

Case Report

Concomitant case of thyroid nodule with parathyroid adenoma- a case report

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Received: 27 November 2020

Accepted: 09 January 2021

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ABSTRACT

Coexistence of PHPT in patients with thyroid nodules can complicate patient management if associated with undetected hypercalcemia or unrecognized thyroid cancer. It is an uncommonly diagnosed condition, due to overlapping symptoms in developing countries like India and almost all patient get symptomatic treatment. A 47-year-old female patient presented a history of progressively increasing swelling in the thyroid region associated with continuous dull ache and whose was diagnosed as thyroid nodule with parathyroid adenoma. Thyroidectomy with parathyroidectomy is the preferred modality of treatment for thyroid disorder with additional parathyroid adenoma. The thyroid nodules should be carefully evaluated during the preoperative work-up of a patient with primary hyperparathyroidism. Both MIBI and neck USG should be done in the evaluation of patients undergoing thyroidectomy and parathyroid excision simultaneously to locate the parathyroid adenomas.

Keywords: Thyroid nodule, Parathyroid adenoma, Thyroidectomy, Parathyroidectomy

INTRODUCTION

Primary hyperparathyroidism (PHPT) is a rare disease which is present in up to 0.1% of the general population and the prevalence of PHPT associated with thyroid nodules ranges from 20-60%.¹ PHPT predominates among women, usually in their postmenopausal years.² It is still an uncommonly diagnosed condition, due to its overlapping symptoms in developing countries.³ The sign and symptoms can be due to hypercalcemia and it includes polyuria, polydipsia, constipation, anorexia, vomiting, dehydration, arrhythmias, alter mental status. Renal involvement can take the forms of hypercalciuria, nephrolithiasis, and/or reduced renal function, and Skeletal symptoms can take the form of any combination of fragility fractures, skeletal deformities, and bone pain.

Coexistence of PHPT in patients with thyroid nodules can complicate patient management if associated with

undetected hypercalcemia or unrecognized thyroid cancer. Patient screening for both these concomitant entities is necessary for complete management of undetected parathyroid adenomas presenting in cases of thyroid nodules.⁴ Patients with PHPT in conjunction with thyroid disease are treated by simultaneous thyroidectomy and parathyroidectomy. Performing a surgical intervention for both through a single procedure has several advantages include avoiding the complications during neck re-exploration.⁵ In this case report we present a case of concomitant nodular thyroid goitre with parathyroid adenoma which was managed by hemithyroidectomy and parathyroidectomy.

CASE REPORT

A 47-year-old female patient presented with the history of progressively increasing swelling in the thyroid region since 4 months which was associated with continuous

dull aching pain. She also had complaint of difficulty in swallowing (solids more than liquids) since 1 month. The patient had no concomitant morbidity and no relevant family medical history. The patient presented with a 4×3 cm swelling in the lower midline of the neck towards the left side. Borders were well defined extending from the midline to the posterior border of left sternocleidomastoid horizontally and vertically from 2 to 6cm above suprasternal notch. The swelling was variegated in consistency (cystic to firm). The swelling moved with deglutition and no cervical lymph nodes were palpable.

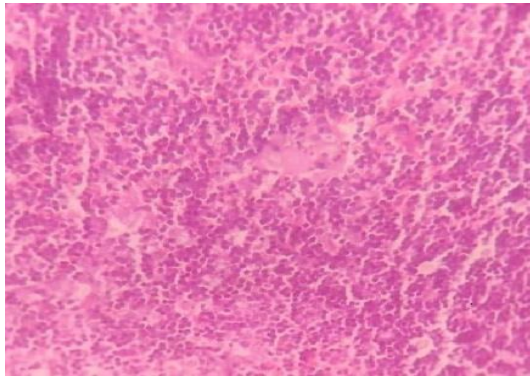


Figure 1: Parathyroid adenoma.

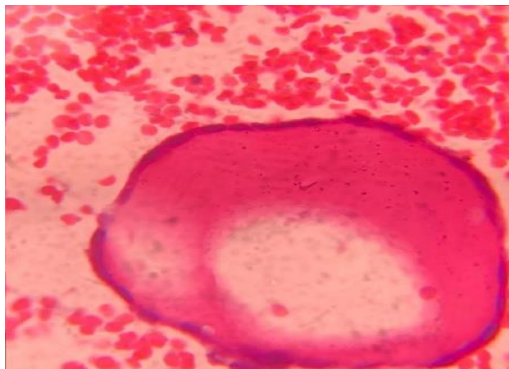


Figure 2: Colloid filled follicle.

Thyroid function test was normal. USG neck showed an enlarged left lobe of thyroid with a well-defined nodule measuring 2.8×1.3 cm in size suggestive of nodular goitre and also a well-defined isoechoic nodule measuring 1.2×1.5cm in size in the left parathyroid gland region suggestive of left parathyroid adenoma. FNAC of the swelling was also suggestive of nodular goitre. Though the patient did not present with symptoms of hyperparathyroidism, following the USG report suggesting a left parathyroid adenoma, parathyroid hormone (PTH) assay was done and found to be elevated (16.02 pmol/L).

Serum calcium levels were also elevated (11.7 mg/dl). The patient then underwent a Tc99m-MIBI parathyroid scan and MIBI pertechnetate subtraction study which revealed a left inferior parathyroid adenoma. All other

haematological and biochemical profiles were within the normal range.



Figure 3: Static MIBI.

Based on the above findings surgery was planned. Patient underwent left hemithyroidectomy with left parathyroidectomy. Histopathological examination confirmed the specimen to be nodular goitre of the left lobe of thyroid with left parathyroid adenoma. Post operatively patient did not show any features of hypocalcaemia but on the 2nd post-operative day, serum calcium levels were decrease to normal (8.7 mg/dl). Patient was started on oral calcium supplementation. Post-operative period was uneventful, drain was removed on 4th post-op day and patient was discharged on 5th post op day. Serum calcium levels returned to normal on subsequent follow up (9.4 mg/dl).

DISCUSSION

Thyroid disorders and primary hyperparathyroidism are amongst the most common endocrine disorders.⁵ Synchronous thyroid and parathyroid disease was first described in 1947 by Milton Kissin and Hyman Bakst, following which many cases of concomitant disease were published over the years.⁶⁻¹⁰ The frequency of primary hyperparathyroidism is found to be higher in patients with thyroid disease than in normal people⁵. Thyroid nodules associated with primary hyperparathyroidism occur in varying frequency ranging from 20-60%.¹⁰⁻¹² Conversely, patients who present with thyroid diseases have nearly 0.3% incidence of primary hyperparathyroidism.¹³ In 3–5% of patients undergoing thyroidectomy, an enlarged and/or hyper functioning parathyroid gland is found, prior to surgery or during surgical neck exploration. As the treatment of the PHPT requires the complete excision of the parathyroid tissue responsible for the hyper production of PTH, the preoperative diagnosis should be conclusive for identifying not only the presence of this endocrine disease, but locating the enlarged gland(s) as well.¹⁴

Preoperative USG has been advocated as necessary in the evaluation of patients with primary hyperparathyroidism since it is valuable not only for localizing parathyroid adenomas but also for detecting synchronous thyroid

nodules¹⁵. During US exploration, thyroid nodules, especially in multinodular goitres, can be mistaken for parathyroid glands, they can cause a posterior displacement of adenomas and change in ultrasound tissue penetration. Posterior thyroid nodules and enlarged lymph nodes can look like enlarged parathyroid glands. Also, in some patients presenting with hypercalcemia with diagnosed solitary nodule in thyroid gland clinically more than 5cm size, routine USG imaging neck may have missed a parathyroid adenoma present with the nodule.

The use of technetium-99m (Tc-99m) methoxyisobutylisonitrile (MIBI) for parathyroid imaging was first reported in 1989 by Coakley et al with the increasing use of minimally invasive techniques, parathyroid scintigraphy has become a routine imaging technique for the preoperative localization of parathyroid pathologies.^{16,17}

The preferred modality of treatment for a patient of thyroid disorder with additional parathyroid adenoma is thyroidectomy with parathyroidectomy.

CONCLUSION

Given the high incidence of existent thyroid disease and primary hyperparathyroidism, the thyroid nodules should be carefully evaluated during the preoperative work-up of a patient with primary hyperparathyroidism. Both MIBI and neck USG should be done in the evaluation of patients undergoing thyroidectomy and parathyroid excision simultaneously to locate the parathyroid adenomas.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Tambat RM, Rao R, Kulkarni AV, Rekha VS, Bhattacharya A. Concomitant case of thyroid nodule with parathyroid adenoma- a case report. *Int Surg J* 2021;8:743-5.