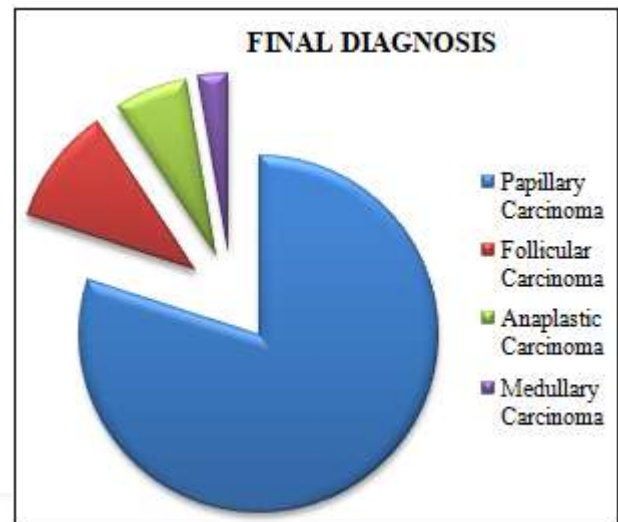


**4. Complications:**

Hypoparathyroidism was seen in 60% of the post operative cases. 46.7% of the post operative cases developed hoarseness of voice, which resolved by 5<sup>th</sup> post operative day. 5 of the patients developed hypothyroidism post operatively. Internal jugular vein was accidentally injured during the neck dissection in 2 of the patients. 2 patients expired in the post operative period. One died due to post operative shock and the other patient died of respiratory failure due to delayed identification of the vocal cord palsy.



TYPE	No.cases	Percentage
Papillary Carcinoma	60	80
Follicular Carcinoma	08	11
Anaplastic Carcinoma	05	07
Medullary Carcinoma	02	03
Lymphoma	00	00
Metastatic deposits	00	00

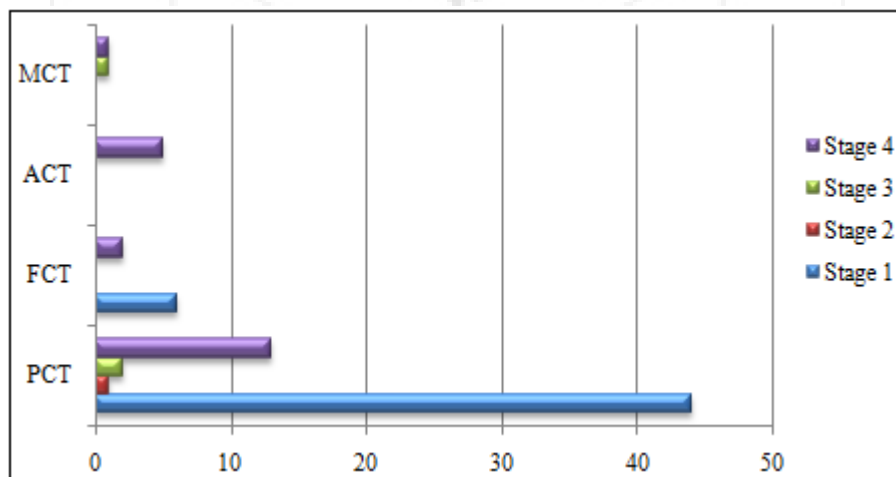


**5. Final Cases**

Final diagnosis was made after the post operative biopsy. Papillary carcinoma was diagnosed in 80% patients, follicular carcinoma in 11%, anaplastic carcinoma in 7% and medullary carcinoma in 3%.

**6. Stage of the Disease:**

TYPE	Stage 1	Stage 2	Stage 3	Stage 4
PCT	44	1	2	13
FCT	6	0	0	2
ACT	0	0	0	5
MCT	0	0	1	1



73.3% of the papillary carcinoma cases presented in stage 1, 21.7% of the papillary carcinoma cases were in stage 4. 75% of the follicular carcinoma cases were in stage 1 and 25% were in stage 4. All of the anaplastic carcinoma cases were in stage 4. Medullary carcinoma cases also presented in stage 3 and 4.

**7. Radiotherapy:**

9.3% of the patients were sent to radiotherapy.

**8. Radio Iodine Scan and Therapy:**

Radioactive iodine scan was done in NIMS and MNJ in 11% of our patients. 4% of them received radio iodine therapy.

**9. Follow Up:**

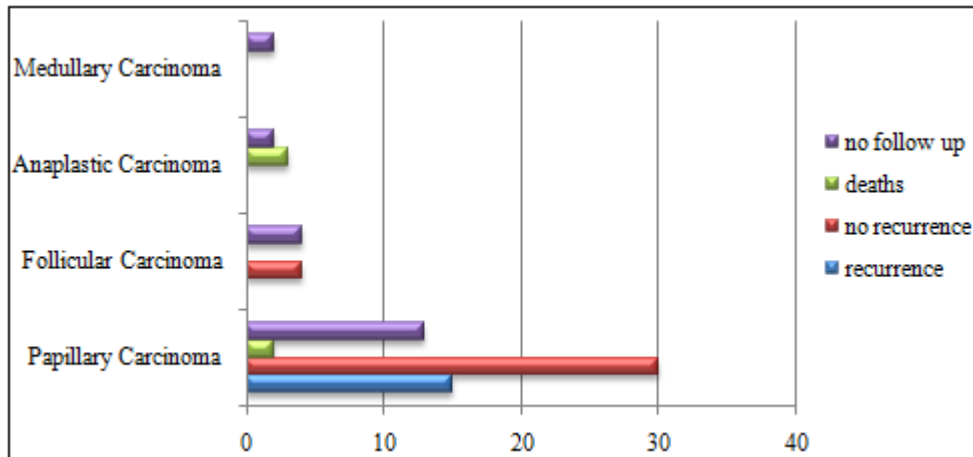
**Papillary Carcinoma Thyroid:**  
 50% had no recurrence, 25% had recurrence, 3.3% died of post operative complications and 17.3% of the patients did not come back for follow up.

**Follicular Carcinoma Thyroid:**  
 50% had no recurrence and 50% could not be followed up.

**Anaplastic Carcinoma Thyroid:**  
 60% expired within 6 months of diagnosis and 40% could not be followed up.

**Medullary Carcinoma Thyroid:**  
 None of the 2 patients came back for follow up.

Type	Recurrence	No recurrence	Deaths	No follow up
Papillary Carcinoma	15	30	02	13
Follicular Carcinoma	00	04	00	04
Anaplastic Carcinoma	00	00	03	02
Medullary Carcinoma	00	00	00	02



#### 4. Discussion

Thyroid cancer is the most common among all endocrine malignancies. From our observation in this two-year study, only 75 (9.4%) cancer cases were detected out of the 800 goitrous thyroid cases. This figure is lower than that noted by Pacini and DeGroot in 2001<sup>1</sup> where they observed the incidence of thyroid malignancy among goitrous thyroid cases to be as high as 10%. A higher incidence of cancer at 26.4% was also observed in a three-year study done in Myanmar<sup>2</sup>. A lower incidence of 6.7% was found in a study done at Sarawak General Hospital, Malaysia, 2001-2003<sup>3</sup>.

The incidence of PTC was found to be higher than the other types of thyroid cancer, in contrast to findings by Riccabona in 1980<sup>4</sup> and Bikiri et al in 1998, that highly-aggressive thyroid cancers like Follicular carcinoma and Anaplastic were more prevalent in countries with endemic goitre.

In our study, all medullary and anaplastic tumors were in patients over age 40 similar to another study - Thyroid carcinoma: a clinical and pathologic study of 125 cases by Frauenhoffer CM, Patchefsky AS, Cobanoglu A<sup>5</sup>.

Well differentiated carcinomas have a wide age distribution, youngest being of 14 years and the oldest being 72 years old in our study. Whereas in the above stated study, all younger patients had WDTC. From the Myanmar study<sup>6</sup>, it was observed that there was a high incidence of thyroid cancer in the age range between 21 and 60 years, in both follicular and papillary patterns, which was similar to ours with peak incidence between 21 and 60 years.

The female preponderance is more in our study when compared to Maria Luisa Carcangiu et al<sup>7</sup>.

Patients come to our hospital from different types of areas like foothills, river beds, sea coast and fertile delta lands. Unlike in the western text books, where the thyroid diseases are said to be common close to the foot hills, this study

shows that these problems are common both in plains and foothills.

Iodine deficiency, goitrogenic diet and drugs, irradiation to head and neck regions and <sup>131</sup>I administration may induce carcinoma of the thyroid but in our study, no etiological factor mentioned could be elicited except for the rock salt taken commonly by our patients.

In Andhra Pradesh, in coastal areas and hill areas (agency areas) the incidence of thyroid diseases was high. So the incidence of thyroid diseases were high in GUNTUR, surrounding hilly areas and agency areas.

Total number of cases detected was increased when compared with previous series because of improved clinical orientation and increased awareness by the patients.

FNAC is a very useful diagnostic tool preoperatively in cases of Carcinoma Thyroid.

Papillary carcinoma is the most common thyroid malignancy in our study, in unison with international studies. In our study incidence of Follicular carcinoma is 11% but Raman Arora et al's study quoted it to be about 36.37%.

Medullary carcinoma has the lowest incidence in our study in contrast to the Sarawak study<sup>8</sup> which showed Anaplastic carcinoma to have the least incidence.

Despite the advances, Anaplastic carcinoma thyroid remains to have the worst prognosis. 3 of our 5 patients died within 6 months of their diagnosis.

We had a rare case of follicular variant of Papillary Carcinoma Thyroid with a huge mandibular secondary. A total of 8 such cases were reported in the literature.

2 cases of Follicular carcinoma were diagnosed with their scalp swellings. The study conducted by Department of General Surgery, Singapore General Hospital, indicated a

three-fold higher likelihood of Follicular Thyroid Cancer having distant metastases at presentation than Papillary Thyroid Cancer. Skeletal metastases accounted for the majority of the distant metastases at presentation in Follicular Thyroid Cancer.

We had another very rare case of synchronous malignancies with Papillary Carcinoma of the Thyroid and Squamous Cell Carcinoma of the post cricoid region in a 35 year old female, who presented to us with the thyroid swelling. Incidence of head and neck cancers with carcinoma thyroid is upto 5%. Thyroid carcinoma is associated with many hereditary cancer syndromes like MEN2A, Adenomatous Polyposis coli, Cowden syndrome, Gardner syndrome. Synchronous malignancies of breast and thyroid gland were reported in the literature.

We came across a unique case of cervical metastatic lymph nodes, in a post thyroidectomy male, that were static with no local invasion or distant metastases for over 30 years.

We had a case of ulcerated anaplastic carcinoma, who bled to death due to erosion of the carotid artery.

Another case of papillary carcinoma thyroid, post thyroidectomy and radio iodine therapy, presented to us with a sinus, which on exploration showed a bunch of silk.

In our study, we had no cases of lymphoma of the thyroid and no cases of metastatic deposits in the thyroid.

Thyroid malignancies have a very good prognosis, owing to their early detection by the anatomical location, limited spread beyond the neck and the definitive management options, as observed in my study of 75 patients.

With the advent of FNAC, more radical procedures like modified radical neck dissection and the more simpler modality of treatment- radio iodine therapy, there is an added survival advantage to the patients with carcinoma thyroid.

## 5. Conclusions

The percentage of thyroid malignancies among thyroid disorders is 9.4. Females continue to overrun males. 21-60 years is the commonest age group of Carcinoma of the Thyroid. Thyroid swelling is the commonest presentation ranges from a diffuse swelling to a solitary nodule to a multi nodular goitre.

Carcinoma of the Thyroid commonly presents as a Solitary Thyroid Nodule. Lymph nodal swellings are commonly associated with the thyroid swelling. Skeletal metastases is a common feature in Follicular Carcinoma of Thyroid.

Patients usually present to the hospital within a year of the complaint, as the swelling is apparently visible. Dyspnoea is the commonest pressure symptom, it could be due to the associated anaemia, common among Indians. Thyroid malignancies are commonly euthyroid.

The importance of past history of irradiation could not be analysed as none of them were exposed to radiation in childhood. Rock salt is one common ingredient in the diet of patients of thyroid malignancies.

Infiltration into the surrounding structures is a feature of Anaplastic Carcinoma. Clinically, level 3, 4 and 6 are the most commonly involved lymph nodes. Distant metastases is a rare occurrence in Thyroid malignancies. We had 4 cases with distant metastases, 2 with scalp secondaries, 1 with a mandibular secondary, and 1 with lung secondaries.

Clinical examination is a very important tool in the diagnosis of Thyroid malignancies, it is an adjunct to the more sophisticated investigating methods. FNAC is the confirmatory test except for Follicular carcinoma, which requires a biopsy. Post operative biopsy is an important adjunct to the final diagnosis.

Total thyroidectomy with or without modified radical neck dissection is the treatment of choice for Thyroid malignancies except for Anaplastic Carcinoma. Completion thyroidectomy was done in 4 cases.

Intraoperatively, the incidence of lymph nodal involvement has doubled the incidence on clinical examination. Hoarseness of voice is the common early post operative complaint. Hypoparathyroidism is the commonest post operative complication in our study.

Stage I Papillary Carcinoma is the commonest thyroid malignancy in our study. Medullary Carcinoma has the lowest incidence among the thyroid malignancies.

Due to lack of the radionuclide imaging in our hospital, our patients were sent to higher centres after the surgical management. 11% of our cases had a radionuclide scan. 2 of them received radioiodine therapy.

On follow up, deaths were more in Anaplastic Carcinoma, recurrences were more in Papillary Carcinoma. Long term survival could not be assessed by this 2 year study. Prognosis is very good despite the extrathyroid spread.

Certain measures to be followed to improve the diagnosis and follow up of thyroid malignancies:

- 1) FNAC should be done for all thyroid swellings.
- 2) Thyroid swellings in young and males should be viewed with a high suspicion of malignancy.
- 3) All post operative thyroid specimens should be sent for biopsy, not only to confirm the diagnosis but also to rule out an occult malignancy.
- 4) All cases of Follicular Neoplasms on FNAC should be followed up with a post operative biopsy, risk stratification and further management.
- 5) All patients, once diagnosed of Thyroid malignancy must be educated regarding the low gradedness of the tumour and the need for continuous follow up Thyroid Cancer which has a better survival advantage.
- 6) Counselling is a must for all the patients.
- 7) Family members of patients of thyroid malignancy should be counselled and educated regarding the importance of follow up and they should also be kept under surveillance.

- 8) FNAC at regular intervals in endemic regions in patients with goitre.
- 9) Follow up of all those who had irradiation to the head and neck region.
- 10) Health education to the health workers in the periphery regarding the early detection of neck swellings and goitre.

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... the incidence of thyroid malignancy is not as high as the other comparative studies ... to carcinogens.(19) We observed a similar result in Sugitani et al's study, where among thyroid malignancies, PTC is the most common histopathological type.(3) Although Sarawak is known ...  
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