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Brown Tumors Complicating Hyperparathyroidism (About A Case + Literature Review)

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I. Introduction :

The brown tumor or osteitis fibrocystica is a benign bone lesion reflecting an abnormality of bone metabolism in the context of hyperparathyroidism. It can affect the entire skeleton, including the pelvis, ribs, clavicles and extremities. Involvement of the maxillary bone is very uncommon. We present a case of multiple brown tumors with an unusual maxillo-mandibular localization, revealed by a disorder of phosphocalcic metabolism and IIIary hyperparathyroidism. This case reminds us of the difficulty to establish a correct diagnosis in patients with an osteolytic process of the maxilla and the necessity to look for hyperparathyroidism in front of a giant cell lesion given the insidious character of this endocrinopathy.

Observation :

32 year old female patient with the following antecedent :
Medical : Chronic kidney disease at dialysis stage; HTN under ARBs II,
Viral hepatitis C (negative viral load). *Surgical:* Left per-trochanteric fracture

The history of the disease began 2 years ago with the appearance of a maxillo-mandibular bone tumor that had been surgically resected with a brown giant cell tumor at the anapath, and for which the etiological exploration revealed an hyperparathyroidism:

- PTH 668 pg/ml (11xN) and normocalcemia 99 mg/l
- Localization test: a right parathyroid nodule of 17 mm on CT scan

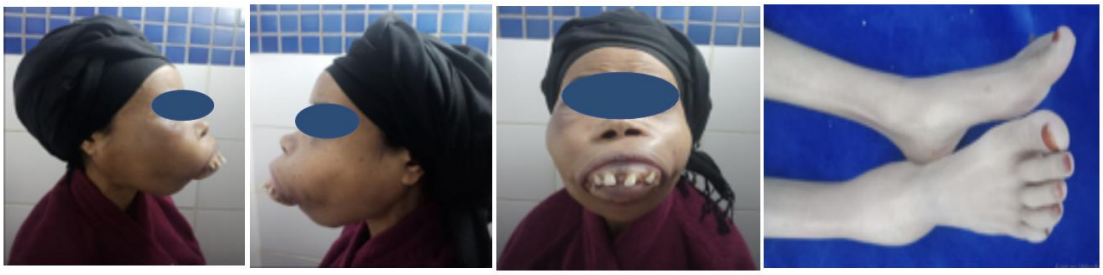
The patient was operated, the procedure consisted in a para thyroidectomy with simple postoperative course and the result of the anapath was a parathyroid hyperplasia. Nevertheless, the evolution was marked by the recurrence of her maxillomandibular tumor progressively increasing in volume until facial deformation and oral obstruction making feeding difficult.

• With a probable tertiary hyperparathyroidism : PTH more than 20xN and normocalcemia at 98 mg/l
• MIBI scintigraphy with pathological parathyroid of the posterior inferior face of the left lobe of the thyroid.

The patient was referred to our training for further treatment Functionally she shows a deep asthenia

On clinical examination:

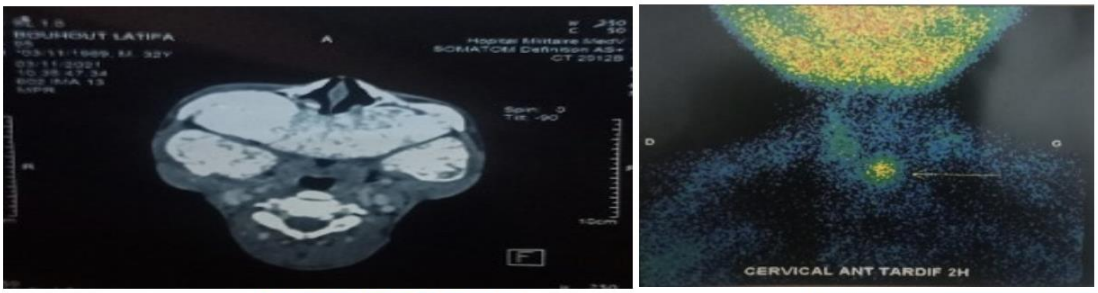
Voluminous mass of the facial mass, painless on palpation, obstructing the oral cavity and causing a tooth gap and intermittent gingivorrhages .
Painless right tibial bone swelling on palpation without functional impotence



Biologically:

Biological hyperparathyroidism: PTH 1421 (more than 20xN) Normo calcemia 98 mg/lPhosphorus 54 mg/l

Morphologically:
MIBI scintigraphy: Pathological parathyroid attached to the posteroinferior aspect of the left lobe of the thyroid.
Cervical Echo: Presence in the left inferior retro thyroid of a nodular formation well limited with an oval shape hypoechoic measuring 5.6x3.7 mm
Cervical CT: Diffuse osteolytic and condensing lesions of the maxillary bone, the mandible and the cranial vault suggestive of a brown maxillomandibular tumor



II. Discussion :

The brown tumor is a fibrocystic bone lesion caused by hyperactivity of osteoclasts, consequent to this hyperparathyroid state. In more than 80% of cases, it results from a parathyroid adenoma, more rarely from hyperplasia and exceptionally from parathyroid carcinoma [1,2]. The incidence of skeletal brown tumors in end-stage renal disease ranges from 1.5 to 13% [3]. frequent in young female patients [2]. The pelvis, ribs, clavicle, mandible, and extremities are the most common bones affected by brown tumor, whereas involvement of the jawbone is considered rare [4,5].In the jaw bones, impaired masticatory function and facial malformations may be observed, [6].
This condition may also be completely asymptomatic.

Radiology:

The most common appearance is that of bone lysis with a nonspecific boundary resulting in cortical blowout or even rupture. The maxillary sinus is frequently filled in [7,8]. Dual-phase MIBI scintigraphy is useful for the diagnosis of pathological parathyroids and the search for ectopic parathyroid glands.

Hybrid SPECT/CT imaging adds to the diagnosis as it allows the diagnosis of brown tumor and eliminates parathyroid ectopy [9,10]. Bone scintigraphy has a better sensitivity than 99mTc-Sestamibi for brown tumors to map bone lesions [11]. In addition, positron emission tomography (PET) is considered a non-invasive tool for the diagnosis and follow-up of brown tumors [6].

Treatment:

Ishikawa Y et al. proposed parathyroidectomy as the therapeutic tool of choice for patients with high parathyroid hormone levels associated with diffuse brown tumors [12]. The diagnosis of primary hyperparathyroidism avoids surgery for maxillary brown tumors that should regress after removal of the parathyroid lesion.

III. Conclusion :

A giant cell lesion of the maxilla should be systematically investigated for hyperparathyroidism by performing a phosphocalcic assessment and a PTH measurement. Prior diagnosis avoids intervention on lesions that regress after PTH levels return to normal.

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