

Primary Hyperparathyroidism Presenting as a Brown Tumor of Mandible in an Adolescent Girl - An Unusual presentation with Challenges and Outcome

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INTRODUCTION

Brown tumor is a rare non-neoplastic focal giant cell lesion resulting due to increase osteolytic activity by excess of parathormone in cortical bone which is replaced by fibrovascular tissue, giant cells with hemorrhages and hemosiderin giving the brown color.

It is a late stage bone sequelae of long-standing hyperparathyroidism (HPT) resulting in rare metabolic bone disease, Osteitis fibrosa cystica.

HPT may occur in primary, secondary and tertiary forms. Parathyroid adenomas are the commonest cause in about 85% cases of Primary HPT.



CASE PRESENTATION

We present a referred case of 15-year-old girl with highly aggressive mandibular mass 4.0x3.0cm size creating swallowing difficulties, oral bleeding episodes, and anterior mandibular erosion with dislodgement of nine teeth, anterior canines, incisors, and premolars.

The thorough clinical, biochemical, histopathology and comprehensive radiological assessment reveal left upper parathyroid adenoma causing a hyperparathyroid state and its long-standing existence led to "Brown tumor" of mandible.

Serum Parathormone 516.00 pg/ml (N:11-67)
Serum Calcium 12.5 mg/dl (N:8.4-10.2)
Serum Phosphorus 2.39 mg/dl (N:3.0- 5.6)
Alkaline Phosphatase 239 u/l

^{99m}Tc-MIBI Dual phase Parathyroid scan showed left upper parathyroid adenoma

MRI craniofacial region showed non-infiltrative expansile soft tissue mass with anterior mandibular bone loss, teeth dislodgement and no other craniofacial involvement seen.

Histopathology of specimen revealed predominant rich giant cell lesions with hemosiderin laden macrophages, fibroblastic stroma.

CONCLUSION

Such complications are rarely seen in presence of good medical standards and provision of advanced analytic facilities but still cases are encountered in underdeveloped countries with poor health facilities. The desirable aesthetic outcomes can only be produced with great expertise and can be achieved with biomaterial implants to replace, reconstruct and/or augment the tissue.

Category: Bone, growth plate and mineral metabolism

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Orthopantomogram(OPG): large unilocular radiolucency extending from mandibular right first premolar to left second premolar teeth.

STEPS OF MANAGEMENT

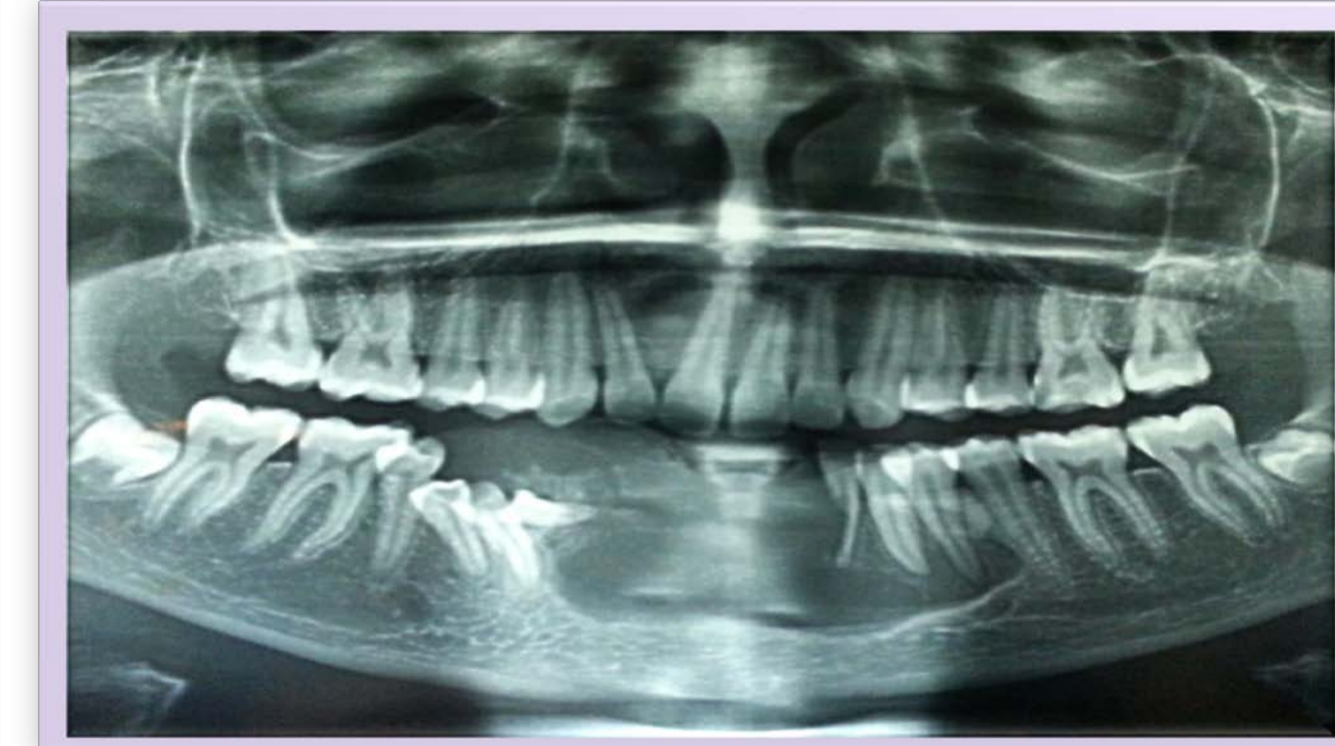
1. The main stay of treatment was removal of left upper parathyroid adenoma and resulting in reversal of metabolic de-arrangements but subsequent follow-up showed incomplete regression of tumor.

2. Complete surgical excision of large disfiguring mandible residual and symptomatic mass was done successfully with peripheral osteotomy and placement of Kirschner (K) wire.

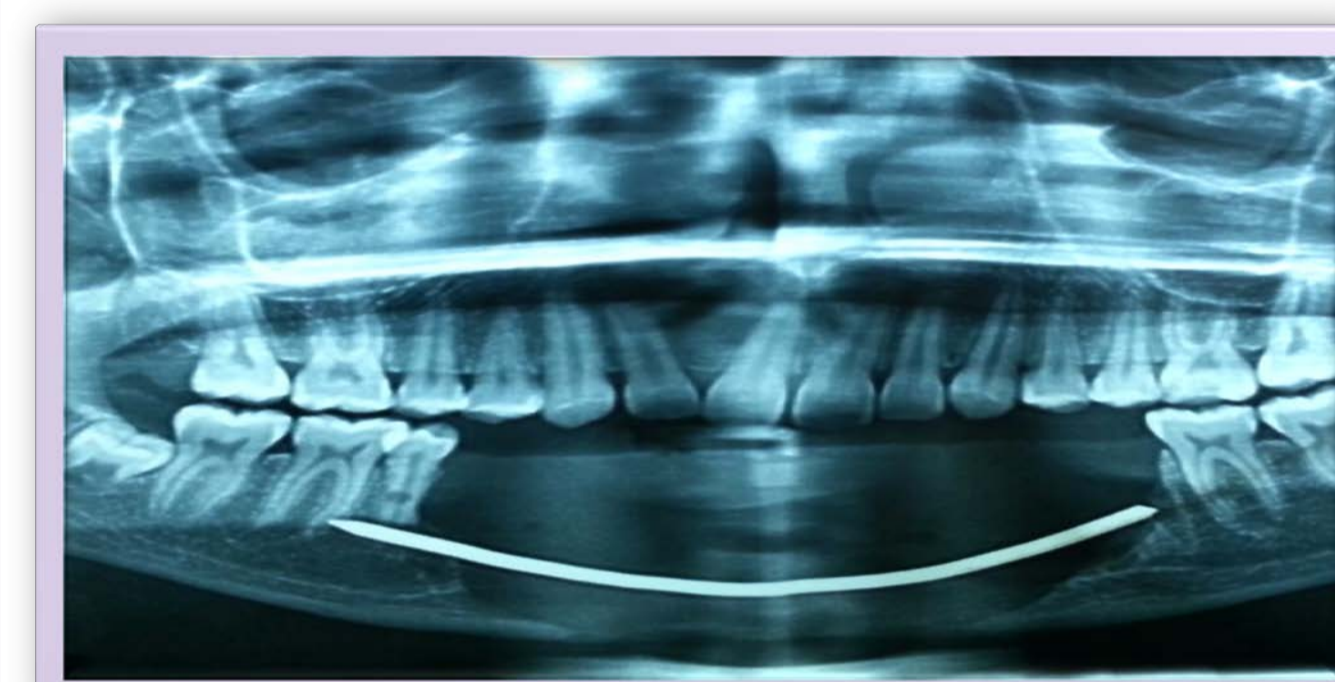
3. No evidence of recurrence was observed in one-year follow-up. Thereafter reconstructive surgery of anterior mandibular bone was performed using alloplastic devices and bone grafts from cadaveric source and synthetic bone fragments.

4. Alloplastic surgical membrane covered the whole augmented bone.

5. After few months of optimized healing, restoration of incisors, canines, premolar teeth was done initially by placing artificial denture followed by fixed dental prosthesis.



OPG Before Intervention



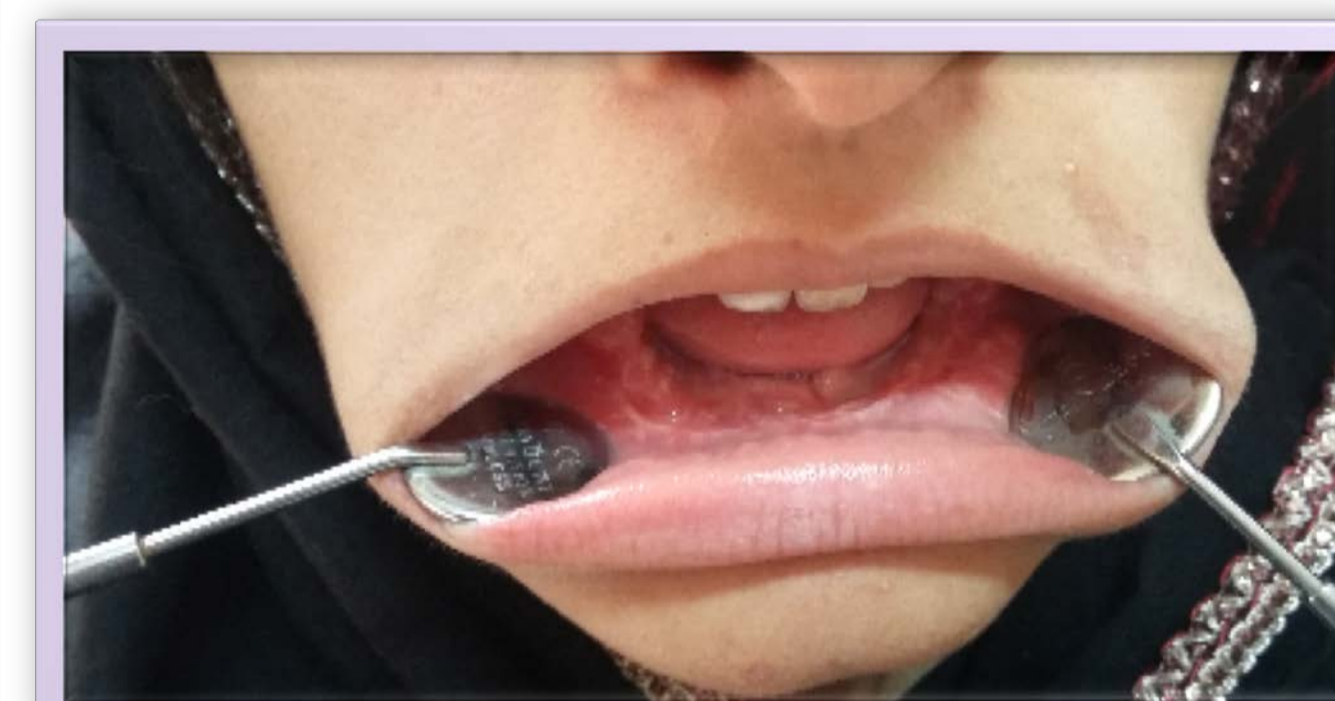
OPG after Intervention



Use of Alloplastic Membrane



Healed Augmented Anterior Mandible – Before Denture Application



Successful Fixed Denture Placement

OUTCOME



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