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**Dr. Nimmy Venu**  
Associate Professor,  
Department of Pathology,  
Mount Zion Medical College,  
Chayalode, Adoor, Kerala,  
India

**Dr. Manchu B Hassan**  
Associate Professor,  
Department of Pathology,  
Mount Zion Medical College,  
Chayalode, Adoor, Kerala,  
India

**Corresponding Author:**  
**Dr. Manchu B Hassan**  
Associate Professor,  
Department of Pathology,  
Mount Zion Medical College,  
Chayalode, Adoor, Kerala,  
India

## **Incidental micropapillary carcinoma in thyroidectomy specimens and criteria employed for Diagnosis - A Retrospective Study**

**Dr. Nimmy Venu and Dr. Manchu B Hassan**

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### **Abstract**

Incidental Papillary thyroid Microcarcinoma (I-PTM) is a tumor focus that is clinically unsuspected before thyroid surgery and is identified in the final pathological examination of a thyroidectomy specimen. Papillary thyroid Microcarcinoma has a benign behavior with excellent prognosis in most cases and therefore several controversies regarding the need for completion surgery for excision of remaining thyroid tissue and lymphnodes exist. A total of 22 patients with PTM incidentally diagnosed on postoperative histopathological examination of the excised thyroid tissue were analyzed for assessing the rate of incidental diagnosis of PTM and their demographic features and the surgical procedures used for their treatment. I-PTM was diagnosed in 13.6 % of males and 86% of females respectively. The average age in cases with I-PTM was 40 years (range 25 to 65 years). Of the 22 cases of I-PTM, 11 were operated with a pre-diagnosis of Multi nodular goitre and 8 were operated with a pre-diagnosis of solitary nodule (colloid nodule /follicular adenoma). Total thyroidectomy was performed in 11 cases, sub-total thyroidectomy was performed in 9 cases and right hemithyroidectomy was performed in 2 cases. In one case of I-PTM lower margin of excision was involved and was subjected for radioiodine therapy at referral centre.

**Keywords:** Micropapillary Carcinoma, Thyroidectomy, I-PTM

### **Introduction**

Thyroid malignancy is the most common malignancy of the endocrine system with incidence of approximately 9/1,000,000 per year. The incidence of well differentiated thyroid carcinoma particularly Papillary carcinoma has been increasing since the last 20-30 years<sup>[1]</sup>. The surveillance epidemiologic and end results (SEER) database shows more than a two fold increase thyroid cancer since 1995. An important contributing factor for the increased incidence of such well differentiated cancers is the increasing diagnostic rates of Papillary thyroid microcarcinoma (PTM). Other factors such as iodination programmes in low iodine intake areas, detailed histopathological examination of the excised thyroid tissue and the increase in bilateral total excision of the thyroid gland during thyroid surgery have also been attributed to the increasing rates of large (> 10 cms) and micropapillary carcinoma<sup>[2]</sup>.

Papillary thyroid Microcarcinoma (PTMC) is a specific group of Papillary thyroid carcinoma (PTC) and is defined by WHO on the largest dimension of 1.0 cm or less. Most PTMC are not detectable at clinical examination and are diagnosed incidentally during pathologic examination of thyroid specimens after surgery for benign thyroid tumors or in autopsies. If malignancy is not suspected clinically, tumors that are detected during the histopathological examination of specimen undergoing thyroidectomy surgeries are called Incidental and PTMC is the most common type of incidental thyroid carcinoma<sup>[3]</sup>.

Incidental Papillary thyroid Microcarcinoma (I-PTM) is a tumor focus that is clinically unsuspected before thyroid surgery and is identified in the final pathological examination of a thyroidectomy specimen. Papillary thyroid Microcarcinoma has a benign behavior with excellent prognosis in most cases and therefore several controversies regarding the need for completion surgery for excision of remaining thyroid tissue and lymphnodes exist. The incidence of thyroid carcinoma in multi-nodular goiter (MNG) cases is reported to be 7.5-13 %. The diagnostic value of FNAC is low in the diagnosis of malignancy in MNG cases because of the presence of multiple nodules in MNG cases and many authors recommend Total thyroidectomy for non-malignant thyroid diseases such as MNG, C/c thyroiditis and Grave's disease<sup>[4]</sup>.

## Methodology

The objective of the study is to describe the incidence and clinical/pathological characteristics of I-PTM in an endemic goitre area. A retrospective analysis of patients who underwent surgical management of thyroid gland for different aetiologies at the medical college between January 2017 and December 2020 was performed. We excluded patients who underwent thyroidectomy for a diagnosis of carcinoma thyroid and also who had any of the following high risk characteristics pre-operatively as per 2015 American Thyroid association guidelines.

- Clinically apparent lymphnode metastasis
- Distant metastasis
- A history of radiation or a positive family history

Bilateral nodularity was not used as an exclusion criteria.

A total of 22 patients with PTM incidentally diagnosed on postoperative histopathological examination of the excised thyroid tissue were analyzed for assessing the rate of incidental diagnosis of PTM and their demographic features and the surgical procedures used for their treatment.

Histopathological parameters were established by microscopic criteria, including the size of PTM, location in the thyroid gland, multifocality and bilaterality in the thyroid lobes, thyroid capsule invasion, presence of lymphovascular invasion (LVI), lymphnode metastasis and tumor recurrence.

As an adjuvant treatment, analysed completion thyroidectomy or I-PTM cases with unilateral thyroidectomy, L-Thyroxin (LT4) treatment for the suppression of Thyroid stimulating hormone (TSH) and Radioiodine (RAI) treatment.

## Results:

For the study period of about 3 years 329 thyroidectomies were performed in our center and 52 (15.5%) patients were diagnosed with a malignancy. Of these patients 5(10%) were diagnosed with follicular carcinoma, 2(5%) were diagnosed with anaplastic carcinoma and 44 (85%) were diagnosed with papillary carcinoma. Of the papillary carcinoma cases 15(35%) were diagnosed with classical papillary carcinoma and 29 cases (65%) were diagnosed with papillary microcarcinoma (tumor size 1cm or smaller). FNAC was not performed in 4 of the 29 papillary microcarcinoma cases and 3 cases were diagnosed with malignancy by FNA and this group was not included in the study. In this study the IPTM rate was 7% (22 cases).

I-PTM was diagnosed in 13.6 % of males and 86% of females respectively. The average age in cases with I-PTM was 40 years (range 25 to 65 years). Of the 22 cases of I-PTM, 11 were operated with a pre-diagnosis of Multi nodular goitre and 8 were operated with a pre-diagnosis of solitary nodule (colloid nodule /follicular adenoma). Total thyroidectomy was performed in 11 cases, sub-total thyroidectomy was performed in 9 cases and right hemithyroidectomy was performed in 2 cases. In one case of I-PTM lower margin of excision was involved and was subjected for radioiodine therapy at referral centre.

**Table 1:** Malignant tumors detected in thyroidectomy specimens

Malignancy	Total 52 (16%)
Anaplastic carcinoma	2 (5%)
Follicular carcinoma	5 (10%)
Papillary carcinoma	44(85%)
Classical	6 (35%)
Papillary microcarcinoma	11 (65%)
Incidental	22 (7%)

**Table 2:** Sex distribution of patients with surgical disease of the thyroid gland

Patients	Total	Male	Female
Thyroidectomy cases	329	19 ( 5.7)	310 (94 %)
I-PTM cases	22	3 (13.6 %)	19 (86%)
Rate of I-PTM	7%	15.7%	6.1%

**Table 3:** Age distribution of patients with surgical disease of the thyroid gland

Age distribution	Patients with I-PTM*(%)
21-40 years	11 (50%)
41-60 years	9 (41%)
61-80 years	2 (9 %)
The average age in cases of I-PTM was 40 years * Incidental Papillary Thyroid microcarcinoma	

## Discussion

The ratio of IPTM is reported to be 7.1%–16.3% in the literature. The IPTM ratio in this study was 8.01%, which is consistent with the literature. In the literature, the ratio of incidental carcinomas among all papillary thyroid carcinomas is reported to be 49%–75.5%. In this study, the ratio of incidental carcinomas among all papillary thyroid carcinomas was 50 %. It is reported that the ratio of IPTM cases has increased in recent years and the increase in total thyroidectomies is a contributing factor. It is reported that the ratio of IPTM cases has increased in recent years and the increase in total thyroidectomies is a contributing factor. During our study period in the endemic area, the proportion of PTM was 65% among all papillary thyroid cancer cases, and a vast majority (75.8 %) of them showed incidental diagnosis, which indicates the importance of this pathology in the increasing rates of differentiated thyroid cancers. Lombardi *et al.* reported the proportion of I-PTM to be 42%, of which 75.5% were incidental in an area with a high prevalence of goitre. Rosa Pelizzo *et al* [5]. have also reported an increase in the proportion of PTM from 35% to 56%, of which 60% were incidental. In another study, the proportion of PTM in papillary thyroid cancer cases was determined to be 49%, of which 58% were incidental. The proportion of incidental cases among all PTM cases was found to be between 49% and 75.5%. Londero *et al* [6] recently reported that age-standardized rates increased from 0.35 per 100,000 per year in 1996 to 0.74 per 100,000 per year in 2008. About 59% of PTM cases were identified incidentally, and a significant rise in incidence was found only for the incidental cases [7-8].

The important properties of papillary thyroid microcarcinomas are multifocality and bilaterality. Multifocality is the presence of tumor in more than one focus in the same thyroid lobe or the presence of tumor in both lobes. In the literature, the multifocality rate in IPTM is reported to be 13%–41%. In this study, the multifocality rate was 9 % and the risk of cancer in the opposite lobe was 50% in patients with more than one focus in the same lobe. The

determination of multifocality in papillary microcarcinoma is difficult in the preoperative period. In this study, the rate of multifocality is lower than that reported in the literature. The reason for this variability is thought to be because of the use of different diagnostic criteria in different studies and may be because of the possibility of missing sight.

The increasing number of total thyroidectomies appears to be an important factor for the higher rate of incidental PTM. In our study, the incidence (11.6%) of I-PTM among total thyroidectomy cases was more than twice the incidence (5.5%) after hemithyroidectomy. Rosa Pelizzo *et al.* reported an increase in the proportion of total thyroidectomies (from 67% to 78%) and PTM (from 35% to 56%). The prevalence of PTM is higher in patients with bilateral surgery.

#### References:

1. Bernet, "Approach to the patient with incidental papillary microcarcinoma", *Journal of Clinical Endocrinology and Metabolism* 2010;95(8):3586–3592. View at : Publisher site / Google Scholar
2. N Neuhold, A Schulthies, M Hermann, G Krotte, O Koperek and P Binner. "Incidental papillary microcarcinoma of the thyroid-further evidence of a very low malignant potential: a retrospective clinicopathological study with upto 30 years of follow-up", *Annals of Surgical Oncology* 2011;18(12):3420-3436. View at : Publisher site / Google Scholar
3. M Rosa Pelizzo, D Rubello, C Bernardi *et al.* "Thyroid surgical practices shaping thyroid cancer incidence in North-Eastern Italy," *Biomedicine and Pharmacotherapy* 2014;68(1):39–43.
4. SC Londero, A Krogdahl, L Bastholt *et al.* "Papillary thyroid microcarcinoma in Denmark 1996- 2008: a national study of epidemiology and Clinical significance", *Thyroid* 2013;23(9):1159–1164.
5. M Rosa Pelizzo, D Rubello, C Bernardi *et al.* "Thyroid surgical practices shaping thyroid cancer incidence in North-Eastern Italy," *Biomedicine and Pharmacotherapy* 2014;68(1):39-43.
6. SC Londero, A Krogdahl, L Bastholt *et al.* "Papillary thyroid microcarcinoma in Denmark 1996- 2008: a national study of epidemiology and Clinical significance", *Thyroid* 2013;23(9):1159-1164.
7. Di Donna, M. G. Santoro, C. de Waure *et al.*, "A new strategy to estimate levothyroxine requirement after total thyroidectomy for benign thyroid disease," *Thyroid* 2014;24(12):1759-1764. View at: Publisher Site | Google Scholar
8. M Schlumberger and DM Hartl. "Postoperative management of differentiated thyroid cancer," in *Surgery of the Thyroid and Parathyroid Glands*, G. W. Randolph, Ed. Elsevier Saunders, Philadelphia, Pa, USA, 2nd edition, 2013.