

## Follicular carcinoma of thyroid presenting as brain metastasis

**Bhavana Grandhi<sup>1</sup>, Byna Syamasundara<sup>2</sup>, Amit Agarwal<sup>3</sup>,  
P. Umamaheshwara Reddy<sup>4</sup>**

Narayana Medical College and Hospital, Nellore, Andhra Pradesh

<sup>1</sup>Assistant Professor, Department of Pathology; <sup>2</sup>Associate Professor, Department of Pathology;

<sup>3</sup>Professor, Department of Neurosurgery; <sup>4</sup>Assistant Professor, Department of Radiology

**Abstract:** Metastatic brain tumors are a major cause of mortality in cancer patients. The primary tumor is most commonly seen in the lung, breast, colon and kidney and very rarely in the thyroid. We discuss a case of a 55 year old lady with presenting complaints of seizures. There is a past history of carcinoma thyroid for which she had underwent total thyroidectomy. Craniotomy was done and histopathological examination revealed metastatic deposits from follicular carcinoma thyroid.

**Key words:** Brain tumors, Follicular carcinoma, Metastasis, Thyroid.

### Introduction

Brain masses are mostly metastatic in origin, accounting for more than 50% of hospital admissions for brain tumors. The most common primary sites are tumors from the lung, breast, colon, kidney (2). Follicular carcinoma of thyroid is the second most common thyroid malignancy with distant metastasis to bone, lungs, and rarely to the brain, skin and adrenals. (1) Most of the CNS tumors are symptomatic at the time of diagnosis with most common being seizures and localized motor deficits. (3, 4) We report a case of a 55yr old female who presented to the Neurosurgery OPD with seizures and was diagnosed, metastasis from Follicular carcinoma thyroid.

### Case history

A 55 year old female came to the emergency with history of seizures. MRI brain was done showing parasagittal hypodense lesion and was admitted under Neurosurgery with a provisional diagnosis of Meningioma or Secondary deposits. Previous history of Carcinoma thyroid for which total

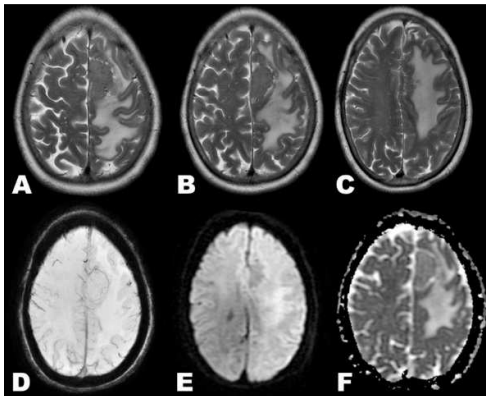
thyroidectomy was done twenty years back. Left parasagittal craniotomy was done with tumour excision and the specimen was sent for histopathological examination. Microscopic examination revealed glial tissue with adjacent tumor tissue showing well-formed follicles lined by epithelium showing nuclear atypia. Vascular invasion also seen and the diagnosis of metastatic deposits, probably of follicular carcinoma thyroid was given.

### Discussion

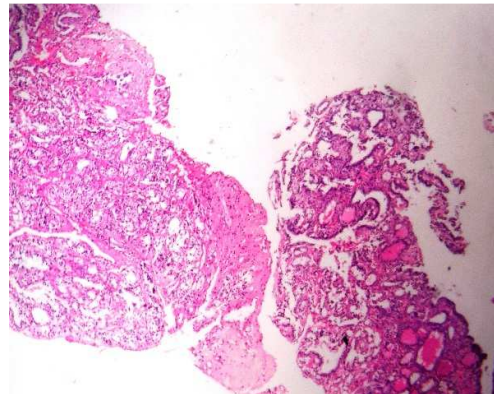
Brain metastasis is seen in 16-18% of cancer patients and in about 9% cases, it represents the only site of cancer. The intracranial compartment is of particular interest as most of the foci are symptomatic with highly lethal manifestations if left untreated. (8) Hematogenous spread is commonest route spread. The acute angle of the branching of pulmonary vessels makes the corticomedullary gray white junction, the commonest site of metastasis within the brain parenchyma. (5) Metastasis from thyroid carcinoma is rare and accounts for 0.1-5% of

cases in the reported series. Thyroid carcinoma is divided into 3 types, follicular, papillary and anaplastic carcinoma. The metastatic potential is a function of the tumour size, capsular and vascular invasion. (8) Disseminated metastasis as an initial presentation is very rare in follicular thyroid carcinoma. (2) Brain metastasis has been reported from thyroid adenomatous nodules. (7) Distant metastasis from follicular thyroid carcinoma to the lumbar vertebrae, skull bone and meninges have been documented. (6) Mc. William et al published the largest series of metastatic thyroid carcinoma to brain with 16 patients, out of which only two of them were diagnosed as follicular thyroid cancer which speaks about its rarity. (8)

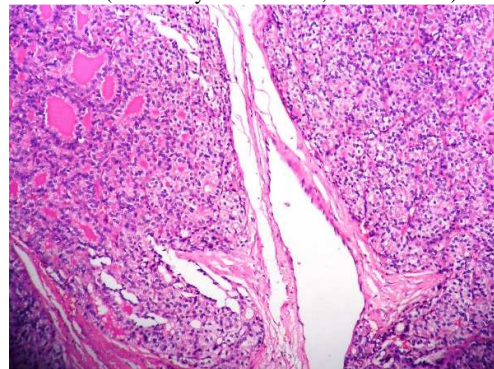
Thus, we report this case because of its rare occurrence.



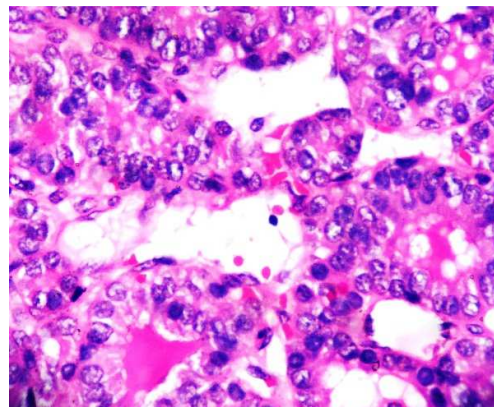
**Figure 1** - Axial T2W images (A, B, C) showing well defined iso-hypointense extra-axial lesion in left parafalcine location with extensive vasogenic edema. On susceptibility weighted images (D) there was no blooming, diffusion weighted images and corresponding ADC map (E, F) show no restriction within the lesion



**Figure 2 A** - Normal glial tissue with adjacent tumor tissue (Hematoxylin and eosin, scanner view)



**Figure 2 B** - Tumor tissue composed of thyroid follicles filled with colloid (Hematoxylin and eosin, 10X)



**Figure 2 C** - Tumor cells with hyperchromatic nuclei and moderate amount of cytoplasm. (Hematoxylin and eosin, 40X)

## Conclusion

Follicular carcinoma of thyroid is a rare tumour that presents with cerebral metastasis and thyroid carcinoma should be considered in the differential diagnosis of contrast enhancing mass lesions in the CNS.

## Correspondence

*Dr. Bhavana Grandhi*  
1/1278, Nawabpeta, Bunglathota  
Nellore Andhra Pradesh, India  
Mobile: 9642111209  
E-mail: drbhavana.grandhi@gmail.com

## References

1. Alper Sevinc, Follicular thyroid cancer presenting initially with soft tissue metastasis. *Jpn J.Clin.Oncol* 2003;30(1)27-29.
2. Douglas C Miller. Metastatic neoplasms in brain parenchyma In. *Modern Surgical Pathology*. New York: Cambridge University Press, 2009;206-207.
3. Kamar FG, Posner JB. Brain metastases. *Semin Neurol* 2010;30:217-35.
4. Lagerwaard FJ, Levendag PC, Nowak PJ, Eijkenboom WM, Hanssens PE, Schmitz PI. Identification of prognostic factors in patients with brain metastases: A review of 1292 patients. *Int J Radiat Oncol Biol Phys* 1999;43:795-803.
5. Melike Pekmezci, Arie Perry Neuropathology of brain metastases SNI: Neuro-Oncology 2013, Vol 4, Suppl 4 - A Supplement to Surgical Neurology International.
6. P. Krishnappa, S. Ramakrishnappa, M. Kulkarni, S. Giriyan. Follicular carcinoma of the thyroid presenting as distant metastasis: A case report and review of literature. *The Internet Journal of Laboratory Medicine*. 2012;5(1).
7. Tadashi Terada: Brain metastasis from thyroid adenomatous nodules or an encapsulated thyroid follicular tumor without capsular and vascular invasion: a case report. *Cases Journal* 2009, 2:7180.
8. Yusuf, Engin, Doga, Erol, Turkish Neurosurgery 2005, Vol: 15, No: 3, 132-135 Brain Metastasis From Follicular Thyroid Carcinoma: Case report and Literature Review.