Minimally Symptomatic Primary Hyperparathyroidism with Brown Tumor in a Young Adult

Hiperparatiroidismo Primário Minimamente Sintomático com Tumores Castanhos num Adulto Jovem

Keywords: Hyperparathyroidism; Osteitis Fibrosa Cystica
Palavras-chave: Hiperparatiroidismo; Osteíte Fibrosa Quística

To the Editor,

We present a rare case of primary hyperparathyroidism (pHPT) presenting as lytic bone lesions. This is a late, rare, and severe manifestation whose incidence has markedly declined due to earlier biochemical screening.

A 23-year-old man presented with a mandibular mass, initially suspected to be odontogenic. Histopathology suggested a giant cell granuloma, and surgical excision was proposed. Preoperative labs showed hypercalcemia (14.5 mg/dL), very high parathyroid hormone (iPTH) levels (676 pg/mL), hypophosphatemia, and vitamin D deficiency. Neck ultrasonography and a Sestamibi scan identified a parathyroid lesion, and the patient underwent successful parathyroidectomy, with histology confirming an adenoma. Complete evaluation of primary hyperparathyroidism was performed postoperatively during endocrinology follow-up.

This case is noteworthy due to the absence of significant symptoms despite severe biochemical and skeletal involvement at two distinct sites: the mandible and the proximal tibia. Notably, the tibial lesion had been evaluated months earlier for mild knee pain, which was attributed to mechanical causes. As prior evaluations did not include serum calcium or iPTH measurements, this case underscores how easily pHPT can be underestimated in young patients when clinical suspicion is low.

Brown tumors, or osteitis fibrosa cystica, are benign lytic bone lesions resulting from excessive osteoclastic activity driven by persistently elevated iPTH levels. These lesions are non-neoplastic but potentially destructive complications of prolonged, untreated hyperparathyroidism. Histologically, they consist of fibrous stroma, multinucleated giant cells, and hemosiderin deposits, which account for their characteristic brown coloration. Radiographically, they appear as well-circumscribed radiolucent lesions and can mimic malignancies or metastatic disease.[1-3] As histopathology alone cannot distinguish giant cell granulomas from brown tumors, the biochemical profile is essential for diagnosis.

Before the advent of routine biochemical screening, osteitis fibrosa cystica were considered a hallmark of pHPT. Today, they occur in fewer than 3% of cases due to earlier diagnosis and treatment. When present, they most commonly appear as solitary lesions in older women. Multifocal involvement is extremely rare, particularly in young male patients.[4]

This case highlights important clinical considerations:

1. Primary hyperparathyroidism may present with minimal symptoms, and brown tumors remain a possible manifestation when diagnosis is delayed;
2. In young patients with lytic bone lesions or persistent osteoarticular pain, serum calcium and iPTH should be considered;
3. Parathyroidectomy is the definitive treatment and usually leads to regression of brown tumors;

At one-year follow-up, our patient remained asymptomatic, required no supplementation and showed regression of the lesions.

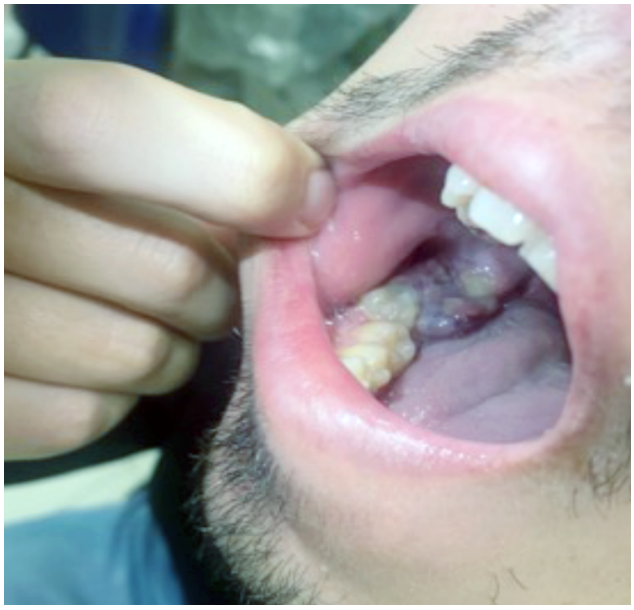

Figure 1 – Brown tumor in the right mandibular zygomatic quadrant

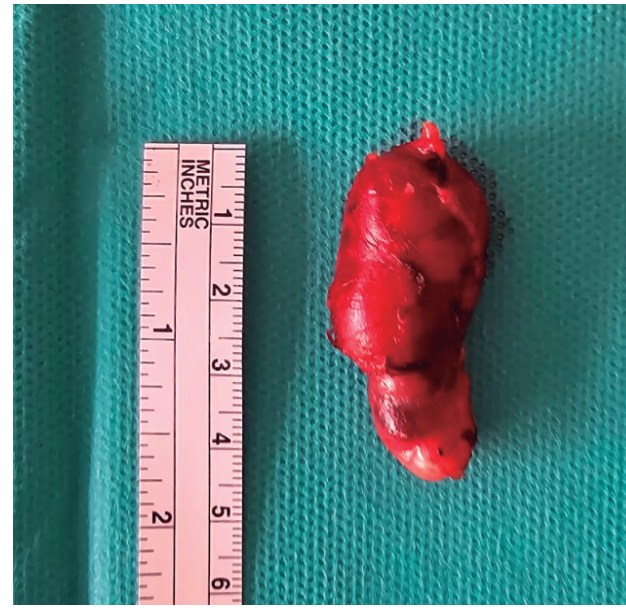

Figure 2 – Surgical specimen of targeted parathyroidectomy. Right inferior parathyroid gland measuring 4.0 × 2.0 × 1.5 cm and weighing 6.2 g (normal size: ~3 - 7 mm; normal weight: 30 - 50 mg).

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AUTHOR CONTRIBUTIONS

EB: Conceptualization, data collection, writing of the manuscript.

VS, DA: Critical review of the manuscript.

JG, JR: Supervision, critical review of the manuscript.

All authors approved the final version to be published.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in October 2024.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

PATIENT CONSENT

Obtained.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

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