

A CLINICAL STUDY OF PAPILLARY CARCINOMA OF THYROID

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ABSTRACT

Objectives: The main objectives of the present study are to analyze the incidence of papillary carcinoma of the thyroid, study the clinical presentation and behavior of papillary carcinoma of the thyroid, and analyze various surgical modalities of the treatment of papillary carcinoma of the thyroid.

Methods: It is a prospective study. A proforma for the study of all papillary carcinoma of thyroid patients was used. The presentation, clinical findings, investigations, and management line were documented. The study was conducted during the period December 2016–November 2018. A total of 50 cases of papillary carcinoma of thyroid in GIMSR-Visakhapatnam were selected based on simple random sampling techniques were clinically evaluated.

Results: Among the 66 cases reported with different thyroid types of carcinoma, papillary thyroid cancer constitutes 75%. The results showed that 76% of cases occurred between the age group of 21–50 years. The incidence of female to male ratio was 3.2:1. In 62% of cases, goiter was the most presenting symptom and 92% of patients were euthyroid at the time of presentation.

Conclusion: The incidence of papillary thyroid carcinoma in the present study is 75%, following the results of the previous studies. The most common mode of clinical presentation was thyroid swelling which was lower than those in a comparative study. The proportion of different histopathological types of papillary thyroid cancer was similar to those reported in the literature. The most common complication was transient hypoparathyroidism which resolved with calcium supplementation.

Keywords: Thyroid neoplasm, Papillary carcinoma of thyroid, Goiter, FNAC, Total thyroidectomy.

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INTRODUCTION

The most common endocrine malignancy in thyroid cancer leads to many deaths due to endocrine cancers. Most patients have differentiated thyroid cancer (ex-papillary carcinoma thyroid and follicular carcinoma thyroid). Differentiated thyroid carcinoma is commonly seen in young adults with a 2:1 female to male ratio. Thyroid cancer shows different histological entities [1,2] with different clinical behavior. They are well-differentiated malignancies, anaplastic, medullary thyroid, and other unusual cancers such as lymphoma and sarcoma. Prognostically, papillary carcinoma is good [1,2] and anaplastic carcinoma is worse [1,2]. Even though most thyroid nodules are benign, some may harbor malignancy. Hence, accurate clinical examination, pre-operative workup, and evaluation are needed for appropriate management.

This study of papillary carcinoma [3] of the thyroid was carried out to study the incidence, clinical presentation, management, and follow-up of thyroid papillary carcinoma because carcinoma of thyroid is one of the most important endocrine malignancies that the general surgeon or ENT surgeon comes across and one has to acquire the diagnostic skills, art of surgery, and knowledge of post-operative management. Papillary carcinoma is having a very long natural history giving ample scope for the surgeon to affect complete cure if diagnosed early.

METHODS

Source of data

Patients admitted in various surgical wards in GIMSR-Visakhapatnam with clinical features of papillary carcinoma thyroid, who were clinically examined and confirmed by FNAC and HPE, were chosen for study.

Methods of collection of data

The present study was a prospective study conducted during the period December 2016–November 2018 and involved a total of 50 cases of papillary carcinoma of thyroid and was selected on the basis of simple random sampling technique and clinically evaluated. A proforma for study of all papillary carcinoma thyroid patients was used. The presentation, clinical findings, investigations, and line of management were documented.

FNAC-confirmed papillary carcinoma thyroid patients were subjected to surgery [4-7]. The patients were followed upto six months after the surgery with clinical examination, investigative procedures like chest X-ray, thyroglobulin assay, radioiodine scan for locoregional recurrence or distant metastasis.

Inclusion criteria

Cases with papillary cancer thyroid clinical features and diagnosed by FNAC in different surgical wards In GIMSR, Visakhapatnam were selected.

Exclusion criteria

The following criteria were excluded from the study:

- Patients with benign thyroid disorders and other than papillary carcinoma of thyroid malignancies.
- Patient who refused any mode of treatment.
- Patients <12 years of age.
- Patients who have previously been treated surgically for any thyroid problems.

Mode of selection

All the patients admitted in various surgical wards in GIMSR-Visakhapatnam during the course of study, who have positively

diagnosed as having papillary thyroid malignancies by investigations such as thyroid profile, X-ray neck and chest, and FNAC have been selected. To know the status of vocal cords, IDL examination was done. All the investigations and interventions were done only after taking the proper consent from the patients.

Statistical analysis

The statistical tests used in this study are the test of proportion and percentage.

RESULTS

The study consists of 50 cases of proven papillary thyroid carcinoma who were admitted in various surgical wards in GIMSR, Visakhapatnam. The present study found that the common age group of papillary carcinoma thyroid is 31–40 years. The male to female ratio was 1:3.2 in the study. In the study, patients predominantly presented with swelling of the thyroid (62%). The most of the cases after investigations and pathological reporting were found to be Stage I (72%) and most of them were below 45 years of age. For age >45 years, Stage III and IVA were the next commonly seen stage of the disease and the patients constituted 24% of the patients in the study. Recurrence was seen in two cases among 50 patients (Figs. 1-15).

DISCUSSION

Age incidence, decade-wise

In the present study, peak incidence of papillary cancer was noted in 3rd–4th decades, which coincides with others studies (Table 1).

Sex comparison

The number of male patients in the present study was 12 (24%) and female was 38 (76%) with male to female ratio was 1:3.2. Sex distribution was similar to Tabaqchali *et al.* [11] (Table 2).

The most acceptable theory for gender inequality is the female sex hormone theory, which states that oestrogen plays an important role

in the pathogenesis of thyroid cancer. That is why estrogen becomes a primary target for recent therapy research in cancer thyroid. It also supported by evidence that decreased incidence of cancer after menopause. Even female gender shows a higher incidence of thyroid cancer, males show bad prognosis after diagnosis. The presence of large tumor doubles in male shows high chances of metastasis. Mitchell *et al.* found that males have advanced-stage tumors at the time of diagnosis.

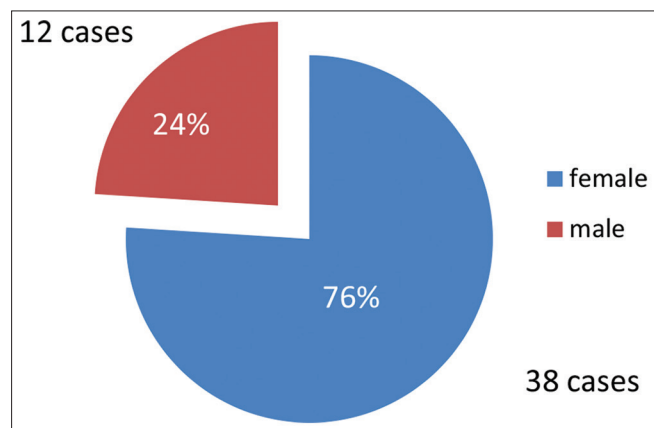


Fig 3: Sex incidence between gender

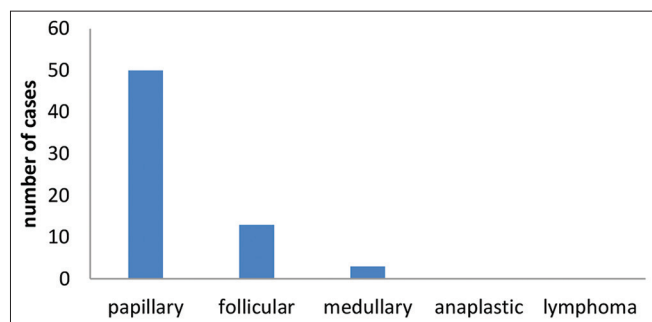


Fig. 1: Incidence of papillary carcinoma among thyroid malignancies

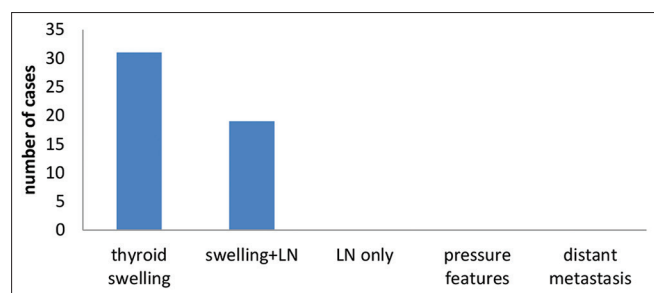


Fig 4 : Clinical features of thyroid malignancy

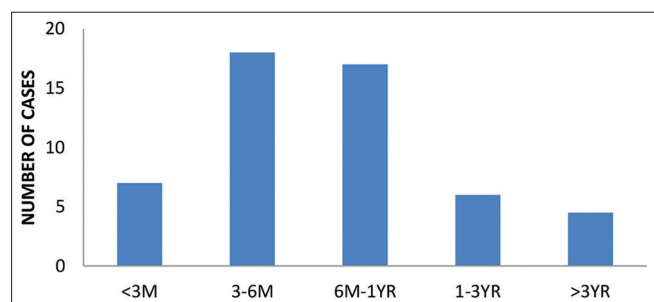


Fig 5 : Duration of thyroid swelling in thyroid malignancies

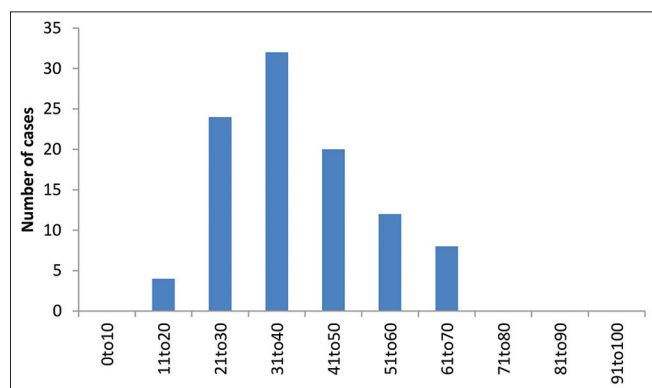


Fig 2: Age incidence in papillary thyroid malignancies

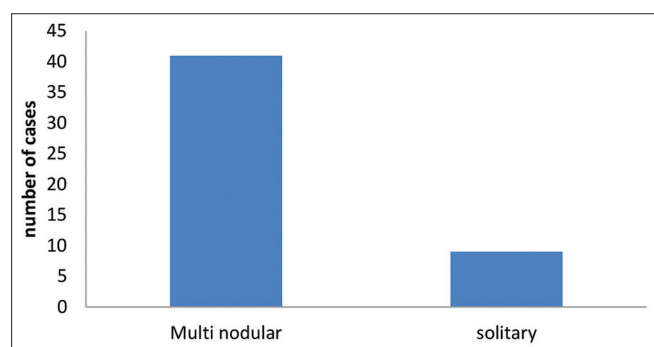


Fig 6: Swelling clinical presentation

Table 1: Comparison of papillary cancer decade-wise

Study	1 st decade	2 nd decade	3 rd decade	4 th decade	5 th decade	6 th decade	7 th decade	8 th decade
Srikande <i>et al.</i> [8]	1	7	28	23	21	25	15	3
Carcangiu <i>et al.</i> [9]		20	42	62	54	32	25	5
Kishore <i>et al.</i> [10]	-	1	7	12	1	4	4	4
Present study	-	2	12	16	10	6	4	0

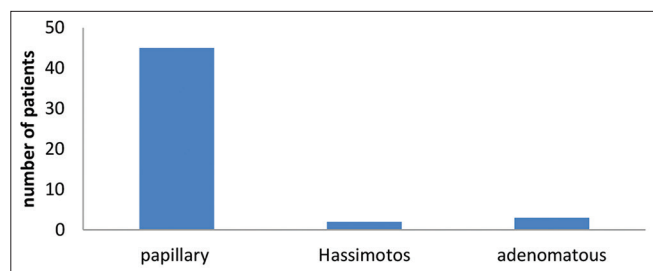


Fig 7: FNAC results of thyroid swellings

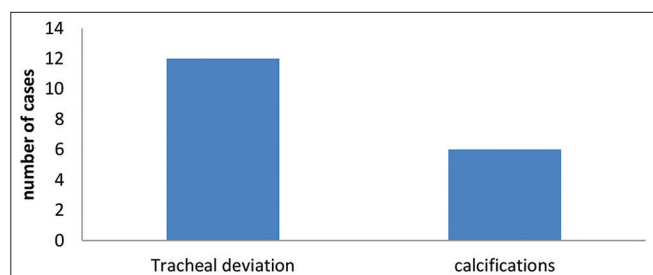


Fig 8: Radiological findings

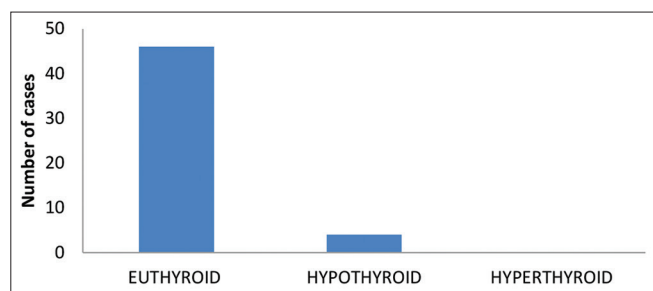


Fig 9: Thyroid profile findings

Along with these factors, combined with age at which men develop thyroid cancer contribute higher mortality rates among male (7.1%) than women (3.5%). In the present study, we did not see any major difference between genders in stage-specific incidence between groups which can be due to less male cases (Table 3).

Other rare histological variants include oncocyctic variant, encapsulated variant, clear cell, oxyphilic, papillary with lipomatous stroma, warthins like tumor, and cribriform papillary carcinoma have been reported in the literature and theses vary in gender difference, prevalence, and clinicopathological features. They should be considered in cytological examination.

Surgery for thyroid carcinoma

Total thyroidectomy remained as the most commonly done surgery either primarily or as a completion procedure in the present study. Gulliamondegui *et al.* [16] reported that the total thyroidectomy was the most commonly performed surgery for thyroid carcinoma. The total thyroidectomy considered not only as a measure to decrease recurrence rate of differentiated carcinoma but also as

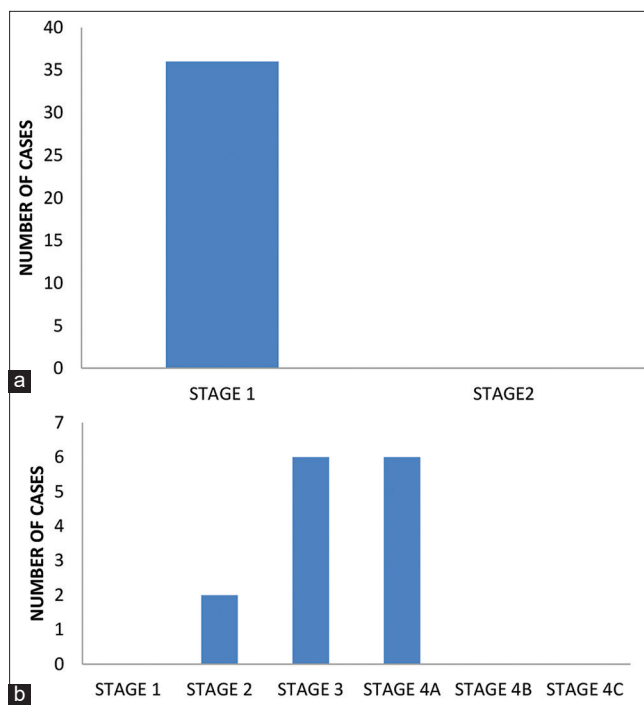


Fig. 10: (a) Staging of thyroid malignancies for age <45 years. (b) Staging of thyroid malignancies for age >45 years

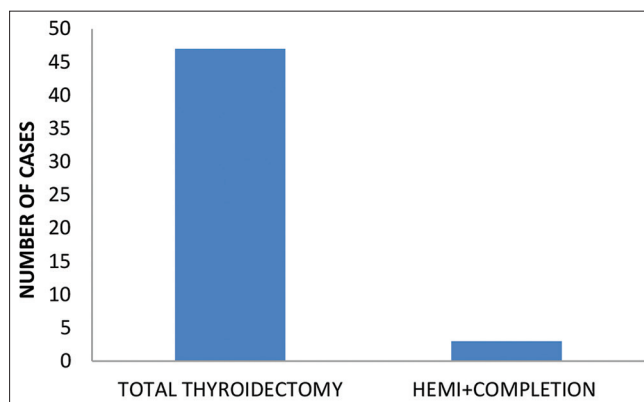


Fig 11: Surgery for primary disease

a measure of preventing development of a highly undifferentiated lesion. The percentage of radioiodine uptake increased after total thyroidectomy and sensitivity of thyroglobulin as post-operative marker increased.

Indications for total thyroidectomy in our study include age <15 years and > 45 years, history of radiation, distant metastasis, bilateral multiple nodules, extra thyroidal extension, tumor size >5 cm in diameter, tall cell, columnar cell, or poorly differentiated histopathological type and patients preferred and tend to lose follow-up protocol for recurrence and distant metastasis. In a study by Russel *et al.* [17] performed

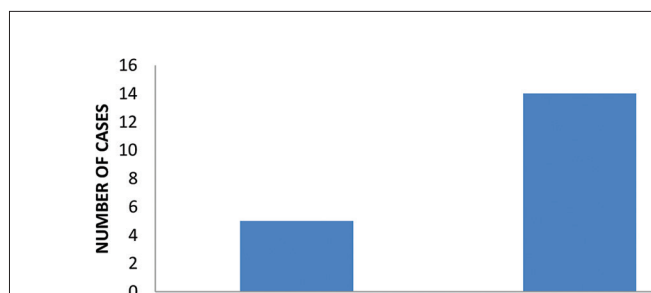


Fig 12: Lymph node surgery

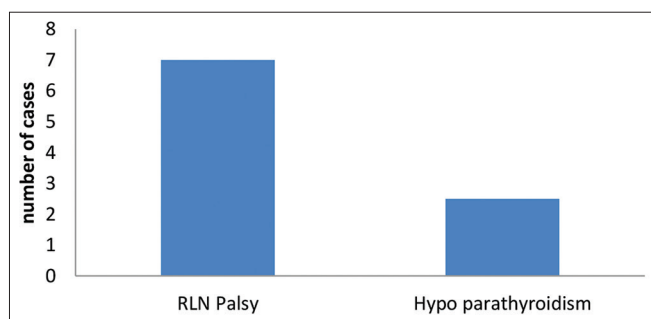


Fig 13: Complications of surgery

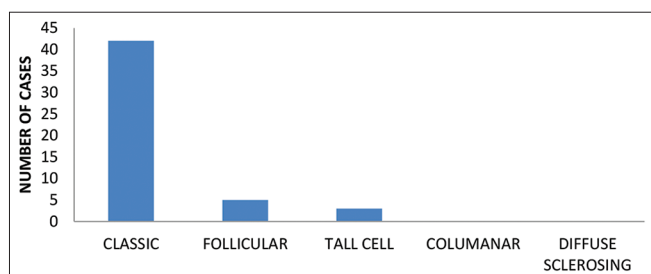


Fig 14: Histopathological types of thyroid malignancies[21]

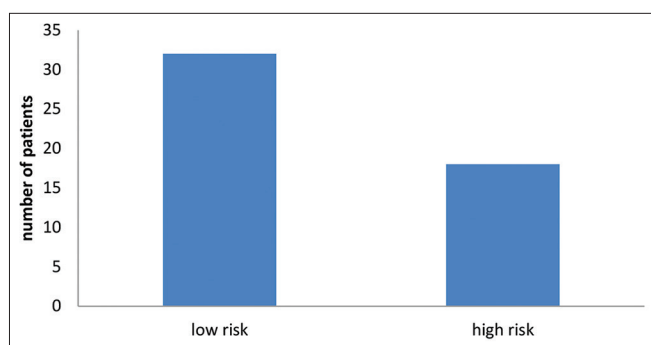


Fig 15: AMES categorization[21] scheme for Papillary carcinomas

hemi thyroidectomy for STN, incidence of malignancy among those 61 patients was 13%.

Complications of surgery

Complications of post-thyroidectomy depend on the size of the tumor, surrounding infiltration and experience of the surgeon. In every step of surgery was made to preserve the parathyroid gland with blood supply. However, this might not be sufficient to prevent the occurrence of transient hypocalcemia because of hypoparathyroidism. Delbridge et al. [18] said that transient hypoparathyroidism might be an accepted outcome of total thyroidectomy rather than a complication. However, severity of hypocalcemia depends on extent of thyroid surgery. The

Table 2: Comparison of sex distribution

Studies	Total cases	Male	Female	Male: Female
Tabaqchali et al. [11]	239	26	213	1:8.2
Afroze et al. [12]	170	48	122	1:2.54
Kamal et al. [13]	200	27	173	1:6.40
Safrullah et al.	300	30	270	1:12.64
Present study	12	12	38	1:3.2

Table 3: Comparison of duration of disease

Study	Duration of swelling
Mazzaferri et al. [14]	5-10 years
Dorairajan et al. [15]	3-4 years
Present study	3 m-1 year

majority of past 5 years published reports quoted it <10% in this study; it was 12%.

Thyroid profile

Thyroid malignancy does not present with thyroid dysfunction generally like numerous studies show hyperthyroidism in 1-2% of patients. In our study majority of the patients were in euthyroid state. Four patients had a history of hypothyroidism.

Comparison of pre-operative FNAC with post-operative HPE

Out of 50 cases underwent surgery, 14 cases had different HPE reports as compared to FNAC report. Both FNAC and HPE are the same; they are considered as true positive. Fourteen cases FNAC benign cases reported as malignant in HPE. Hence, FNAC was false negative in these cases. Main aim of FNAC is diagnosis of cancer accurately. According to several studies the sensitivity of FNAC was 65-100% and specificity was 70-100%. Accuracy rate estimated 90-92% in meta-analysis false positive rate approximately 0.9-9%. and false negative rate is 0-16%. Mundasad and Pyper [19] conducted a similar study on accuracy of FNAC in thyroid swelling diagnosis. In their study among 144 cases, FNAC revealed benign 94%, malignant 6%, and suspicious 4%. However, HPE showed benign 82%, malignant 18%, and inadequate sample rate 13% in their study. Experience of aspirator and criteria used to define a sample is important factors. As per AACE/AME 2006, the average false negative rate is 5%.

Result	True positive	False-negative	False-positive	Total
No of cases	45	5	0	50
Percentage	90	10	0	100

CONCLUSION

The incidence of papillary thyroid carcinoma in the present study is 75%, which is equal to the literature. The incidence of thyroid cancer is higher in female which is equal to the literature. The most common age of presentation is 4th decade which is earlier than the literature. The most common mode of clinical presentation was thyroid swelling which was lower than those in comparative study. FNAC is an inexpensive, accurate, and practical investigation for evaluation of thyroid carcinoma. The proportion of different histopathological types of papillary thyroid carcinoma was similar to those reported in the literature. The most common complication was transient hypoparathyroidism which resolved with calcium supplementation [20-22].

AUTHORS' CONTRIBUTION

The main author of the study SK had performed the research work. The coauthors of the study GY wrote the first draft of the manuscript collected the literature and MA performed the statistical analysis part of the work and corrected the final draft of the manuscript.

CONFLICT OF INTEREST

The authors declared no conflict of interest.

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