Volume-13/Issue-I/June 2025/ISSN No.-2321-3450

CASE REPORT

DOI: htttp: /doi.org/10.36611/upjohns/volume13/Issue1/1
Date received: 12.05.2025 / Date Published : 30.06.2025

BROWNS TUMOUR SECONDARY TO HYPERPARATHYROIDISM IN A PATIENT WITH END STAGE RENAL DISEASE

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ABSTRACT

INTRODUCTION

Browns tumour refers to the osteolytic bony lesions seen in patients with hyperparathyroidism. Browns tumour commonly arises from various bones like ribs, vertebra, pelvis and skull. The bony lesions are usually asymptomatic and they resolve slowly after correction of hyperparathyroidism. However surgical removal is required, when the lesion becomes symptomatic. Case Report: Here we describe a case of browns tumour arising from maxilla bone which caused significant cosmetic and functional disability to a patient with End stage renal disease.

This patient was on haemodialysis developed a maxillary Brown's tumor due to secondary hyperparathyroidism. Despite initial medical management, the lesion enlarged, causing disfigurement and functional issues. Surgical excision was performed.

CONCLUSION

The case highlights the importance of early diagnosis, multidisciplinary care, and dialysis adherence to prevent such skeletal complications.

KEY WORDS

Brown's tumor, Secondary hyperparathyroidism, End-stage renal disease (ESRD), Maxillary lesion

INTRODUCTION

Browns tumour refers to localized bony lesions seen in patients with hyperparathyroidism. Commonly seen in patients with End stage renal disease (ESRD) on long term haemodialysis. These lesions can affect any part of skeleton and involvement of facial skeleton is a rare phenomenon. In the facial skeleton common sites of involvement are mandible and maxilla1. Pathologically these lesions are characterised by the presence of increased osteoclastic activity with fibroblastic proliferation. Lesions in the facial bone can cause significant facial disfigurement and functional limitations. Management options includes correction of serum calcium & phosphorus levels, control of hyperparathyroidism and regular dialysis. In asymptomatic cases, medical management alone is enough. However surgical management in the form of parathyroidectomy or excision of browns tumour is required in selected cases. Here we present a case of Browns tumour involving maxillary bone secondary to hyperparathyroidism and ESRD.

CASE REPORT

Middle aged gentlemen (30 years of age) presented to ENT OPD with symptoms of swelling in the cheek (Left side) for the past 2 months. It was not causing any discomfort and there was no history of trauma. He was a diagnosed case of ESRD and he has been on haemodialysis for the past 5 years. Clinical examination revealed a bony hard swelling of size 2x2 cm in the cheek and it was seen arising from the anterior wall of maxilla (Fig 1 A). Another bony hard lesion was noted in hard palate. There was no cervical lymphadenopathy. Rest of the clinical ENT examination was found to be normal. Non-contrast CT scan of face was done for evaluation of the lesion, and it showed a hypodense lesion in anterior wall of maxilla. (Fig 1 B, C) There were multiple similar lesions in facial bones, rib and vertebra. (Fig 1 D) Given the history of ESRD on haemodialysis, a clinical suspicion of browns tumour was made and further workup was done. A detailed systemic clinical examination of nervous system and vision was done. Biochemical evaluation was done and it showed low calcium (7.9 mg/dl) and very high parathyroid hormone (1620 pg/ml) level. Ultrasonography of neck was done and it did not show any evidence of parathyroid adenoma. Biopsy of the lesion was done, which showed osteoclast rich giant cell lesion with areas of haemorrhage. (Fig 1 E) The case was further discussed with Nephrologist, Endocrinologist and a diagnosis of secondary hyperparathyroidism with Brownȿ tumour was made.

Fig 1: A- Clinical picture showing swelling over cheek. B, C - CT scan showing lesion arising from anterior wall of maxilla. D. Multiple osteolytic lesions in ribs and vertebra (Yellow arrow). E. HPE images showing osteoclast rich lesion. F. Post op clinical picture.

As the lesion was not causing any functional or cosmetic defect, he was planned for medical management. Intensification of dialysis schedule was done (He has been irregular with his dialysis schedules previously) and Calcium correction was given in form of oral calcium and active Vit D3 supplementation. His calcium levels (8.5 mg/dl) and PTH levels (755 pg/dl) showed improvement with medical management. But the lesion in maxilla started to increase gradually and caused facial disfigurement, nasal obstruction, bleeding and chewing difficulty over the next 6 months. Hence, surgical removal of maxillary lesion was planned in consultation with Endocrinologist & Nephrologist.

Surgical excision of the lesion was done via trans-facial approach. Highly vascular bony lesion involving anterior wall of maxilla was excised in toto. 2 units of packed red blood cell transfusion was given during peri-operative period along with haemodialysis. His wound healed completely in 2 weeks' time. He was kept on regular follow up. Biochemical parameters at 6 months follow up showed a serum calcium of 10.4 mg/dl and serum PTH was 46.4 pg/ml.

DISCUSSION

Browns tumor refers to bony outgrowth seen in patients with hyperparathyroidism. Histologically these tumors show predominance of giant cell and radiologically they appear as osteolytic lesions. Common site of bone involvement includes ribs, vertebra, clavicle, and pelvis2. In Head & Neck region, it commonly arises from mandible and maxillary involvement is quite rare3,1. In our case, there was presence of multiple osteolytic lesions in ribs, vertebra and facial bones (Maxilla and hard palate).

Radiologically these tumors appear as single or multi loculated osteolytic lesions showing bony expansion/destruction with presence of mixed lytic/ sclerotic lesions and pathological fractures2. Browns tumour may also be misdiagnosed for multiple bony metastatic lesions as the radiological features usually show multiple osteolytic bony lesions4. In our case, patient was initially referred for biopsy of the lesion from oncology department presuming it to be metastatic bony lesion. Common differential for browns tumor includes multiple myeloma, osteolytic bone metastasis, aneurysmal bone cyst and giant cell granulomas5

Management of hyperparathyroidism usually causes regression of the lesions6. Management of hyperparathyroidism in ESRD includes correction of calcium and phosphorus levels, regular dialysis, parathyroidectomy or kidney transplantation. Surgical resection of Browns tumour is rarely required as they usually regress with medical management. It takes up to 1-2 years for bony lesion to regress in size. Early surgical resection is required only when the lesion is causing significant functional impairment6. In our case surgical resection was done as the lesion was increasing in size and caused significant functional impairment.

Currently patient is on regular follow up with periodic monitoring of serum calcium, phosphorus and parathyroid hormone levels. No further recurrence was noted at the operative site. (Fig 1-F)

CONCLUSION

This case illustrates a rare presentation of Brown's tumor in a patient with end-stage renal disease (ESRD) on long-term haemodialysis. The patient developed a painless, bony swelling in the maxilla, later confirmed by imaging and histopathology as an osteoclast-rich giant cell lesion. Biochemical evaluation revealed hypocalcemia and markedly elevated parathyroid hormone (PTH) levels, consistent with secondary hyperparathyroidism. Initial management with intensified dialysis, calcium, and vitamin D3 supplementation led to partial improvement. However, the maxillary lesion enlarged over six months, causing facial disfigurement and functional symptoms. Surgical excision via a transfacial approach was successfully performed. This case emphasizes the importance of early diagnosis and multidisciplinary management of secondary hyperparathyroidism in ESRD. While medical therapy is the first line, surgery may be necessary when lesions cause significant morbidity. Regular monitoring and adherence to dialysis are essential to prevent skeletal complications like Brown's tumors in patients with chronic kidney disease.

DECLARATION

Ethics approval and consent to participate: No ethical approval is required

Author's contribution: All the authors contributed to the study conception and design.

Competing interests: The authors declare that they have no competing interests

Funding: The study was self-funded.

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How to cite this article

Pookamala, etal; Browns Tumor Secondary to Hyperparathyroidism in A Patient with End Stage Renal Disease-- UPJOHNS; June 25; 13(1); page: 35-38