

PRIMARY HYPERPARATHYROIDISM PRESENTING AS GIANT CELL LESION OF MANDIBLE AND ANEURYSMAL BONE CYST OF TIBIA

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BACKGROUND

Primary hyperparathyroidism is characterized by autonomous overproduction of parathyroid hormone along with normal or high-normal serum calcium level. It is present in 1 % of population and 85 % cases are the result of a single parathyroid adenoma. Hyperparathyroidism may result in bone pains, pathologic fractures, bone tumors, renal calculi, etc. Bone lesions of metabolic disorders including giant cell tumors, aneurysmal bone cysts, brown tumors of hyperparathyroidism have structural similarities, however most important functional similarity is their capability of bone resorption. In these patients possibility of metastatic bone disease is often considered in the differential.

CASE PRESENTATION

36 year old male patient was referred for skeletal scintigraphy, with clinical suspicion of metastatic bone disease. He had c/o weight loss, severe bone pains and h/o excision of aneurysmal bone cyst of left tibia and a mandibular swelling during last six months; S/P showed abundance of giant cells. Skeletal scintigraphy with ⁹⁹Tc-MDP showed

increased radiotracer uptake in calvaria, bilateral maxilla and mandible, costochondral junctions, multiple ribs, 10th costovertebral junction, 5th lumbar-vertebra, left tibia and appendicular skeleton (Figure 1). Based on these findings, patient underwent workup for metabolic bone disease which revealed raised serum parathyroid hormone (1412 pg/ml) and serum calcium levels (12.54 mg/dl); indicating the presence of hyper-functioning parathyroid tissue. Parathyroid scintigraphy with ⁹⁹Tc-MIBI confirmed parathyroid adenoma posterior to upper half of left thyroid lobe (Figure 2). Following parathyroidectomy, serum parathyroid hormone (50 pg/ml) and serum calcium levels (8.9 mg/dl) returned to normal, indicating cure. Histopathology confirmed the clinical diagnosis of parathyroid adenoma.

CONCLUSION

Giant cell lesions (brown tumors of hyperparathyroidism) are difficult to diagnose as they are not actual tumors but they are the result of excessive osteoclast activity. The radiologic similarities between brown tumors and other bone tumors, can make a definitive diagnosis difficult and for this SPECT-CT offers the unique opportunity to directly correlate the scintigraphic findings with CT images to

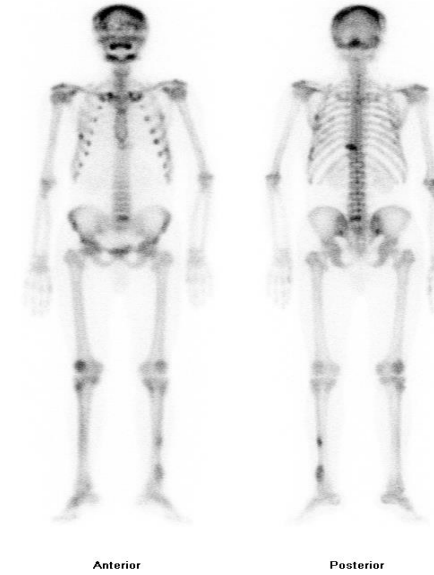


Figure 1

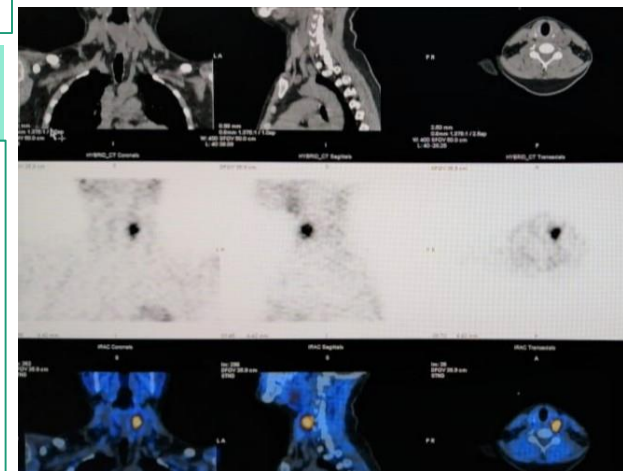


Figure 2

improve lesion classification. More recently hybrid positron PET-CT imaging with F-18 FDG and F-18 NaF are also being used for detection of brown tumors in patients having osteolytic bone lesions with suspicion of metastatic bone disease.

Surgical excision of hyperfunctioning parathyroid tissue has a cure rate of 98% and is recommended for all patients clinically diagnosed with primary hyperparathyroidism. For minimally invasive surgery pre-operative dual-phase parathyroid scintigraphy SPECT-CT as performed in our patient, has been found to be statistically superior to single-phase or dual-phase SPECT. Combining early phase parathyroid SPECT-CT with dual-phase parathyroid scintigraphy increases the specificity for localization of parathyroid adenoma to >96 %.

This case report emphasizes the importance of considering the possibility of metabolic bone disease in differential while investigating such patients. Hence, an array of investigations can be avoided which are usually performed during metastatic work-up.