

PAPILLARY THYROID CARCINOMA;

THE FREQUENCY OF MULTIFOCALITY IN PATIENTS UNDERGOING TOTAL THYROIDECTOMY

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ABSTRACT.....At Mayo Hospital Lahore, from August 2010 to April 2011. **Objective:** was to determine the frequency of multifocality among all cases presented with papillary thyroid carcinoma (PTC) planned to undergo total thyroidectomy (TT). **Material & Methods:** Data of all patients of PTC was collected from inpatient department of East Surgical ward. All the patients underwent total thyroidectomy by same team of consultant surgeons. **Results:** A total of 35 patients of PTC with mean age of 37.94 years were included. Multifocal tumor was found in 31.4%. Out of them, 72.7% were females and 27.3% males. This case series showed that a multifocality is highly prevalent in PTC and total thyroidectomy should be done as the treatment for PTC, to eliminate the additional tumor foci in thyroid gland and prevent its recurrence.

Key words: Multifocal papillary thyroid carcinoma, total thyroidectomy.

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INTRODUCTION

Thyroid carcinoma is the commonest endocrine cancer that accounts for 92% of all endocrine malignancies. It represents 1% to 1.5% of all malignancies in adults and 3% in children^{1,2,3}. It is relatively less common in adolescent and young patients, with the incidence rising rapidly between 15 and 29 years of age, reaching a plateau by the 5th and 6th decades⁴. It represents the eighth most common cancer in women, with the females affected at almost three times the rate of men^{1,5}. Despite excellent response to surgery and targeted therapy with radioactive iodine, thyroid carcinoma is the 2nd most common cause of death among endocrine cancers after carcinoma of the ovary^{1,6,7}.

Papillary thyroid cancer, derived from follicular epithelium of thyroid gland, is the most common histological subtype of thyroid cancer, occurring in about 80% of cases¹. It presents in the form of a solitary or dominant thyroid swelling, or lateral neck swelling due to cervical lymph node metastasis that occurs in 15% to 40% of the cases^{8,9,10,11}.

PTC frequently presents as a multifocal process³. Multifocal disease is defined when >1 focus of PTCs

are found in the thyroidectomy specimen¹². Often, there is a primary tumor that is >1 cm and additional microscopic foci measuring <1 cm and termed Papillary Thyroid Microcarcinomas (PTMC)¹³.

Multifocal PTCs represent a very important issue regarding patient management. Multifocal PTCs are high risk tumours because they are more aggressive in terms of local and distant metastasis, mortality and tumor recurrence, than unifocal PTCs. Multifocal lesion in one lobe is strongly associated with contralateral lobe tumor¹⁴. PTMCs, otherwise considered relatively indolent tumors, become high risk when they are multifocal¹⁵. This behavior warrants proper preoperative and post operative diagnosis and aggressive management for multifocal tumors¹⁶.

In the national literature data regarding multifocal PTC is limited. The aim of current study is to identify frequency of multifocal PTC to see the magnitude of problem. Since multifocality is considered one reason to perform total thyroidectomy for PTC¹⁷, knowing the magnitude of the problem will help to establish the validity of total thyroidectomy as a valid treatment for PTC.

OBJECTIVE

The objective was to determine the frequency of multifocal PTC among all cases presenting with PTC planned to undergo total thyroidectomy.

MATERIALS AND METHODS

This case series was conducted in East Surgical Ward, Mayo Hospital Lahore, during a period of 8 months from August 2010 to April 2011.

In this descriptive case series, 35 patients were selected by non probability, consecutive sampling. Inclusion criteria was all patients of age 13 to 70 years of both genders, undergoing total thyroidectomy for PTC diagnosed preoperatively by fine needle aspiration cytology, and cases confirmed as PTC on histopathology after hemithyroidectomy now planned for completion thyroidectomy. Patients who do not consent to be part of study were excluded.

DATA COLLECTION METHOD

All patients fulfilling the inclusion criteria were selected from inpatient department of Mayo Hospital, Lahore. Informed consent from each patient was taken and ethical considerations were taken care of. Patients underwent total thyroidectomy by same team of consultant surgeons and were assessed for the presence of multifocal PTC on histopathology. Outcome was recorded in pre designed proforma.

DATA ANALYSIS

Data was analyzed, tabulated and statistical analysis was done using SPSS version 10.

RESULTS

Out of a total 35 patients of PTC 26 were females while 9 were males. Male to female ratio was 1:2.8. 29 patients were diagnosed by FNAC preoperatively and they underwent total thyroidectomy, while 6 patients were diagnosed on histopathology of hemithyroidectomy specimen and they subsequently underwent completion thyroidectomy. (Table-I)

Properties	Frequency	Percentages
Mean Age	37.94	—
Gender		
Male	9	25.7
Female	26	74.3
Diagnosis		
FNAC	29	82.9
Histopath of hemithyroidectomy	5	14.3
FNAC of lymph node	1	2.9

Table-I. Demographic and clinical features of patients in the study (N=35)

Out of 35 patients of PTC, 11 (31.4%) had multifocal tumor. (Table-II) (Figure 1, 2)

Tumor type	Frequency	Percent
Unifocal PTC	24	68.6
Multifocal PTC	11	31.4
Total	35	100.0

Table-II. Frequency of multifocal PTC among all PTCS (n=35)

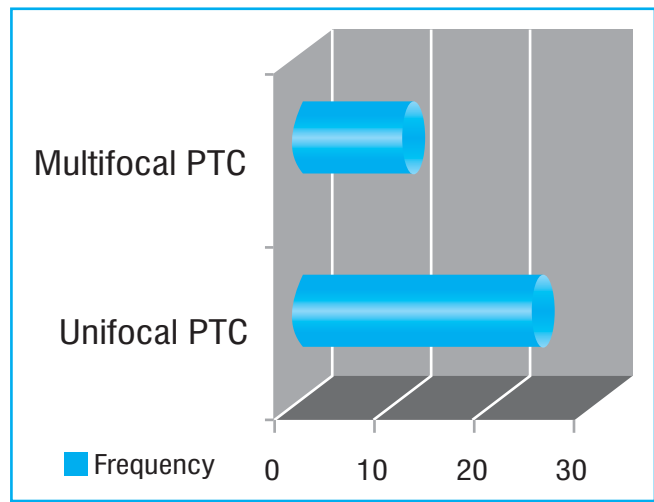


Figure 1: Frequency of multifocal PTC among all PTCS (n=11)

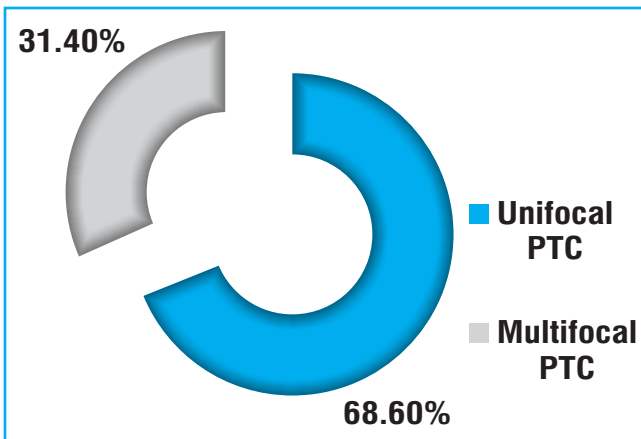


Figure 2: Percentage of multifocal PTC among all PTCs

Among patients of multifocal PTC 8 (72.7%) were females while 3 (27.3%) were males. (Table-III) (Figure 3)

Gender	Frequency	Percent
Female	8	72.7
Male	3	27.3
Total	11	100.0

Table-III. Gender distribution among multifocal PTC patients (n=11)

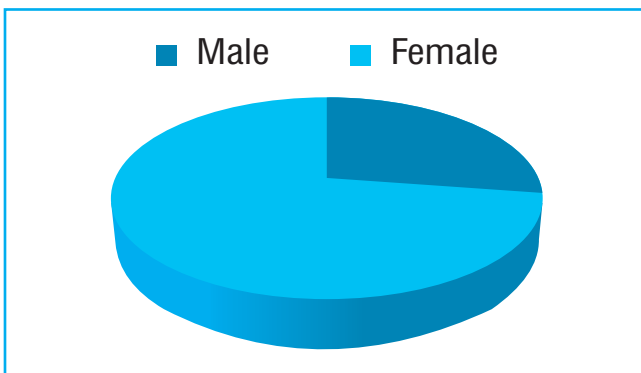


Figure 3: Gender distribution among multifocal PTC patients (Percentages)

Male to female ratio was 1:2.6. But if we compare within the gender, of all females of PTC 30% (8/26) had multifocal PTC while among all males 33% (3/9) had multifocal disease.

Mean age of presentation of patients with multifocal PTC was 44.5 years (SD ± 13.9) ranging between 18

and 65 years (Figure 4).

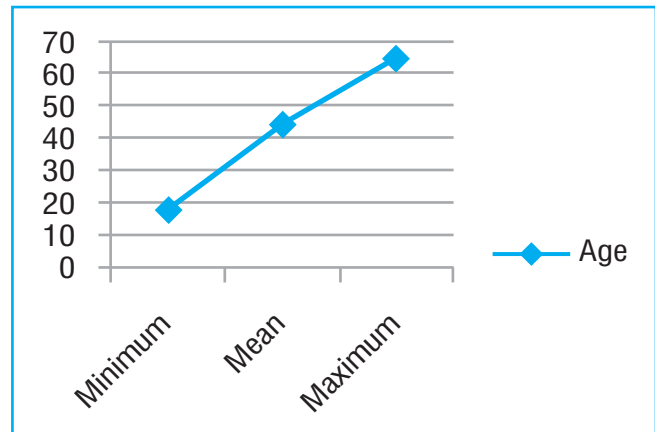


Figure 4: Age characteristics of multifocal PTC patients (n=11)

The highest numbers of patients were aged between 41-50 years (36.4%) (n=4/11), followed by the ones with age between 31-40 years (n=3/11) (27.3%) while 2 patients (18.2%) were aged between 61-70 years, (Figure 5)

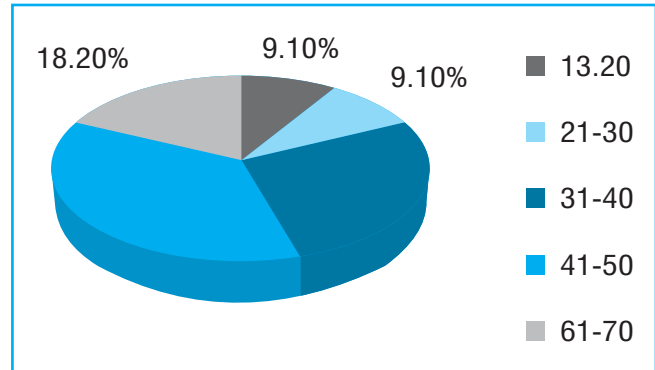


Figure 5: Distribution of age groups (Percentage)

The mean age of presentation was higher for males (58.33±11.5) as compared to females (39.38±11.38). (Figure 6)

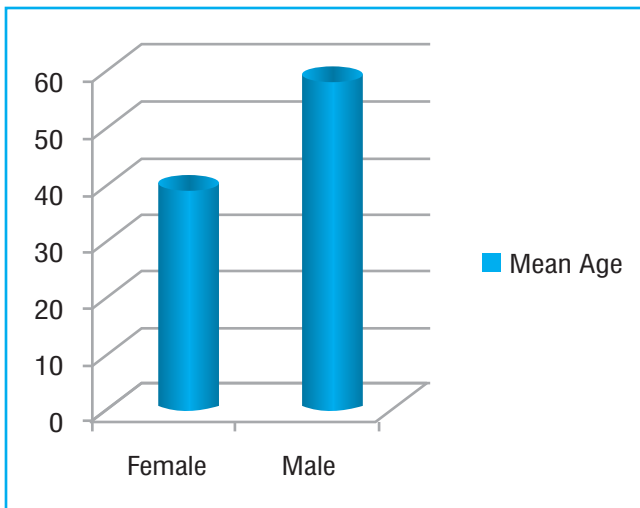


Figure 6: Comparisons of mean ages between males and females

DISCUSSION

PTC is a well differentiated thyroid carcinoma with an excellent prognosis. Multifocality is quiet common in patients of PTC¹⁷. Presence of multifocal disease is considered an aggressive form of the tumor due to its association with bad prognostic factors both in microcarcinomas and large PTCs^{6,14}.

In my study, frequency of multiufocal disease among all PTC's was 31.4%. This frequency is quiet variable in previous studies and in literature reported to range between 18-87%^{18,19}. In studies by Lin JD¹⁶, Lin YK²⁰, Bardet S²¹ and Zafon C¹², the reported incidence is 20%, 25%, 44% and 50% respectively that is consistent with the figures in my study. These studies recommend total thyroidectomy as well as close survillence of patients with multifocal PTC for both large and microcarcinomas^{16,20}. However in a study held in Pakistan, by Iqbal M et al, only 6.45% of PTC was found to have multifocal tumor²². In another study by Ullah N et al, only one patient out of 40, was found to have multifocal PTC²³. These two results do not match the international data as well as other Asian studies mentioned above. This might be due to variation in technique employed during histological diagnosis of PTC (large sections cut through the specimen may miss small foci of tumors)¹⁶. Also, these studies were

not conducted to address multifocal disease, thus implicating the need for a pilot study to know the magnitude of the problem.

CONCLUSION

Multifocality is considered a high risk factor⁶. Due to the commonness of multifocality and poor follow up of the patients, generally, in our culture; total thyroidectomy is to be considered a treatment of choice for PTC. This will eliminate any residual tumor foci in remaining thyroid tissue, which could become a recurrence in future¹⁷. We recommend that all patients diagnosed preoperatively on FNAC as having PTC or patients diagnosed on histopathology after partial thyroidectomy should undergo total thyroidectomy and completion thyroidectomy respectively.

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People have been known to achieve more
as a result of working with others than
against them.

Dr. Allan Fromme