Neuroimaging Highlight

Editors: Richard Farb, David Pelz

Giant Skull and Brain Metastasis from a Neglected Thyroid Papillary Carcinoma

Submitted by: El Mostarchid Brahim, Akhaddar Ali, Boucetta Mohammed

Can. J. Neurol. Sci. 2010; 37: 515-516

This 50-year-old woman presented with headaches, torticollis and a large craniocervical mass which had grown rapidly over the previous four months. She had also a thyroid tumefaction neglected for more than 20 years. Physical examination showed normal vital signs, without neurological deficits. It was an evident bilateral exophtalmia with anterior cervical painful mass originating from both lobes of the thyroid gland. The scalp mass (24 × 12 × 20 cm) was noted on the right temporoparieto-occipital region with laterocervical extension (Figure 1). This enlarged tumefaction was not tender, and showed an elastic, firm consistency with immobility. She had no hepatosplenomegaly and other lymphadenopathy. Thyroid function tests showed hyperthyroidism. Cranial computed tomography scan revealed a large skull mass with marked destruction of both cranial tables, skull base extension and soft tissue infiltration. The mass had a heterogeneous density with areas of intratumoral calcifications. There was also a brain cystic process on the left temporo-occipital region (Figure 2). Other examinations including thoracic and abdominal imaging did not reveal any other tumourous lesions. Fine needle aspiration of the cervical mass showed malignant cells of papillary carcinoma. The scalp mass biopsy confirmed the diagnosis of metastatic thyroid papillary carcinoma on histopathologic examination. The patient refused any surgical treatment or further examinations and returned home. Unfortunately, she died three months later.

Figure 1: *Patient's picture showing a giant temporo-parieto-occipital mass was seen with laterocervical extension. Note the large thyroid tumefaction.*

From the Department of Neurosurgery. Mohammed V Military Teaching Hospital. Rabat. Morocco.
Received February 13, 2009. Final Revisions Submitted November 11, 2009.
Correspondence to: El Mostarchid Brahim, Department of Neurosurgery. Mohammed V Military Teaching Hospital. Rabat, Morocco.

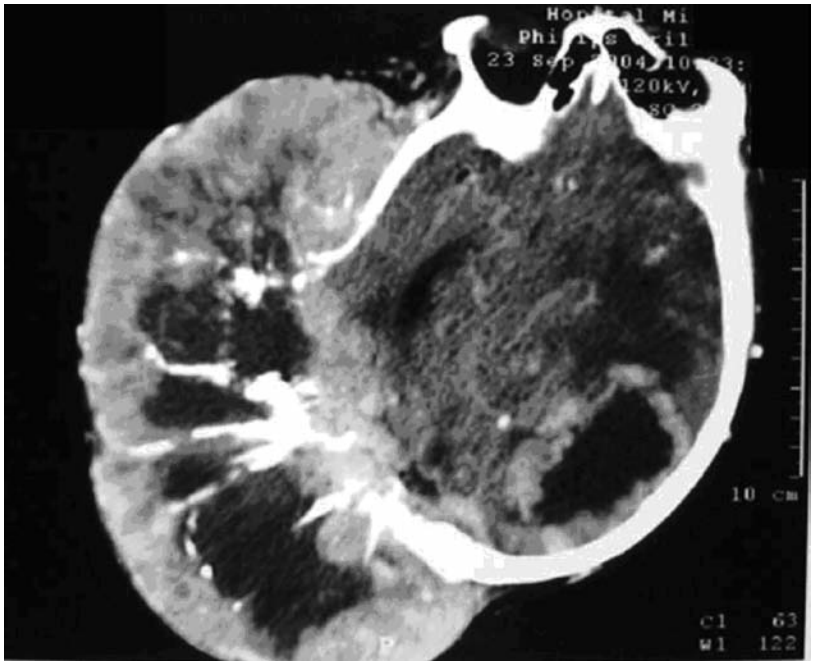

Figure 2: *Cranial Computed tomography scan on axial view revealing a large skull mass with marked destruction of both cranial tables, skull base extension and areas of intratumoral calcifications. Note the brain cystic mass on the contralateral temporooccipital region.*

Discussion

Papillary carcinoma of the thyroid, the most common form of thyroid malignancy, generally carries a good prognosis since it usually remains intrathyroidal and tends to metastazise locally to regional lymph nodes alone. Skull and brain metastasis are exceptional, but significantly increase the risk of mortality.[1-4] The metastatic lesion usually presents as a soft painless scalp mass and it is usually single.[2] It rarely causes increased intracranial pressure or brain compression, but occasionally an intracranial extension causes severe neurological symptoms. In our patient, despite the extensive bone destruction and intracranial extension, she showed no neurological sign. Although other primary tumours may involve the calvarium, metastases and multiple myeloma are the most common malignant tumours in adults; and lytic expansible metastases are most often associated with lung, breast and prostate carcinomas.[2,5]

In the clinical course of thyroid papillary carcinoma, skull and brain metastasis should not be excluded. Patient should be meticulously followed up. Rapid detection and appropriate treatment are critical for obtaining a good prognosis. To our knowledge, we present the first case report of thyroid papillary carcinoma with huge cranial vault, skull base and brain metastasis.

Early total excision of brain metastasis is the treatment of choice. Today administration of radioactive Iodine-131 is widely used for ablation. However, this treatment has some difficulties because of affinity of Iodine-131 to the tissues. Only 17 % of metastatic lesions to the brain take up iodine-131, so the effect of radioactive ablation on brain metastasis is very restricted. The size is another problem. Only small size metastasis are candidates for this therapy.

The surgery with excision is the only method to improve the prognosis. Total excision is correlated with longer survival.[6]

Yoshikazu Ogawa[7] suggested that the brain metastasis treatment is radical surgery, thyroxin supplementation and radiosurgery for intracranial metastasis lesions. But radiosurgery is limited in huge lesions like those in our patient.

References

1. Miyawaki S, Yamazaki R, Harada T, Takanashi S, Nagashima T, Nakaguchi H. Skull metastasis of thyroid papillary carcinoma. J Clin Neurosci. 2007; 14: 481-4.
2. Richardson PG, Kassarjan A, Jing W. A 40-year-old man with a large tumor of the skull. N Engl J Med. 2004; 351: 2637-45.
3. Ota T, Bando Y, Hirai M, Tanaka N, Takabatake Y, Kasahara Y, et al. Papillary carcinoma of the thyroid with distant metastases to the cerebrum: a case report. Jpn J Clin Oncol. 2001; 31: 112-15.
4. McWilliams RR, Giannini C, Hay ID, Atkinson JL, Stafford SL, Buckner JC. Management of brain metastases from thyroid carcinoma: a study of 16 pathologically confirmed cases over 25 years. Cancer. 2003; 98: 356-62.
5. Akhaddar A, Gazzaz M, El Mostarchid B, Kadiri B, Lrhezzioui J, Boucetta M. Giant epidermoid cyst of the skull with extra and intracranial extension. A case report. J Neuroradiol. 2002; 29: 193-9.
6. Chiu AC,. Delpassand ES, Sherman SI. Prognosis and treatment of brain metastases in thyroid carcinoma. Clin Endocrinol Metab. 1997; 82 (11):3637-42.
7. Ogawa Y, Sugawara T, Seki H, Sakuma T. Thyroid follicular carcinoma metastasized to the lung, skull and brain 12 years after initial treatment for thyroid gland. Case report. Neurol Med Chir (Tokyo). 2006; 46:302-5.

https://doi.org/10.1017/S0317167100010568 Published online by Cambridge University Press