

## CASE REPORT

**Metachronous Follicular Variant of Papillary Thyroid Microcarcinoma in a Case of Medullary Carcinoma Thyroid***Neelam Sood<sup>1</sup>, Binit Kumar Khandelia<sup>1\*</sup>**<sup>1</sup>Department of Pathology and Laboratory Medicine, Deen Dayal Upadhyay Hospital, New Delhi- 110064 (Delhi) India***Abstract:**

Medullary carcinoma and papillary thyroid carcinoma arise from the different cells. Simultaneous occurrence of both types is rare. Medullary carcinomas are characterised by calcitonin positivity. CK-19 is being touted as a upcoming marker for papillary carcinoma thyroid. This case highlights the utility of IHC to detect the metachronous follicular variant of papillary thyroid carcinoma in a follow up case of medullary carcinoma thyroid.

**Keywords:** Medullary Thyroid Carcinoma, Papillary Thyroid Carcinoma

**Introduction:**

Medullary Thyroid Carcinoma (MTC) and Papillary Thyroid Carcinoma (PTC) are thyroid neoplasms with entirely different cells of origin. MTC arises from neural crest derived parafollicular C cells of ultimobranchial body which produce calcitonin and PTC arises from thyroglobulin producing follicular cells of endoderm. MTC can present either alone or in association with Multiple Endocrine Neoplasia (MEN) syndromes. PTC can present with mutations in the RET gene, rearrangements of the tyrosine kinase receptors RET (ret/PTC) and NTRK1, and point mutation of the BRAF gene. Rarely, both tumours are seen in the same thyroid representing less than 1% of all thyroid malignancies. These present with different clinical presentation and biological behaviour [1-3]. In this report, we present a case of MTC in left lobe and incidentally detected Follicular Variant

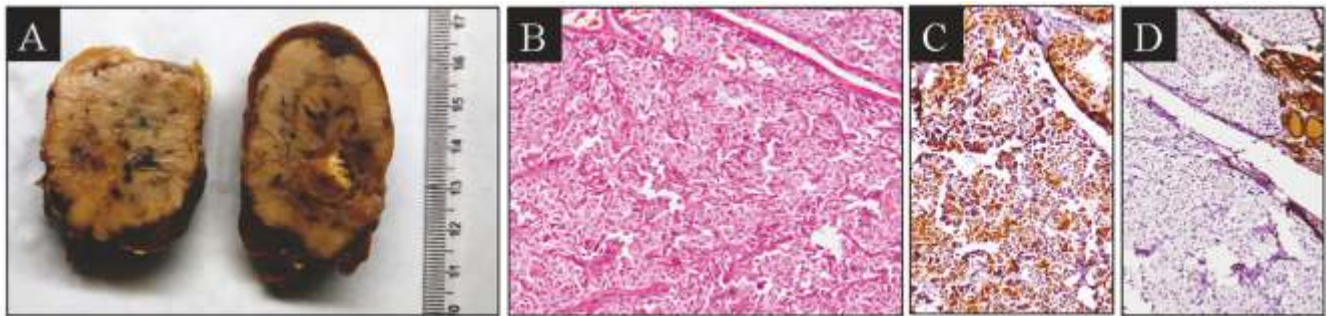
of Papillary Thyroid Microcarcinoma (mFVPTC) of right lobe of thyroid.

**Case Report:**

A 55 year old female presented to Ear Nose Throat (ENT) Outpatient Department (OPD) with swelling in the front of the neck more towards the left side. Ultrasonogram done outside was suggestive of nodular goitre. She underwent left hemithyroidectomy and a 6.5x4x4 cm left thyroid lobe was removed. Cut surface showed a solid circumscribed nodular lesion measuring 5x3.5x3 cm with central calcific areas (Fig. 1A). Histopathological examination showed a well circumscribed unencapsulated tumour arranged in insular pattern and nests separated by fibrous septae. The tumour cells were spindly to plasmacytoid with eccentric vesicular nuclei, stippled chromatin with 0-1 distinct nucleoli and moderate amount of eosinophilic cytoplasm (Fig. 1B). Immunohistochemistry (IHC) showed calcitonin positivity and thyroglobulin negativity in these cells (Fig. 1C). Intercellular amyloid was also seen on Congo red stain. A diagnosis of MTC was formulated and completion thyroidectomy with lymph node assessment was advised. Calcitonin levels immediately post surgery were found to be 599 ng/ml. Post-hemithyroidectomy Computed Tomography (CT) scan showed a subcentremetric nodule in right lobe of thyroid. A month later the patient underwent completion

thyroidectomy and right lobe of thyroid was removed measuring 5.5x2.8x1 cm. Cut surface showed a tiny white solid nodule measuring 0.2 cm in size (Figure 2E). Histopathological examination of the nodule showed a partially capsulated localized proliferation of columnar cells arranged in closely packed follicles with open nuclear chromatin, nuclear grooving and moderate amount

of cytoplasm (Figure 2F, G). These cells were CK19 positive and calcitonin negative confirming a diagnosis of follicular variant of papillary microcarcinoma (mFVPTC) of right lobe of thyroid (Figure 2 H, I). Calcitonin levels one month after the second surgery had come down to 200ng/ml. RET/PTC mutation studies were found to be negative.

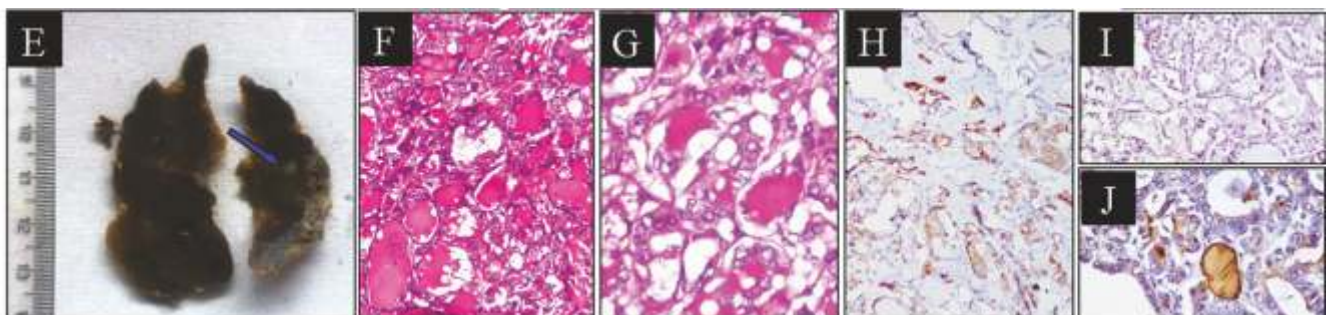


**Fig.1A: Left Lobe of Thyroid Showing Circumscribed Grey White to Yellow Nodular Lesion Measuring 5x3.5x3 Cm with Calcified Areas.**

**Fig. 1B: Spindled to Plasmacytoid Cells Arranged In Insular Pattern, Trabeculae and Nests. (H&E X100)**

**Fig. 1C: Calcitonin Positivity (X100).**

**Fig. 1D: Thyroglobulin Negative Tumor Cells (X100).**



**Fig. 2 E: Right Lobe of Thyroid Showing Tiny Gray White Nodule (Thick Arrow).**

**Fig. 2F: Tumor Arranged in Close Packed Follicles with Columnar Lining (H&E X100).**

**Fig. 2G: Tumor Cells showing Open Chromatin and Nuclear Grooves (H&E X400).**

**Fig. 2H: CK-19 Positive Tumor Cells (X100).**

**Fig. 2I: Tumor Cells showing Weak Thyroglobulin Positivity (X400).**

**Discussion:**

Similar to the cases reported by Gurkan *et al*, our case also had calcitonin positivity and thyroglobulin negativity on IHC in the MTC component. Unlike both the cases reported by Gurkan *et al*, wherein PTC was positive for thyroglobulin, the mFVPTC component showed weak cytoplasmic positivity for thyroglobulin in our case [4]. In addition CK-19 was done to confirm PTC and was found to be positive. Our

patient had no family history of, or associated features of MEN2A/B or any evidence of lymph node metastases in both surgical resections. Considering the fact that our case showed varying IHC profile in MTC and PTC, it supports the collision theory, wherein both the tumours are synchronous or metachronous accidental occurrence [1]. We also highlight the importance of CK 19 in identification of mFVPTC.

**References**

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