

Sporadic Medullary Carcinoma of Thyroid – A Case Report

Dr. M. Pavani¹, Dr. S. Chandra Sekhar², Dr. Imran Ali mohammed³,
Dr. S .Sandhya Anil⁴, Dr. H. Sandhya Rani⁵

¹.(Post Graduate) Kakatiya Medical College, Warangal. Telangana.506009

². Associate Professor, Kakatiya Medical College, Warangal, Telangana.506009

³. Assistant Prof, Kakatiya Medical College, Warangal.

⁴. Prof, Kakatiya Medical College, Warangal. Telangana.506009

⁵. HOD &Prof, Kakatiya Medical College, Warangal. Telangana.506009.

Abstract: Medullary thyroid carcinoma (MTC) originates from the thyroid parafollicular cells and accounts for 3% to 10% of all thyroid malignancies. Approximately 84% of cases are sporadic. A case of 45 yrs male patient presented with thyroid nodule and difficulty in swallowing. Fine-needle aspiration biopsy (FNAB) had been performed preoperatively subsequently it was reported as follicular neoplasm. In histopathology it is reported as medullary carcinoma of thyroid. IHC on sections show Thyroglobulin is negative, Calcitonin is positive and it is confirmed as medullary carcinoma of thyroid. Since it is a rare case, we present this case.

Keywords: Thyroid nodule, Medullary carcinoma of thyroid, Calcitonin.

I. Introduction

Medullary thyroid carcinoma (MTC) is a rare tumor comprising 3% to 10% of all thyroid malignancies.[1]

It is considered to be in the category of neuroendocrine tumors with biologic and pathologic features differing from those of epithelial thyroid tumors because it originates from calcitonin-secreting parafollicular cells (C cells).[2,3]. The two forms of MTC, hereditary and sporadic, have an incidence of 16% and 84%, respectively. Hereditary MTC, which has an autosomal dominant pattern, consists of multiple endocrine neoplasia (MEN) syndrome (type 2A or 2B) or familial non-MEN MTC.[4–7].

Grossly it is well circumscribed, but some will show infiltrative borders. Some tumours will show gross necrosis and haemorrhage.[8,9]. Microscopically it may be circumscribed. Tumour cells are arranged in nests separated by varying amounts of stroma. Tumour nests are composed of round, oval/spindle shaped cells. Intranuclear cytoplasmic inclusions are seen. Stroma characteristically contains amyloid, approximately 25% of medullary carcinomas do not contain amyloid.

II. Case Report

A 45 yr old male patient presented with a thyroid swelling and difficulty in swallowing. FNAC was done and reported as follicular neoplasm. Hemithyroidectomy was done and the specimen was sent to histopathology.

Gross: well circumscribed, some tumours show infiltrative borders.

Cut Section: circumscribed grey white solid area measuring 2 cm. To one end normal thyroid tissue is seen [Figure 1]



Figure 1: Hemi thyroidectomy specimen with circumscribed nodule

Microscopy:

H & E stained section revealed cells arranged in solid pattern , papillary and predominantly nested pattern separated by connective tissue septa with areas of necrosis and hyalinization and amyloid like material [Figure 2]

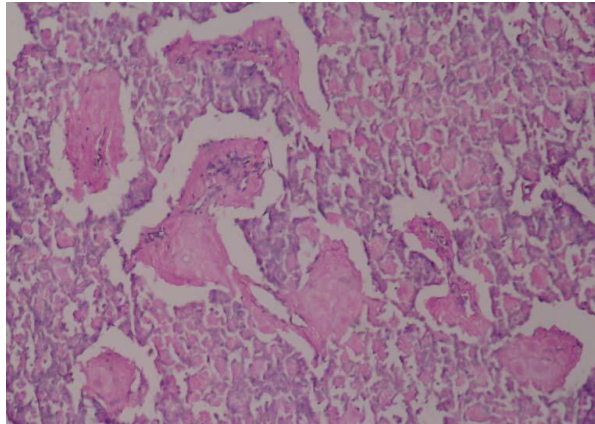


Figure 2: H&E Section [400x] shows tumour cells in nests,papillary pattern with amyloid like material.

IHC:

Thyroglobulin – negative [Figure3]

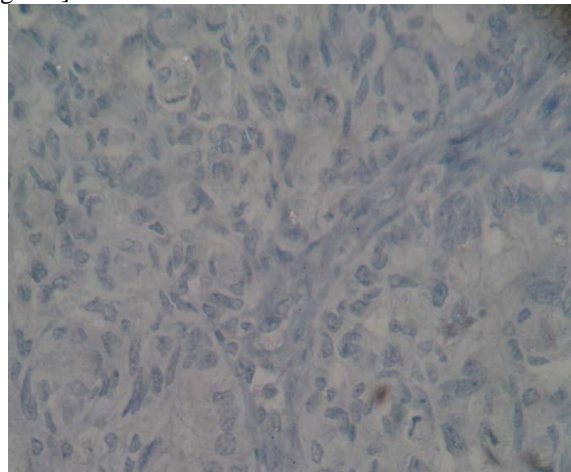


Figure 3: IHC Thyroglobulin – negative Calcitonin – positive.

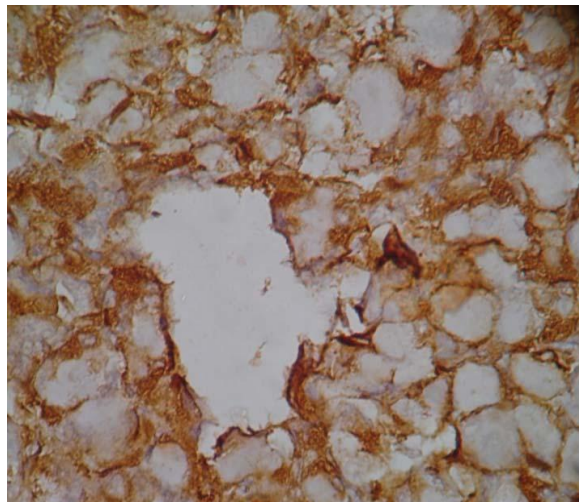


Figure 4: IHC Calcitonin – positive.

III. Discussion

Medullary carcinoma is also called as solid carcinoma (with amyloid stroma) , hyaline carcinoma or C cell carcinoma. [10]. Grossly the typical tumour is solid , firm , nonencapsulated but relatively well circumscribed and has gray to yellowish cut surface. When greatest diameter of the tumour is 1 cm or less, the tumour is referred to as Medullary microcarcinoma. Histologically there is solid proliferation of round to polygonal cells of granular amphophilic cytoplasm and medium sized nucleus, separated by a highly vascular stroma, hyalinised collagen and amyloid. Calcification is common. The tumour cells may be plasmacytoid ,spindle shaped, oncocytic, squamoid or exhibit bizarre features(so called Anaplastic or Giant cell type) [11,12]. Other unusual variants are True papillary form , clear cell variant, small cell type, pigmented (melanin producing) variant. Immunohistochemically , tumour cells are reactive for keratin , TTF 1, calcitonin, NSE. They are negative for Thyroglobulin. [13][Fig 3]. Calcitonin is present in 80–90% of the tumors.Although many cases demonstrate extensive calcitonin immunoreactivity throughout the tumor, others may show only focal and weak reactivity. [Fig 4].

IV. Conclusion

Medullary carcinoma of thyroid is a neuroendocrine tumour of parafollicular C cells. We present this case,because of its rarity.

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