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(CASE REPORT)

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Uremic Leontiasis Ossea in a young patient with chronic kidney disease on dialysis: A rare case report

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Abstract

Introduction: Leontiasis ossia is a rare craniofacial manifestation characterized by diffuse expansion and remodeling of facial bones resulting in a "lion-like" (leonine) facies. It is most commonly associated with uremic renal osteodystrophy secondary to chronic kidney disease (CKD) and severe secondary hyperparathyroidism.

Case report: A 27-year-old patient with known CKD on maintenance dialysis presented for evaluation. 3D CT of the face demonstrated diffuse, symmetrical expansile osseous enlargement of the mandible and maxilla with a characteristic "tigroid" internal architecture.

Discussion: The symmetrical involvement and laminated trabecular reorganization are hallmark features of uremic leontiasis ossia. These findings, combined with diffuse calvaria permeative remodeling and diploic widening, help differentiate this metabolic condition from craniofacial fibrous dysplasia.

Conclusion: This case highlights the classic radiological features of uremic leontiasis ossia. Early recognition of these symmetrical craniofacial changes is essential for accurate diagnosis and optimal metabolic management in patients with renal osteodystrophy.

Keywords: Leontiasis Ossia; Renal Osteodystrophy; Chronic Kidney Disease; Secondary Hyperparathyroidism; CT Face

1. Introduction

Leontiasis ossea is a descriptive radiologic term referring to diffuse craniofacial bone overgrowth producing a lion-like facial appearance. In patients with chronic kidney disease–mineral and bone disorder (CKD-MBD), prolonged secondary hyperparathyroidism can result in severe craniofacial skeletal remodeling.

Although skeletal changes in renal osteodystrophy are common, marked craniofacial expansion is rare and represents advanced metabolic bone disease.

2. Case presentation

A 27-year-old patient, known case of chronic kidney disease on maintenance dialysis, presented with progressive facial enlargement. Laboratory investigations revealed elevated parathyroid hormone levels consistent with secondary hyperparathyroidism.

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Non-contrast CT of the face and skull was performed for evaluation.

2.1. Imaging findings

CT demonstrated diffuse symmetrical expansile osseous enlargement of the mandible including bilateral body and rami, with heterogeneous internal trabecular reorganization producing a laminated/tigroid appearance.

Similar expansion was noted in the maxilla including sinus walls. The calvarium showed widening of the diploic space with mixed permeative and sclerotic pattern and loss of normal corticomedullary differentiation.

No focal cortical breach or associated soft tissue mass was identified. Cervical spine appeared uninvolved.

2.2. Differential Diagnosis

- Renal osteodystrophy (secondary hyperparathyroidism) – most likely given CKD history
- Craniofacial fibrous dysplasia
- Paget disease of bone (unlikely at this age)
- Brown tumors of hyperparathyroidism
- Osteopetrosis

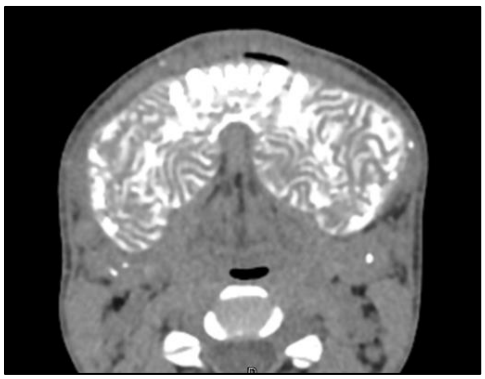

Figure 1 Axial CT – Mandible showing diffuse symmetrical expansion with laminated trabecular pattern

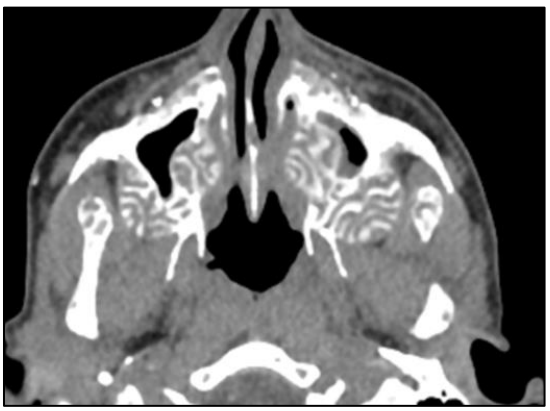

Figure 2 Axial CT – Maxilla demonstrating bilateral expansion and altered internal architecture

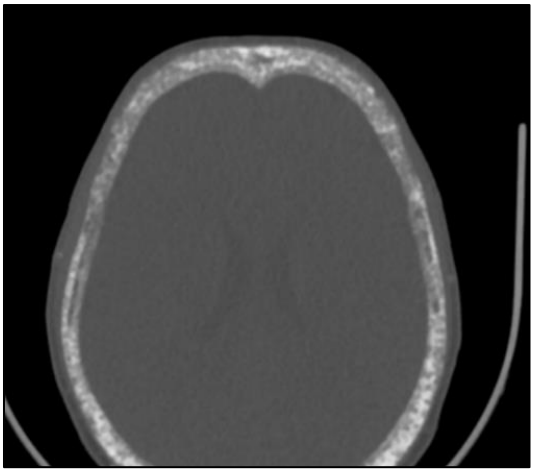

Figure 3 Axial CT – Calvarium showing widened diploic space with heterogeneous permeative appearance

Figure 4 Coronal CT – Symmetrical craniofacial osseous enlargement

Figure 5 3D CT reformation providing a global view of the diffuse symmetrical expansile craniofacial remodeling and osseous enlargement

3. Discussion

Renal osteodystrophy represents the skeletal manifestation of CKD-MBD. Sustained secondary hyperparathyroidism results in high-turnover bone disease characterized by osteoclastic bone resorption, marrow fibrosis, and trabecular remodeling. In rare advanced cases, excessive craniofacial bone expansion occurs, termed uremic leontiasis ossia.

CT findings typically include diffuse enlargement of maxilla and mandible, widening of the diploic space, coarse trabeculation, mixed lytic–sclerotic appearance, and poor corticomedullary differentiation. Differentiation from fibrous dysplasia is important; fibrous dysplasia often shows ground-glass matrix and focal involvement, whereas uremic leontiasis ossia is diffuse and associated with biochemical abnormalities. Paget disease typically affects older individuals and demonstrates cortical thickening with mosaic pattern.

Recognition is essential because untreated severe hyperparathyroidism may lead to compressive complications involving orbit, nasal cavity, cranial nerves, and airway. Management includes optimization of dialysis, phosphate control, acidimetric, and parathyroidectomy in refractory cases.

4. Conclusion

Uremic leontiasis ossia is a rare but striking manifestation of advanced renal osteodystrophy. CT plays a pivotal role in diagnosis and assessment of disease extent. Early recognition and metabolic control are critical to prevent complications.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from individual participant included in the study.

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