AN OCCULT FOLLICULAR CARCINOMA THYROID PRESENTING AS SOLITARY DURAL METASTASIS - INTERESTING CASE REPORT

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ABSTRACT

Thyroid cancer accounts for approximately 1% of all human cancers. Follicular carcinoma thyroid (FCT) is the second most common thyroid cancer after papillary carcinoma. Follicular carcinoma thyroid accounts for 10-15% of clinically evident thyroid malignancies. Follicular carcinoma thyroid commonly metastasize to lung and bone. Intracranial metastasis occurs in about only 1%. Follicular carcinoma thyroid very rarely manifests itself as a solitary dural metastatic lesion. Here we report a rare case of 50 year old female who presented initially with a solitary osteolytic dural mass mimicking a meningioma in CT/MRI and at surgery. Histopathological and immunohistochemical (IHC) examination of the resected intracranial mass revealed metastasis from occult follicular carcinoma thyroid. Retrospective sonographic guided aspiration cytology of thyroid revealed Follicular neoplasm and confirmed with histopathology after resection. This case is presented for its extreme rarity, unusual initial presentation, diagnostic importance of histopathology and immunohistochemistry for definitive diagnosis and prognosis.

KEYWORDS: FCT- Follicular carcinoma thyroid, dural metastasis, Meningioma.

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INTRODUCTION

Although tumors of thyroid account for only 1% of overall human cancers, they represent the most common malignancies of the Endocrine system. Follicular carcinoma thyroid (FCT) accounts for 10-15% of thyroid malignancies. 80% of patients with FCT are seen initially with solitary thyroid nodule and commonly metastasize to lung and bone. Intracranial dural metastasis occurs in only 1% of FCT. Isolated forms have radiological features that strongly suggest a primary tumor and furthermore their macroscopic appearance during surgery may even be mistaken for a meningioma. Nevertheless, there are only very few reports regarding the initial presentation of patients with Dural metastasis leading to the diagnosis of FCT. This case is presented for its rarity, unusual initial presentation and to emphasize the diagnostic value of histopathology and IHC for definitive diagnosis and prognostic relevance.

CASE REPORT

A 50 year old woman presented with a scalp swelling which measured 5x4cm since 2 months. The patient had headache and no other neurological signs. CECT and MRI showed an extra-axial Dural based solitary well circumscribed mass lesion in right parieto-occipital region with skull erosion propagating outwards mimicking a meningioma (Fig 1).

Other investigations were normal. Tumor resection was done and sent for histopathological examination. Grossly, the resected specimen measure 5X4X2cm. Cut surface- greyish white with partly solid and cystic areas (Fig 2).
Microscopically, the tumor area showed variable morphology ranging from well-formed colloid containing follicles (Fig 3) to trabecular (Fig 4A) and solid pattern.

Some of the poorly differentiated areas showed insular pattern characterized by well-defined nests of tumor cells surrounded by fibro vascular septa enclosing numerous vascular spaces (Fig 4B).

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Tumor cells were small, uniform with round nuclei and indistinct nucleoli. Extensive areas of necrosis seen (Fig 5). After HPE, provisional diagnosis of FCT made.

**Figure 5**

*HPE: NECROSIS IN DURAL TUMOR*

![Image of necrosis in dural tumor](image1)

*Figure 5: Low power view of Dural tumor show extensive areas of necrosis with nuclear debris. (H&E)*

Immunohistochemical analysis revealed strong positive staining for TTF-1 (Thyroid Transcription Factor) (Fig 6A) and positive staining for thyroglobulin confirming thyroid origin of metastatic deposits (Fig 6B).

**Figure: 6A & 6B**

*IMMUNOHISTOCHEMISTRY OF DURAL TUMOR*

![Image of immunohistochemistry](image2)

*Figure 6A: The nuclei of the neoplastic cells showed strong positive immunostaining for TTF-1. (Thyroid Transcription Factor)*
Retrospective evaluation of thyroid by USG revealed a well-defined hypoechoic lesion measuring 1X1 cm in the left lobe of thyroid. USG guided FNAC thyroid revealed groups of follicular cells arranged in a micro follicular pattern suggesting follicular neoplasm (Fig 7A). Subsequently, histopathological examination of thyroidectomy specimen confirmed Follicular carcinoma thyroid (Fig 7B).

**DISCUSSION**

Intracranial metastasis is the most frequent brain tumors in adults, occurring in the cerebrum, cerebellum or meninges. Epidural metastasis are invariably associated with tumor deposits from carcinoma lung ((35%), breast (20%), kidney (10%), skin (10%), GIT (10%) and very rarely from thyroid (<1%) in adults, whereas in children the primary site is most frequently an adrenal or sympathetic neuroblastoma. Accurate diagnosis of primary origin in case of metastatic tumors is essential as it alters management and thereby prognosis in each case. Dural metastasis may arise from direct extension of skull metastasis or from haematogenous metastasis or rarely from outward progression of a cortical brain metastasis. Dural metastasis from thyroid carcinoma occurs via the free connections between the Batson’s vertebral venous plexus and dural sinuses. More recently arterial
spread has also been suggested because of the association with secondary cutaneous location in the territory of ipsilateral external carotid artery. Anecdotal reports of dural metastatic lesions suggest that isolated forms may have radiological features strongly suggestive of a primary tumor. Moreover, their macroscopic appearance may be mistaken for a meningioma. FCT presenting initially as solitary dural metastasis is uncommon. Intracranial metastasis occurs in only 1% of cases. Tagle P and co-workers reviewed the literature concerning 29 cases of dural metastasis mimicking meningioma. The most frequently reported primary neoplasms were kidney, breast and prostate. Only one out of 29 cases was reported to be arising from FCT. Florence Laigle–Donadey et al identified 198 cases of Dural-metastasis. Only one was noted to be arising from FCT. These studies indicates that the occurrence of Dural metastasis from FCT is very rare. The site of metastasis within craniospinal vault is of little help in identifying metastatic carcinomas from other primary CNS lesions unless there are multiple locations (MRULE). But our case is distinct in which the metastatic tumor presented as a solitary solid mass with regular margins and vascular formation which caused an extensive bone defect in parieto-occipital region. Our case is unique because it mimicked meningioma in CECT and MRI showing typical dural base with associated Dural tail and extra axial situation. This implies that even a classical CT & MRI appearance can lead to a mistaken diagnosis with the potential for serious treatment errors and medico legal consequences. TTF-1 a nuclear tissue specific protein transcription factor found only in thyroid and in few lung carcinomas. But thyroglobulin will be positive only in thyroid. Thus IHC plays an important role in confirmation of metastasis from an unknown primary. This case is unusual, as to the best of our knowledge only very few cases has so far been reported whereby occult asymptomatic FCT presenting initially as solitary Dural metastasis and being mistaken for meningioma. This case also made us to realize that thyroid metastasis must be included in the differential diagnosis even when a meningioma is suspected radiologically and intraoperatively.

CONCLUSION

To conclude that in all solitary dural metastatic lesions, occult FCT should be considered as a potential primary tumor. HPE and IHC play a pivotal role in confirmation of primary site in such situations. TTF-1 and Thyroglobulin (TG) immunostaining are more useful for confirming histological diagnosis.

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