CASE REPORT

MEDULLARY CARCINOMA THYROID: A CASE REPORT

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ABSTRACT: 18 year female presented with right side solitary thyroid nodule measuring 2x2cm of two months duration. On examination no lymphadenopathy, rest of the systemic examination was normal. Patient's elder sister underwent Hemi- thyroidectomy for the same complaint HPE of specimen reported as medullary carcinoma thyroid. Patient is in euthyroid state, H/o loss of weight, no h/o loss of appetite, No h/o bone pains, pain abdomen, No h/o diarrhea/constipation, No h/o cough, hemoptysis, No h/o head ache, palpitations, sweating.
KEYWORDS: Medullary carcinoma thyroid, RET Proto oncogene, MEN 2A.

INTRODUCTION: Medullary carcinoma thyroid accounts for about 5% of thyroid malignancies. Most patients are present between 50 to 60 years. Most of them occur sporadically; approximately 25% occur within the spectrum of several inherited syndromes such as familial MTCs, MEN2A and MEN2B. All these variants are known to result secondary to germ line mutation in RET proto-oncogene

CASE REPORT: 18 year old female presented with a right sided solitary thyroid nodule measuring 2x2cmwhich was noticed accidentally by the patient two months back .on examination no lymphadenopathy, rest of the systemic examination normal. Patient elder sister underwent hemi thyroidectomy for the same complaint HPE of specimen reported as medullary carcinoma thyroid in a euthyroid state, H/o loss of weight, no h/o loss of appetite, No h/o bone pains, pain abdomen, No h/o diarrhea/constipation, No h/o cough, hemoptysis, No h/o head ache, palpitations, sweating, Thyroid profile - normal; Serum Calcitonin - 438 pg/ml; Serum calcium - 9.4 mg/dl; Plasma metanephrines – Normal; FNAC – Spindle cell variant of Medullary Carcinoma of Thyroid; CT Neck – rt solitary thyroid nodule; CT abdomen, CT brain – normal. Patient underwent total thyroidectomy with central neck node dissection. Relevant investigations done to rule out whether it is a sporadic case or familial case by mutation analysis of RET proto-oncogene reported as a heterozygous variation leading to amino acid substitution of Cystiene to Tyrosine at codon 634 was detected in exon of RET gene in this subject

DISCUSSION: Ninety percent to 95% of thyroid cancers are categorized as well-differentiated tumors arising from the follicular cells. Papillary, follicular, and Hürthle cell carcinomas are included in this category. MCT accounts for about 6% of thyroid cancers (~20%-30% of which occur on a familial basis, MEN 2A and 2B.[(1)] Most of the medullary carcinoma thyroid occurs sporadically; approximately 25% occur within the spectrum of several inherited syndromes such as familial MTCs, MEN2A, MEN2B. MEN2A presents with Medullary Carcinoma Thyroid, Pheochromocytoma and parathyroid hyperplasia.[(2)] The respective frequency of these tumors in

MEN2 is over 90%medullary thyroid carcinoma, approximately 40 to 50% pheochromocytoma and 10 to 20% parathyroid hyperplasia. MEN2B presents with Medullary Thyroid carcinoma and pheochromocytoma. And also with mucosal neuromas and intestinal ganglioneuromas.[3] The most common presentation of MTC is as a single or multiple thyroid nodules, with or without palpable lymph nodes. This tumor may also present in the context of a known kindred with hereditary MTC. In most such patients, early screening by genetic testing will result in a thyroidectomy before the presence of any detectable disease. Rare patients with hereditary MTC may present with clinical features of a pheochromocytoma (MEN2A or MEN2B), Hirschsprung's disease with intestinal obstruction or pseudo obstruction (MEN2A or MEN2B), or hyperparathyroidism (MEN2A). A few patients, generally with widespread disease and hepatic metastases, may present with diarrhea.[4,5,6,7,8,9] Patients with medullary carcinoma often present with a neck mass that may be associated with palpable cervical lymphadenopathy (15–20 percent). Local invasion produces symptoms of dysphagia, dyspnea, or dysphonia. Distant blood-borne metastases to the liver, bone (frequently osteoblastic), and lung occur later in the disease. The female: male ratio is 1.5:1. Medullary thyroid tumors secrete calcitonin and carcinoembryonic antigen (CEA). The diagnosis of medullary carcinoma is established by history, physical examination, raised serum calcitonin or CEA levels, and FNA cytology of the thyroid mass. The diagnosis of MTC can be made easily by fine-needle aspiration biopsy, based on immune histochemical staining for calcitonin and the presence of amyloid.[10] The protein AA and light chain variable fragments, which are present in many different amyloids, are absent in amyloid of MCT. The MCT amyloid occurs only in the vicinity of the tumor cells and seems to be a product of the epithelial cells.[11] All new patients with MTC should be screened for RET point mutations, pheochromocytoma, and hyperparathyroidism.[2] Total thyroidectomy is the treatment of choice. Chemo and radiotherapy has no definitive role In patients with palpable cervical nodes or involved central neck nodes, ipsilateral or bilateral, modified radical neck dissection is recommended. Total thyroidectomy is indicated in RET mutation carriers and should be performed before age 6 years in MEN 2A patients and prior to age1 year in MEN 2B patients.[1] All these variants are known to result secondary to germline mutation in RET proto-oncogene on exons 10, 11, 13, 14 of various codons. Substitution mutations involving the codon 609, 611, 618, 634 of exon 11 are found in 98% of MEN2A AND 88% of FMTC families.[3,12,13,14]

CONCLUSION: In the present case there is mutation on 634 codon of exon 11 of RET proto oncogene with no other endocrine involvement and with no familial history most probably case may come under MEN2A with no other endocrine abnormalities at present.

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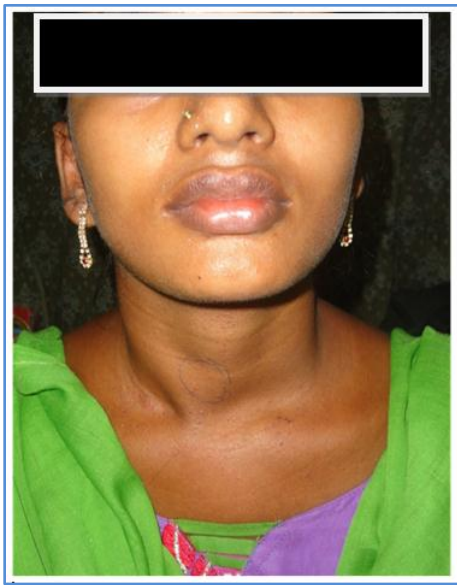
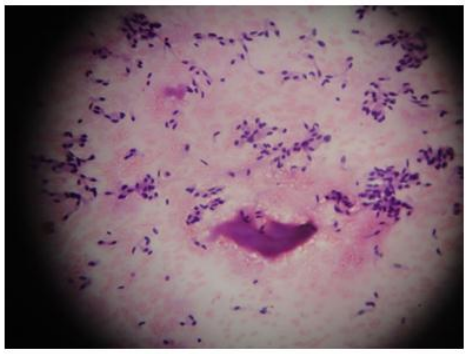


Medullary carcinomas may arise as a solitary nodule or may present as multiple lesions involving both lobes of the thyroid

Medullary thyroid carcinoma develops as a firm, white, almost chalky tumor within the thyroid gland [3,11]



The diagnosis of MTC can be made easily by fine-needle aspiration biopsy, based on immunohistochemical staining for calcitonin and the presence of amyloid [14] The transformed C cells are usually polyhedral or polygonal in shape and may be arranged in a variety of patterns [3,11]

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