Medullary carcinoma thyroid with intracranial metastasis

INTRODUCTION

Medullary thyroid carcinoma was least common thyroid malignancies compared to papillary thyroid carcinoma. In medullary thyroid carcinoma most common presentation was neck swelling with secondaries neck. Thyroid carcinoma with metastatic cranial involvement is very rare. Intracranial metastasis in thyroid carcinoma was <1%. In thyroid carcinoma, medullary carcinoma was <10%. Medullary carcinoma with isolated skull metastasis even rare.[1]

CASE REPORT

A 58-year-old male patient admitted with a complaint of swelling over the left side of the scalp for two years duration. He noticed a swelling in front of the neck after he noticed a swelling over the scalp for 1-year duration, and also he noticed a swelling over the left side of the neck for the past 1-year duration. No history of headache, seizure episode, blurring of vision and vomiting. No history suggestive of either hypothyroid or hyperthyroid features. No history suggestive of compressive symptoms. History of loss of appetite and lose of weight present. No history of previous surgery or surgical intervention. No history of prolonged drug intake. No history of previous irradiation. No history of similar episodes in the family.

Scalp examination shows a swelling of 8 cm × 7 cm over the left fronto parietal region, irregular surface, hard in consistency. A neck examination shows a swelling of the size about 4 cm × 3 cm, irregular surface, seen in front of the neck [Figure 1]. Moves with deglutination. Cervical region examination shows multiple cervical lymph node largest measures 3 cm × 3 cm, which was hard in consistency, not mobile [Figure 2]. Investigations show anemia and normal thyroid function test. Serum calcium shows normal level. Serum calcitonin shows >100 ng/dl. Fine needle aspiration of the thyroid gland shows features of medullary thyroid carcinoma [Figure 3]. Computed tomography (CT) brain shows lytic destructive lesion of left fronto parietal bone with intensely enhancing large soft tissue component 5.5 cm × 5.9 cm × 5.9 cm noted. The soft tissue components have extra-dural and scalp components causing compression on the brain parenchyma, effacement of adjacent sulci and midline shift [Figure 4]. Bone scan shows metastatic bone disease in the region corresponding to the parietal bone of left side skull with nonspecific polyarthritis [Figure 5].

Because of the rare presentation of medullary thyroid carcinoma with brain metastasis the treatment modality and availability of treatment options also limited. As the patient presented with metastatic disease over the skull without compressive symptoms planned for palliative radiotherapy with palliative chemotherapy.
DISCUSSION

Medullary thyroid carcinoma is a neuroendocrine tumor of the parafollicular thyroid C cells. The C cells are of neural crest origin and migrate to the ultimobranchial body and are incorporated into the thyroid when the ultimobranchial body fuses with the thyroid gland. C cell secrete a variety of hormone, but calcitonin is the most common. Hence, serum calcitonin levels can be used to confirm the diagnosis and for long-term follow-up for recurrence.

Medullary thyroid carcinoma accounts for 5–10% of all thyroid malignancies. Majority of medullary thyroid carcinoma are sporadic. However, 20% of cases associated with germ line mutation. Hereditary medullary thyroid carcinoma mostly due to multiple endocrine neoplasia syndrome type 2a or 2b or familial medullary thyroid carcinoma.

The clinical course of medullary thyroid carcinoma varies from indolent tumor to an aggressive variant. That is associated with extensive metastasis.
Brain metastasis from medullary thyroid carcinoma is extremely rare. Till now only a few cases are reported as brain metastasis from medullary thyroid carcinoma. Most of the above is associated with as a part of multiple endocrine neoplasia syndromes.

**Diagnosis**

Medullary thyroid carcinoma has Variety of presentation. Most of the sporadic medullary thyroid carcinoma presents with palpable neck masses. Most of the medullary thyroid carcinoma located in the posterior thyroid and tend to invade or compress the adjacent structures causing hoarseness dysphagia and stridor. Medullary thyroid carcinoma produces a high level of calcitonin, which produces flushing diarrhea and weight loss. Lymph node involvement is seen in 35–50%. Most common regional lymph node metastasis was cervical and upper mediastinal lymph nodes. Adjacent structures involvement such as trachea and cervical and mediastinal vessel and nerve involvement is very high. Distant metastasis occurs in 10–15% of the patient at the time of diagnosis. Most common location of metastasis includes the mediastinum, liver, lungs, and bone.

**Investigations**

Most of the time diagnosis is made from a fine needle aspiration of a thyroid nodule or metastatic node. Medullary thyroid carcinoma is characterized by the presence of stromal amyloid and the absence of thyroid follicle. Doubtful cases confirmed by immunohistochemistry. Newer technique for diagnosis of medullary thyroid carcinoma was calcitonin level of the washout fluid from fine needle aspiration. Measurement of serum calcitonin can be useful to confirm the diagnosis. Serum calcitonin >100 pg/ml confirm diagnosis of medullary thyroid carcinoma. Carcinoembryonic antigen (CEA) also a useful marker for medullary thyroid carcinoma. CEA level >100 ng/ml are associated extensive nodal involvement and metastasis. Contrast enhanced CT of chest mediastinum and abdomen recommended for metastatic evaluation.

Medullary thyroid carcinoma with intracranial metastasis mostly will have distant metastasis in other sites. In intracranial metastasis most of the cases associated with the intra-parenchymal metastasis. Most of the intracranial metastases asymptomatic with presentation range from 3 years to a maximum of 25 years.

Management of medullary thyroid carcinoma with intracranial metastases is debatable. Some authors suggest resection of intracranial metastasis if the lesions are symptomatic, but it is not going to improve the survival of the patient. Neither chemotherapy nor chemotherapy is going to improve the disease free survival period in medullary thyroid carcinoma. As we know medullary thyroid carcinoma doesn’t contain thyroid follicles, there is no role for radioactive iodine therapy.

**CONCLUSION**

Medullary thyroid carcinoma presents with a variety of presentation. Presence of intracranial metastases with medullary carcinoma was very rare. Even though it was rare, it should be considered as a differential diagnosis for skull metastases. Management of medullary carcinoma thyroid with skull metastases was debatable because most of the cases associated with advanced disease. Symptomatic intracranial metastases can be offered for surgery. Because of absence of thyroid follicles radioactive iodine has no role.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

**REFERENCES**


**How to cite this article:** Pandiaraja J, Viswanathan S. Medullary carcinoma thyroid with intracranial metastasis. Oncol Gas Hep Rep 2016;5:37-9.

**Source of Support:** Nil. **Conflict of Interest:** None declared.