Unusual association of primary hyperparathyroidism, papillary thyroid carcinoma, and follicular adenoma in a young female

Sir,

Nonmedullary thyroid neoplasms are rarely described along with primary hyperparathyroidism (PHPT).[1,2] Preoperative diagnosis of associated thyroid disease is very important for appropriate surgical management.[3]

A 31-year-old female presented with recurrent renal colic and easy fatigability for 4 years duration. Two years back she underwent cholecystectomy for symptomatic gall stone disease. No past history of fracture, gravelluria, or pancreatitis. On examination, firm, asymmetrical grade 2 goiter (Rt > Lt, 7 × 5 cm). The albumin adjusted serum calcium was 11.7 mg/dL (N, 8.5-10.2 mg/dL) and inorganic phosphate was 2.3 mg/dL (N, 3.5-5.0 mg/dL), alkaline phosphatase was 26 KAU (N, 3-13 KAU), intact PTH of 238 pg/ml (N, 15-65 pg/ml) and 25 hydroxy vitamin D was 5 ng/ml (N, 9-37 ng/ml). Complete blood count, renal function test, and thyroid profiles are within normal limits.

The skeletal survey was noncontributory. Ultrasound neck revealed a hypoechoic mass in the right upper pole of the thyroid gland with enlarged right superior parathyroid gland. Ultrasound of abdomen showed bilateral nephrocalcinosis and nephrolithiasis. ^{99m}Tc sestamibi scintigraphy was suggestive of right superior and left inferior parathyroid adenoma. Fine needle aspiration cytology (FNAC) of the thyroid lesion showed lymphocytic thyroiditis. Considering the young age, double parathyroid adenoma and coexisting thyroid enlargement MEN-I work-up was done and all were within normal limits.

Based on the clinical, biochemical, and imaging findings, a diagnosis of PHPT with diffuse goiter was made and the patient was subjected to bilateral neck exploration. She underwent right hemithyroidectomy along with right superior and left inferior parathyroid gland resection. Histopathological findings revealed right superior and left inferior parathyroid adenoma [Figure 1a]. Microscopically the thyroid gland showed papillary carcinoma along with lymphocytic thyroiditis [Figures 1b and c] and follicular adenoma in another focus [Figure 1d]. There was no evidence of lymph nodal metastasis. On the second postoperative day, patient developed features of hypoparathyroidism and managed with calcium infusion (1 mg/kg/h) and oral calcitriol (0.5 μg/day). Subsequently patient underwent completion thyroidectomy and radio iodine ablation (85 mci).

The most common associated thyroid tumor in PHPT includes MTC, follicular adenoma, and rarely papillary thyroid carcinoma. The proposed mechanism of coexisting thyroid abnormalities is radiation therapy of head and neck followed by calcium act as a goitrogen. Sato, *et al.*[4] reported a case with four tumors in the neck. To the best of our knowledge our patient is the second single case who had concurrent four tumors in the neck with no functional symptoms related to the thyroid. FNAC may not pick up all the lesions, particularly in multi-focal involvement, as it happened in our case. Thus surgical treatment is mandatory in such cases with histopathology as the gold standard for diagnosis. This case underscores the need of preoperative FNAC of the thyroid nodule for appropriate surgical intervention and to avoid unexpected surprises postoperatively.

To conclude, preoperative evaluation for hyperparathyroidism should be carefully made in cases with multiple neck swellings and possibilities of concomitant thyroid lesions needs to be considered in rare instances.

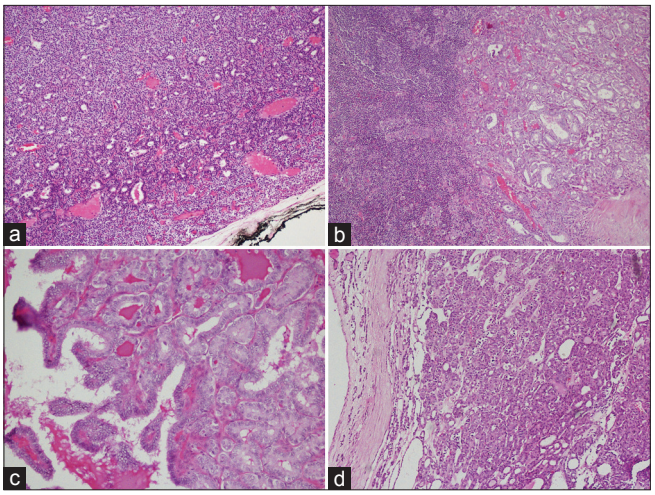

Figure 1: (a) Microphotograph of parathyroid gland showing thin capsule with follicular arrangement of cells (H and E, ×180). (b) Microphotograph of thyroid gland showing papillary thyroid carcinoma with follicular arrangement along with lymphocytic thyroiditis (H and E, ×280). (c) High power of the thyroid gland showing nuclear stratification and optically clear nuclei of papillary carcinoma (H and E, ×540). (d) High power of the thyroid gland showing moderately thin capsule with follicular arrangement of cells in follicular adenoma (H and E, ×240)

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