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Case Report

Cytological diagnosis of metastatic medullary thyroid carcinoma: a case report

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ABSTRACT

Medullary thyroid carcinoma is a rare tumor arising from parafollicular or C cells of thyroid gland. As it is a rare tumor, cytological diagnosis is often difficult due to various patterns of growth and cytological features. Here we report a case of medullary thyroid carcinoma with metastases to cervical lymph node and skull bone. The diagnosis was established by fine needle aspiration cytology of the thyroid, cervical lymph node and scalp swelling. Preoperative serum calcitonin was done and was elevated.

Keywords: Medullary thyroid carcinoma, Metastases, Calcitonin, Aspiration cytology

INTRODUCTION

Medullary Thyroid Carcinoma (MTC) is a malignant neoplasm of thyroid gland arising from calcitonin secreting cells. It is sporadic in 80% cases and familial in around 20% and associated with MEN (Multiple endocrine neoplasia IIA or IIB).[1] Sporadic forms are most common in women in older individuals with a mean age of 5 to 6 decades. MTC clinically presents as a unilateral palpable nodule with 50% of cases associated with cervical lymph node metastases. Distant metastases occur through hematogenous spread to liver, lungs, bone and occasionally brain.[2]

Here we present a case of MTC metastastatic to lymph node and skull bone which was diagnosed on cytology along with discussion of differential diagnosis.

CASE REPORT

A 58 year old male presented with left cervical lymph node enlargement and scalp swelling initially for the past 2 years, now presented with thyroid swelling. CT picture of skull bone showed a lytic destruction of frontoparietal bone with intense enhancing large soft tissue component. Preoperative calcitonin[3] was done and elevated to 155 pg/ml.

Fine needle aspiration cytology from thyroid lesion, left cervical lymph node and left side scalp swelling was done using 23 gauge needle and 5 ml syringe.

Microscopic examination of thyroid cytology showed a cellular smear with singly dispersed and clusters of spindle shaped cells with scant cytoplasm and hyperchromatic nuclei with stippled nuclear chromatin. A diagnosis of MTC was made.

Smear from cervical lymph node shows spindle shaped cells with similar morphology in the background of lymphocytes.

With these features a diagnosis of secondary deposit from MTC was made out. Smears from scalp swelling also showed secondary metastastic deposit.

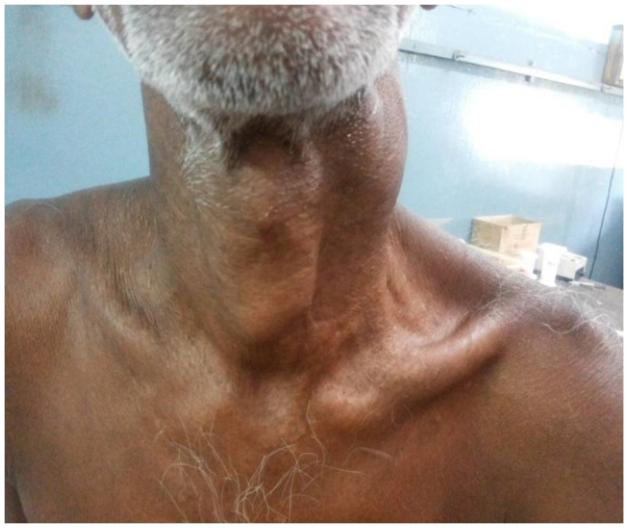

Figure 1: Thyroid swelling involving the left lobe.

Figure 2: Scalp swelling involving the left side.

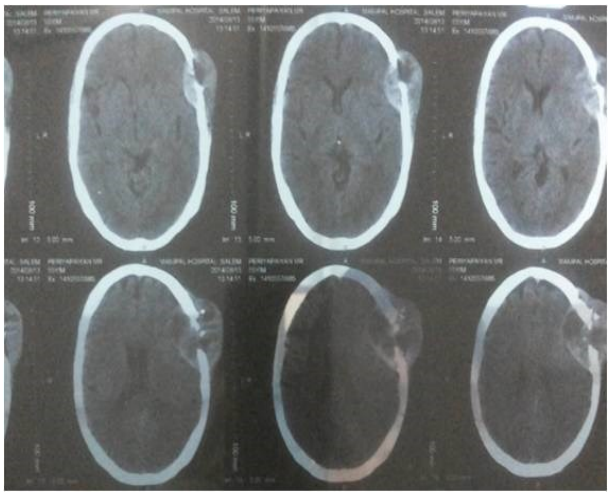

Figure 3: CT picture showing a lytic lesion involving the frontoparietal bone.

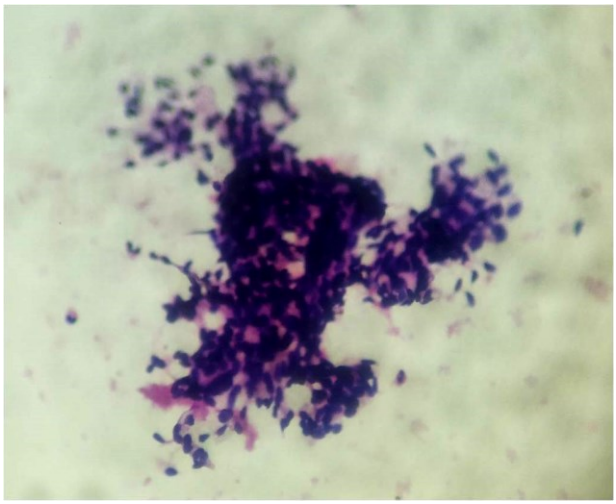

Figure 4: Cytology from thyroid shows clusters of spindle shaped cells with hyperchromatic nuclei.

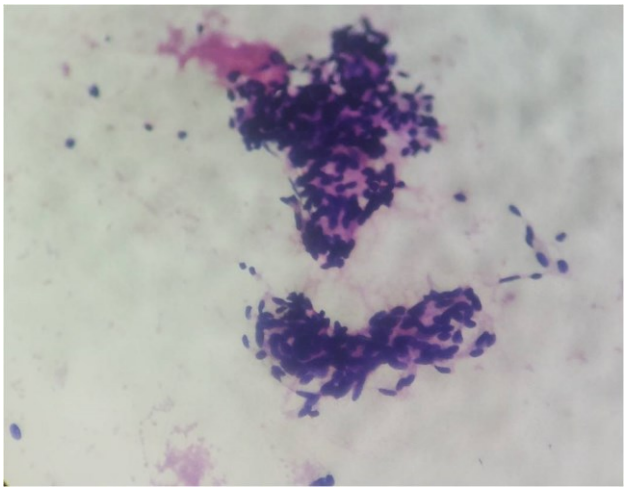

Figure 5: Cytology from scalp swelling showing clusters of spindle shaped cells.

DISCUSSION

Incidence of MTC metastatic to bone is very rare (<1%), follicular thyroid carcinoma metastastic to bone 7-28% and papillary thyroid carcinoma 1.5-4%.[6] Hence we present this case for its rare mode of metastases.

Vertebra is the most common site of bone metastases in thyroid carcinoma around (52.2%), followed by femur (20%), pelvis (16%) and skull (15%). Pain is the most common complaint observed in our patient. Hence it was bone metastases that made him seek medical assistance. Metastases detected at the time of diagnosis are known as synchronous metastases. Synchronous metastases are reported to occur in 40-75% cases of thyroid cancers mostly to cervical lymph node. There have been a few case reports in literature of intracranial metastases in MTC.[7] Our patient likely had sporadic MTC in the absence of raised catecholamine and normal parathyroid status. Lack of genetic testing is one of the limitations of

this report. Anti TTF-1 antibodies are very useful in distinguishing thyroid carcinoma from other carcinomas. Metastatic thyroid carcinoma can be easily mistaken for a soft tissue tumor or skin adnexal tumour and cinically depending on specific cytomorphology of the tumor, [a] number of differential diagnosis may arise.[5] FNAC smears from the plasmacytoid medullary thyroid carcinoma are usually cellular, yielding tumor cells that are dispersed and are characterized by eccentric nuclei, "neuroendocrine type" chromatin, inconspicuous nucleoli, binucleated and multinucleated cells and a relatively clean background.[9] Apart from the classic plasmacytoid cell pattern, the neoplastic cells may resemble spindle cells or small cells with scanty cytoplasm and moulding of nuclei.[4] Spindle cell pattern can mimic a fibroblastic tumor and melanoma. Hence measurement of serum calcitonin levels is very helpful in diagnosis.[8]

CONCLUSION

This report intends to highlight the clinical presentation of a rare variant of thyroid carcinoma. Any patient with lytic skull metastases with unknown primary should undergo evaluation to rule out occult thyroid malignancy. As fine needle aspiration cytology is a simple OPD procedure it can greatly help us in a definitive pre-operative diagnosis of MTC.

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REFERENCES

1. Matias-Guiu X, DeLellis RA, Moley JF. Medullary thyroid carcinoma. In: DeLellis RA, Lloyd RV, Heitz PU, Eng C, eds. Pathology and Genetics of Tumors of Endocrine Organs. 1st ed. World Health Organization Classification of Tumors. Lyon: IARC Press; 2004: 86.
2. Nashed C, Sakpal SV, Cherneykin S, Chamberlain RS. Medullary thyroid carcinoma metastatic to skin. J Cutan Pathol. 2010;37:1237-40.
3. Costante G, Durante C, Francis Z, Schlumberger M, Filetti S. Determination of calcitonin levels in C-cell disease. Clinical interest and potential pitfalls. Nat Clin Pract Endocrinol Metab. 2009;5:35-44.
4. Orell SR, Sterrett GF, Whitaker D. FNAC. In: Orell SR, Sterrett GF, Whitaker D, eds. A Book. 4th ed. New Delhi: Elsevier; 2005: 125-164.
5. Papaparaskeva K, Nagel H, Droese M. Cytological diagnosis of medullary thyroid carcinoma. Diagn Cytopathol. 2000;22:351-8.
6. Tickoo SK, Pittas AG, Adles M, Fazzari M, Larson SM, Robbins RJ, et al. Bone metastases from thyroid carcinoma. A histopathology study with clinical correlation. Arch Pathol Lab Med. 2000;124(10):1440-7.
7. Fletcher JP. Medullary solid carcinoma of thyroid. A review of 249 cases. Arch Surg. 1970;100(3):257-62.
8. Jackson CE, Tashjian AH, Block MA. Detection of medullary thyroid carcinoma by calcitonin assay in families. Ann Intern Med. 1973;78:845-52.
9. Forrest CH, Frost FA, de Boer WB, Spagnolo DV, Whitaker D, Sterrett BF. Medullary carcinoma of the thyroid: accuracy of diagnosis of fine-needle aspiration cytology. Cancer. 1998;84:295-302.

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