

A CASE OF PARATHYROID ADENOMA PRESENTING WITH PATHOLOGICAL FRACTURES IN A YOUNG ADULT: A RARE ENTITY

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ABSTRACT

primary hyperparathyroidism is usually diagnosed as an incidental finding of hypercalcemia in blood or symptoms secondary to high calcium. In the present case report, we describe a case of parathyroid adenoma presenting with pathological fractures. A 25-year male patient presented with pain in the right hip, inability to bear weights and sustained a fracture in the right middle one third of femur after a trivial trauma. A detailed clinical examination and laboratory studies revealed hypercalcemia secondary to hyperparathyroidism. Patient underwent targeted parathyroidectomy after appropriate pre-operative localization. Histopathology of a resected specimen was consistent with parathyroid adenoma. A high index of suspicion, preoperative work up, localization of the gland and surgical excision ensures a successful cure.

KEYWORDS : Young Age, Pathological Fractures, Hypercalcemia, Parathyroid Adenoma, Histopathology, Targeted Parathyroidectomy.

INTRODUCTION:

Primary hyperparathyroidism is usually diagnosed as incidental finding of hypercalcemia in blood or symptoms secondary to high calcium. Overt bone disease is an extremely rare presentation. Primary hyperthyroidism is due to parathyroid adenoma in 80-85% cases, and hyperplasia in 10-15% and rarely carcinoma in <1% cases. Parathyroid adenoma is a benign neoplasm involving single gland but also can involve multiple glands also. Complications associated with hypercalcemia are polyuria, polydipsia, muscle weakness. Fractures in hyperparathyroidism are rare and usually affect the vertebrae. Generally pathological fractures have been described in patients with parathyroid carcinoma. Radiographic manifestations seen in less than 2% of patients include sub periosteal erosions, diffuse osteoporosis, cystic lesions, pathological fractures, salt and pepper mottling of skull and loss of lamina dura in the mandible.

CASE REPORT:

A 25-year male patient presented with pain in the right hip and inability to bear weights and sustained fracture to right middle one third of the femur after a trivial trauma. He also complains of generalized weakness, lethargy and muscle pain. No history of abdominal pain, constipation, polyuria, polydipsia.

Patient also gave a history of fracture right forearm which was managed with open reduction and internal fixation six months ago. No significant family history noted.

On examination: patient conscious, coherent and cooperative. No pallor, icterus, cyanosis, clubbing, generalized lymphadenopathy.

Vitals: pulse: 86/min
B.P: 110/70 mmHg

On inspection: No visible swelling over neck. No significant abnormality noted.

INVESTIGATIONS:

Specific blood investigations
Serum calcium: 16 mg/dl
Serum PTH: 2017.8 pg/ml
Serum phosphorous: 2.01 mg/dl
25 hydroxyvitamin: 40 ng/dl



Urinary calcium: 450 mg
Serum Alkaline phosphatase: 180 IU/L

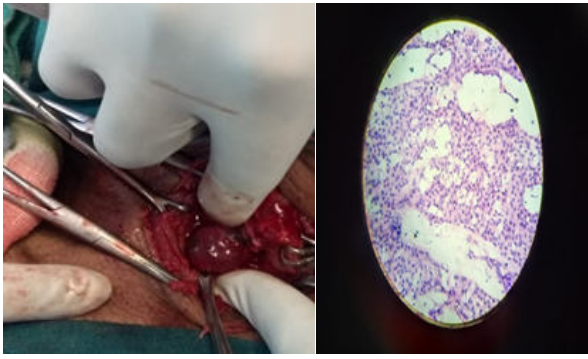
X-RAY RIGHT FEMUR: shows middle one-third fracture, osteopenia with sub periosteal resorption.

HRUSG OF NECK: Right side 3.5 into 2.6 cm well defined heterogeneously hypoechoic lesion with color noted inferior to thyroid suggestive of parathyroid adenoma.

HRCT NECK: shows heterogeneity lesion with size 3 into 2.5 cm lesion on right side.

MANAGEMENT:

- After proper evaluation the diagnosis of the case is inferior parathyroid adenoma.
- After open reduction and internal fixation of femur inferior parathyroidectomy was planned.
- Plan of treatment is inferior parathyroidectomy under general anesthesia.
- After parathyroidectomy middle parathyroid vein sample of PTH is reduced to half, serum calcium levels returned to normal.
- Histopathology of a resected specimen was consistent with parathyroid adenoma.
- The patient recovered well and discharged after 10 days of surgery.



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DISCUSSION:

Primary hyperparathyroidism is the 3rd most common endocrine disorder after diabetes and thyroid, mostly caused by primary parathyroid adenoma. PHPT (primary hyperparathyroidism) is a common disorder affecting 100000 individuals annually. PHPT is commoner in females and the peak incidence is between 30-50 years which increases with the age. the annual incidence in >60 years is 0.2% Increased PTH production leads to hypercalcemia via increased GI absorption of calcium, increased production of vitamin d3 and reduced renal calcium clearance.

Patients with PHPT formerly presents with classic pentad of symptoms i.e., kidney stones, painful bones, abdominal groans, psychic moans, and fatigue over tones. With the advent and wide spread use of automated blood analyzers in the early, there has been alteration in the typical patient with PHPT. They are more likely to be minimally symptomatic or asymptomatic.

Currently, most patients present with weakness, fatigue, polyuria, polydipsia, bone and joint pains, constipation, decreased appetite, nausea, heartburns, pruritis, depression and memory loss.

The parathyroid surgery has evolved over the years from traditional open all four glands exploration to minimally invasive focused or endoscopic parathyroidectomy.

The same has been possible because of development of pre-operative localization techniques which include high resolution radiographic techniques and rapid intra operative parathormone assay. However, USG and Tc99m sestamibi scan are the most commonly employed methods for demonstrating parathyroid lesions.

The development of intraoperative parathormone assay (IOPTH) was an important advancement in surgical management of hyperparathyroidism as this could accurately refute the preoperative localization studies.

CONCLUSION:

All of biochemical tests, including serum levels of calcium, phosphorus, alkaline phosphatase and parathormone assay will help in diagnosing primary hyperparathyroidism in 90% of the cases. All patients with Primary Hyperparathyroidism should have Vitamin D level assessment in order to exclude the co-existence of Vitamin D deficiency with Primary Hyperparathyroidism. High Resolution Ultrasound Scan of neck provides valuable preoperative information in selected cases especially in those undergoing minimally invasive parathyroid surgery.

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