

**A RARE CASE REPORT OF VASCULAR SKULL METASTASIS FROM THYROID****GAURAV RAJ<sup>a</sup>, NEERA KOHLI<sup>b1</sup>, ABHISHEK CHAUHAN<sup>c</sup>, RICHA MAHESHWARI<sup>d</sup>  
AND SIMRAN SINGH<sup>e</sup>**<sup>abcde</sup>Department of Radiodiagnosis, Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow, U.P., India**ABSTRACT**

Thyroid is an uncommon site for carcinoma. Thyroid carcinoma accounts for 1% of all human carcinoma. The incidence increases with age and it reaches a plateau after age of 50yrs. Thyroid carcinoma is 4 times more frequent in females than males. Follicular carcinoma of thyroid (FTC) has a propensity for vascular invasion and hematogenous metastasis. Lung being the most favoured sites of metastases 1,2. Bone metastases from thyroid carcinomas tend to be multiple and more often to the ribs, vertebrae and sternum<sup>10</sup>. Skull is a rare site for metastases more so with intracranial extension. We report a case with solitary skull metastases as the presenting feature of an occult Thyroid Carcinoma showing a large pulsatile vascular skull metastasis with intracranial extension depicted by 64 slice CT and volume reconstructed images.

**KEYWORDS :** Vascular Skull, Metastasis, Carcinoma**CASE REPORT**

A 62 year old woman came with the complaints of a large rapidly increasing swelling in the left temporoparietal region for 3 months. On examination mild neck swelling with no lymphadenopathy was noted. The swelling in left temporal region measured 7.8X6.4X8.2cm and was globular, firm, warm and mildly pulsatile. On investigation, thyroid function tests and serum biochemistry were unremarkable.

The patient was subjected to CT scan (64 Multidetector row Philips Brilliance CT Scanner) with the following protocol:

Rotation time of 1.5seconds, KV-120, mAs-300, FOV-237(mm), Collimation-16X0.625, reconstruction was done with thickness of 5mm and increment of 5mm.

CT study showed a destructive strongly enhancing soft tissue lesion with intracranial extension. FNAC from the thyroid gland and the carcinoma scalp swelling was consistent with follicular carcinoma and its metastasis. In our case beautiful depiction of anatomy and pathology was done by multislice (64 slice CT) with volume reconstructed images and 3D coloured pictures showing detailed extent of involvement of metastasis making planning of surgery and radiotherapy much easier. (Figure, 1,2,3,4,5,6&7)

**DISCUSSION**

Thyroid cancers account for about 0.5% of all cancers in men and 1.5% of all cancers in women .

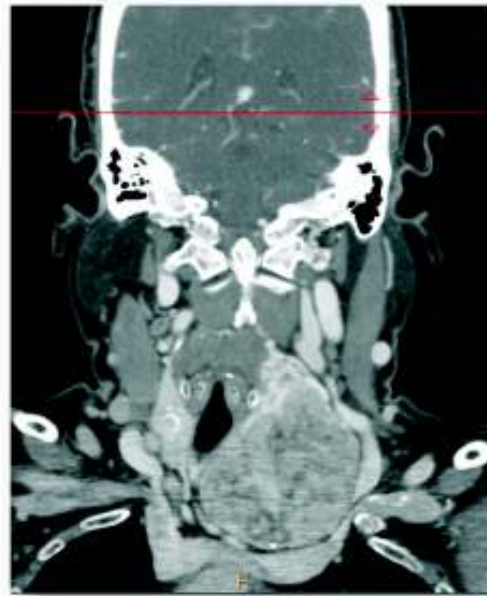
Follicular thyroid carcinomas (FTC) are subtypes of thyroid cancers which are slow growing tumours and are associated with a favourable prognosis except when they present with distant metastasis. Lung being the most favoured sites of metastases (Schlumberger et al., 1986) Bone metastases from thyroid carcinomas tend to be multiple and more often to the ribs, vertebrae and sternum. Skull is a rare site for metastases which when occurs, are most commonly located in the occipital region presenting as a soft, painless lump (Nagamine, 1958 and Inci et al., 1994). These lesions are osteolytic on skull X-ray and CT scan and highly vascular on angiographic assessment (Nagamine, 1985 and Akdemir et al., 2005). 3,4. The largest case series of skull metastases from all types of thyroid cancer cases has been reported by Nagamine et al., 1985). In this series, mean time from the diagnosis of thyroid tumour until discovery of skull metastasis was 23.3 years. Prognosis in case of metastasis is generally poor and the 10 years survival with bone Chohnocky, 1970 from thyroid cancers is reported to be 27% 2. However, the reported mean survival in patients who present with skull metastases in the case series by Nagamine et al., 1985. Is just 4.5 years suggesting that these subset of patients tend to do even worse. Our patient had no symptoms and signs of thyroid disease. The sole complaint of a disfiguring scalp lump makes this case unusual. Interestingly, mild to moderate pain around the swelling that could be due to meningeal invasion and extrinsic brain compression by the tumour. To the best of our knowledge there is no report to date, of a FTC presenting as a solitary metastasis to the skull which is locally advanced.

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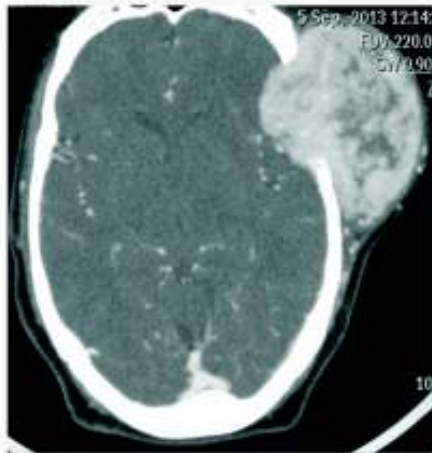
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**Figure 1 : Coronal CT Scan Image Showing a Large Strongly Enhancing Soft Tissue Lesion Seen in Vault of Skull With Intracranial Extension**



**Figure 2 : Coronal CT Scan Showing Mass In Left Lobe of Thyroid With Foci of Calcification And Areas of Necrosis With Displacement of Left Carotid Artery And Internal Jugular Vein**



**Figure 3 : Axial CT Scan Image Showing The Vascular Lesion Causing Destruction in Left Frontal & Temporal Bone With intracranial Extension Causing Buckling of Brain Parenchyma**



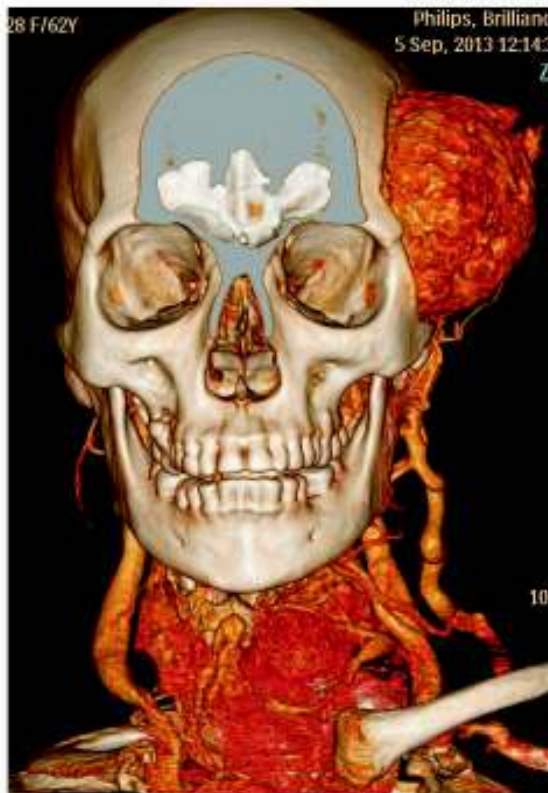
**Figure 4 : Volume Rendered 3D Image of The Skull Metastasis**



**Figure 5 : Volume Rendered 3D Image Showing Large Bony Destructive Cavity in Left Fronto-Temporo-Parietal Region**



**Figure 6 : Surface Volume Rendered Image Showing a Large Exophytic Calvarial Lesion Causing Elevation of Overlying Skin**



**Figure 7 : Volume Rendered Angiographic Image Showing Prominent External Carotid Artery on Left Side Supplying The Metastatic Vascular Lesion**

Vascular pulsatile metastatic lesions are not found in most malignancies. Brain metastases are extremely rare, reportedly occurring in roughly 0.15-1.3% of thyroid carcinomas (Shlumberger et al., 1986). Brain metastases are usually asymptomatic, and only a few have suggestive symptoms, such as headache, visual disturbances, or ocular motor weakness. There is a general consensus in the literature that brain metastasis is associated with poor prognosis with a tendency for recurrence (Parker et al., 2004). Distant metastases are reported in a minority of patients. The most common site of distant metastases is the lung. Other distant metastases are rare or relatively rare and involve the breast, liver, kidney, muscle and skin. The presence of distant metastases is the most devastating prognostic factor for survival, with only 50% patients with metastasis surviving after 10 years (Ozdemir, et al., 2004). Among the factors responsible for distant metastases and increased mortality in patients with thyroid carcinomas are age over 45 years and the involvement of multiple organs. Both are independently associated with cancer mortality.

FTC are subtypes of thyroid cancers which show high propensity for blood borne metastases. In a series of 473 patients with thyroid cancers. In almost all the reported cases of follicular thyroid carcinoma metastasizing to the skull, metastases occurred after the diagnosis and institution of treatment for primary cancer, and there have been only a handful of cases in the literature in which solitary skull metastases was the presenting feature of an occult FTC.

The reason for high vascularity of metastatic lesion with thyroid carcinoma is postulated as an increase in vascular endothelial growth factor (VEGF) or VEGF receptor expression by tumour tissue. Particularly in papillary and follicular carcinoma (Zuberi et al., 2004).

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