

# PRIMARY HYPERPARATHYROIDISM - DIAGNOSTIC IMAGING PATHWAY: A CASE REPORT

## INTRODUCTION

Hyperparathyroidism (HPT) is the excessive production of parathyroid hormone by parathyroid glands. Radiographically, loss of lamina dura and altered trabecular pattern can be the early manifestations of HPT on jaw.

We present a case of primary hyperparathyroidism (PHPT) which was provisionally diagnosed solely on the basis of panoramic radiograph and confirmed with advanced radiographic and laboratory findings.

## CASE REPORT

A 36-year-old female reported with pain in the jaw for 1 year. On examination, lower right posterior teeth were missing.

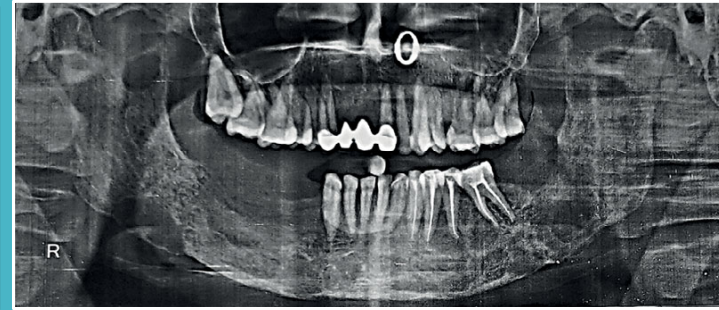


Fig 1: intraoral photograph

Fig 2: Orthopantomogram

Orthopantomogram revealed loss of lamina dura and multiple ill-defined radiolucent osteolytic lesions in the body and ramus of the mandible, which was a serendipitous finding that had helped arrive at a diagnosis of hyperparathyroidism. Further laboratory and radiological findings were confirmatory for the diagnosis

X-ray of the lateral skull showed salt and pepper sign, the wrist showed cookie bite sign and the pelvis showed multiple brown tumours. Dual energy X-ray absorptiometry scan for lumbosacral spine gave Z score of -3.5 and T score of -4.



Fig 3 : X ray lateral skull



Fig 4: Xray wrist

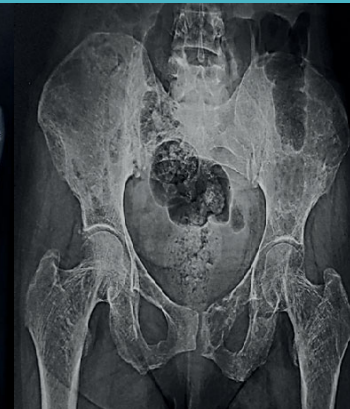


Fig 5: X ray pelvis

CT of the face revealed multifocal areas of bony lytic lesions in both sides of the mandible. MRI and USG of the neck were suggestive of **right-sided inferior parathyroid adenoma**.

Parameter	Results
Calcium	14 mg/dl ↑
Phosphorus	1.7 mg/dl ↓
PTH	1817.2 pg/dl ↑
ALP	3576 U/L ↑
Vit D	27 ng/mL ↓
Prolactin	6.92 ng/mL ↓
T 3	0.81 ng/ml
T 4	5.89 µg/dl
TSH	1.1 µIU/ml

Table 1 : Lab investigations

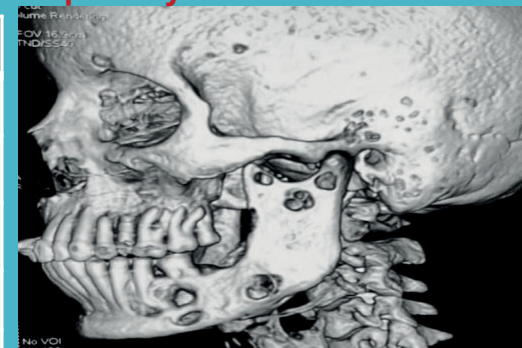


Fig 6 : CT scan face

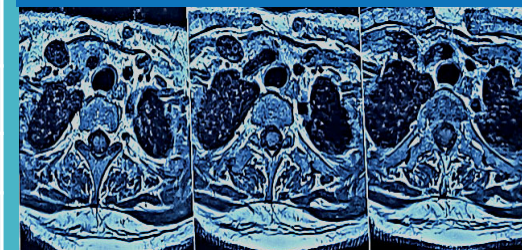


Fig 7 : MRI neck

Patient was managed by **right inferior parathyroidectomy**, following which she developed **hungry bone syndrome** which was further managed by calcium and vitamin D supplementation.

## DISCUSSION

Primary hyperparathyroidism is the third most common endocrine disorder.<sup>1</sup> Parathyroid adenoma is the most frequent cause (80%) followed by other pathologies such as endocrine disorders of multiple neoplasia (MEN 1 and MEN 2A), hyperplasia of the parathyroid glands, or even carcinoma (1%).<sup>2</sup> Described by Fuller and Albright as a disease of stones, groans and moans with osteitis fibrosa cystica as the skeletal hallmark.<sup>3</sup> Brown tumours, loss of lamina dura, tooth displacement, tooth mobility, root resorption, malocclusion, limited mouth opening, pain, and periodontal enlargement are other bone and dental manifestations.<sup>1</sup> Parathyroidectomy is a low-risk, high-success, definitive intervention.<sup>4</sup>

## CONCLUSION

PHPT is a common endocrinopathy that needs surgical intervention, and if left unnoticed and untreated can cause major morbidities renal osteodystrophies.

This case indicates the importance of clear knowledge of the clinical and radiographic aspects of diseases with manifestations in the oral and maxillofacial region as well as the role of oral physicians in the identification and diagnosis of such diseases .

## REFERENCES

- Let'icia Martins Guimaraes et al Manifestations of hyperparathyroidism in the jaw bones: concepts, mechanisms and clinical aspects, Oral Surg Oral Med Oral Radiol (2021)
- Mendoza-Moreno Fet al. Primary Hyperparathyroidism due to Parathyroid Adenoma Originated from Supernumerary Gland. Case Rep Otolaryngol. 2018 Sep 9;2018:6482546.
- Walker MD, Bilezikian JP. Primary Hyperparathyroidism Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000
- Alore et al Diagnosis and Management of Primary Hyperparathyroidism Across the Veterans Affairs Health Care System. JAMA Intern Med. 2019 Sep 1;179(9):1220-1227