Choroidal and brain metastases from papillary thyroid cancer

Published on 27.02.2014

DOI: 10.1594/EURORAD/CASE.11582
ISSN: 1563-4086
Section: Neuroradiology
Area of Interest: Neuroradiology brain
Procedure: Education
Technique: CT
Technique: MR
Special Focus: Metastases Case Type: Clinical Cases
Authors: Mustafa KOC, Ahmet Kursad POYRAZ
Patient: 44 years, male

Clinical History:

A 44-year-old male patient with papillary thyroid cancer was admitted to our hospital with evidence of headache, drowsiness, vomiting, and severe decrease in vision of the left eye.

Imaging Findings:

Computed tomography (CT) of the brain revealed a left parietal mass of mildly high density with destruction of parietal bone (Fig. 1 a, b). Magnetic resonance imaging (MRI) of orbita showed a left parietal highly enhanced solid mass measured 4x3 cm with enhanced lesion at the left posterior glob oculi (Fig. 2a-c).

Discussion:

A. Background
Papillary thyroid carcinoma is the most common type of differentiated thyroid carcinoma. Papillary carcinoma constitutes 80% of all thyroid cancers in humans. Forty-two percent of metastases develop in the regional lymph nodes. Haematogenous distant metastases occur in only 10% of patients [1].

B. Clinical Perspective
The prognosis is usually excellent for non-metastatic lesions. The presence of distant metastases diminishes the survival rates. Distant metastases of papillary carcinoma of the thyroid are very rare. The most common sites for distant metastasis of PTC are the lungs, followed by the bone.

C. Imaging Perspective
It was recommended that enhanced CT or MRI should be performed for any patient with suspicious neurological symptoms to detect any metastasis. Contrast enhanced brain CT or MRI shows enhanced metastatic solid lesions and destruction of bone. In our case, the CT and MRI images suggested a diagnosis of mass at the brain and choroid and radiological findings were compatible cerebral and choroidal metastasis in the widely metastatic patient. Choroidal metastases from thyroid cancer have been rarely reported [2, 3]. Fundoscopic examination and MRI should be performed for any patient with suspicious ocular symptoms. CT has a limited contribution to the positive diagnosis, but is important for the differentiation between osteoma and sclero-choroidal calcifications. MRI is able to highlight tumours with a low intake of contrast substance, being useful for differentiation from exudative decollation of the retina, but not from other nonpigmented choroidal tumours.

D. Outcome
The therapeutic strategy is mostly palliative. Surgery, radiotherapy, and radioactive iodine therapy have been used with varying results for treatment of brain metastases from PTC. The treatment is difficult because metastases from


thyroid cancer are very poorly sensitive to radiotherapy and chemotherapy [4]. The average survival rate is between 7 and 8 months.

E. Teaching points
Although they are exceptional, choroidal and brain metastases in patients with thyroid carcinoma require, for their detection, periodic ocular and neurological examinations.

**Differential Diagnosis List:** Choroidal and brain metastases from papillary thyroid cancer, Osteoma, Sclero-choroidal calcifications

**Final Diagnosis:** Choroidal and brain metastases from papillary thyroid cancer

**References:**
Description: CT of the brain (a and b) showed a left parietal mass of mildly high density, causing destruction of left parietal bone (arrows). Origin: Medicalpark Hospital, Department of Radiology, Elazig, Turkey.
Description: CT of the brain (a and b) showed a left parietal mass of mildly high density, causing destruction of left parietal bone (arrows). Origin: Medicalpark Hospital, Department of Radiology, Elazig, Turkey.
**Description:** Axial T2W MRI of orbita showed a left parietal hyperintense mass with hypointence lesion at the left posterior glob oculi (arrow). **Origin:** Medicalpark hospital, Department of Radiology, Elazig, Turkey.
**Description:** Non-contrasted axial T1W (b) and gadolinium enhanced T1W MRI of orbita (c) showed an enhancing left parietal mass with an enhancing lesion at the left posterior glob oculi (arrows). **Origin:** Medicalpark hospital, Department of Radiology, Elazig, Turkey.
Description: Non-contrasted axial T1W (b) and gadolinium enhanced T1W MRI of orbita (c) showed an enhancing left parietal mass with an enhancing lesion at the left posterior glob oculi (arrows). Origin: Medicalpark hospital, Department of Radiology, Elazig, Turkey.