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Papillary Thyroid Carcinoma Mimicking Parathyroid Adenoma "A Wolf in Sheep's Clothing"

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Introduction

Papillary thyroid carcinoma is a malignant epithelial tumour showing follicular cell differentiation. It is the most common thyroid cancer with a female preponderance. Hyperparathyroidism is defined by elevated serum PTH and is the most common pathological condition affecting the parathyroid glands. Thyroid malignancies are highly prevalent in patients with primary hyperparathyroidism(pHPT) especially adenomas.

Case Report

We **r**eport a case of 47-year-old male with clinical symptoms of primary hyperparathyroidism as confirmed by investigations. Intraoperatively his left thyroid gland was found to be enlarged and a left hemithyroidectomy was performed. Histology of the excised lobe revealed papillary carcinoma thyroid (PTC)with no evidence of parathyroid histopathologically.

Conclusion

This case underlines the need for a clinical high index of suspicion for synchronous hyperparathyroidism and thyroid cancer.

Key Words: hyperparathyroidism, papillary thyroid carcinoma, parathyroid adenoma.

Case report

A 47-year-old male, admitted to our institution with kyphotic changes in the dorsal spine and multiple fractures with severe osteoporotic changes, complained of a midline neck swelling (Fig 1) over the left side of the neck, for one year. The patient was investigated and thyroid function test, serum calcium, serum PTHs, calcitonin and serum alkaline phosphatase done showed raised PTH (1097.2 pg/ml), S.calcium (10.6) and serum alkaline phosphatase(1037.8). USG guided Fine Needle Aspiration Cytology of the neck swelling was suggestive of parathyroid neoplasm. Technetium (99mTc) sestamibi parathyroid scintigraphy (Fig 2) showed features of parathyroid adenoma involving the region of inferior pole of left lobe and another adenoma in the region postero-inferior to right lobe. 24 hour urine VMA was done to exclude MEN syndrome and was found to be within normal range.

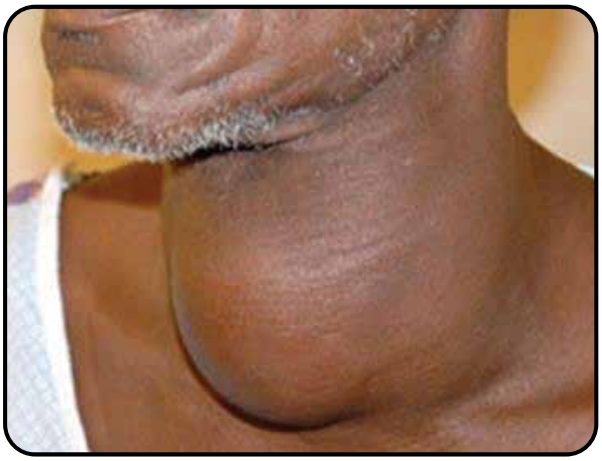

Fig 1

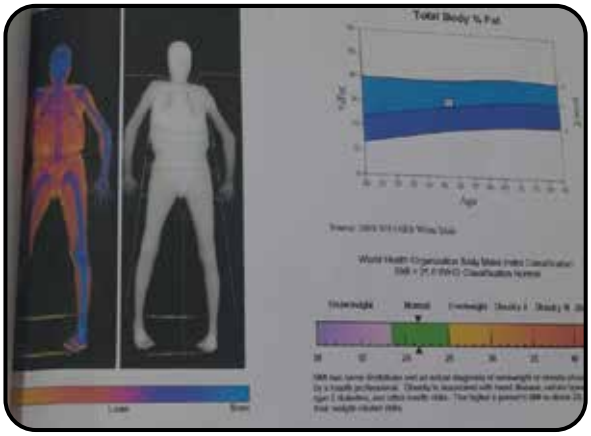

Fig 2

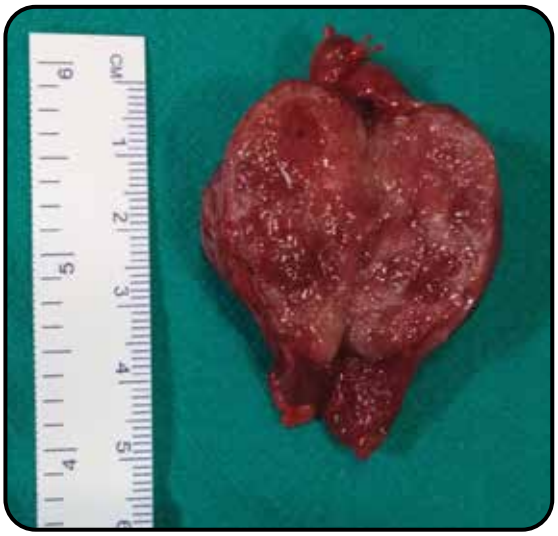

Fig 3

On neck exploration the left lobe of thyroid was found to be enlarged. The parathyroids showed no macroscopic infiltration and / or enlarged lymph nodes. A left hemithyroidectomy with superior and inferior parathyroidectomy was done under general anaesthesia (Fig 3). Post operatively the serum PTH and serum calcium levels were found to be persistently high and was thought to be due to the adenoma in the right lobe as suggested by the scintigraphy scan but, the histopathology report revealed features of papillary carcinoma thyroid with no evidence of parathyroid histology. Later completion thyroidectomy was done and the histopathology report was consistent with papillary carcinoma.

Discussion

Primary hyperparathyroidism(pHTP) is defined as elevated levels of serum calcium or widely fluctuating serum calcium levels resulting from the inappropriate or autogenous secretion of parathyroid hormone(PTH) by parathyroid glands in the absence of a known stimulus. pHTP is the most common cause of outpatient hypercalcemia. pHPT is symptomatic in more than 95% of the cases. The "classic" pentad of kidney stones, painful bones, abdominal groans, psychic moans, and fatigue overtones are rarely seen today. Our patient had most of these symptoms. The presence of high levels of PTH with normal calcium levels may also be due to secondary causes mostly vitamin D deficiency. Most cases of pHPT are sporadic. About 2% to 5% of pHPT cases arise from familial disorders. Typically it presents as a solitary nodule in thyroid. The presence of parathyroid adenoma in cases of a well differentiated thyroid cancer though had been reported, is rare. This can be partially explained by different embryologic source of thyroid and parathyroid. The relationship between pHPT and PTC is unclear. A retrospective study on 824 patients by Burmeister et al, thyroid carcinoma was found in 18 patients (8.6%) with pHPT[1] . Some authors suggest this concurrence as coincidental[2] while others[3,4] attributed exposure to neck radiation, goitrogenic effect and increased mitotic activity of hypercalcemia, tumour promoting effect of parathormone to it .To date American Thyroid Association (ATA) does not consider pHP as a risk factor for thyroid cancer. In their large series, Lehwald et al [6] noted the predominance of middle aged female patients and right side location of tumours. FNAC is the most valuable diagnostic procedure for PCT but not for parathyroid, False negatives are still reported. FNAC may fail to distinguish parathyroid and thyroid lesions as they have some morphological similarities such as the presence of colloids and macrophages however, immunohistochemistry helps in definitive diagnosis. These include studies for PTH, thyroglobulin, thyroid transcription factor 1, calcitonin, chromogranin. A Sestamibi scan may be positive in many Benign and malignant thyroid carcinomas as the tracer used is a lipophilic molecule.

Conclusion

Patients with hyperparathyroidism may have a concomitant thyroid disease, mostly malignancy. In patients presenting with severe pHPT the possibility of an underlying thyroid malignancy especially a non-medullary type should not be ignored even if the investigations point towards a parathyroid pathology. This is of more importance now as there is a considerable interest in performing minimally invasive

procedures in pHPT. This case also advocates the use of intraoperative frozen sections and Immunohistochemistry for establishing a definitive diagnosis.

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