

Background

Parathyroid carcinoma is a rare endocrine malignancy, which accounts for 1~3% of patients with primary hyperparathyroidism. It causes severe form of hyperparathyroidism, with high serum calcium levels, renal stones, severe bone disease. Coexistent thyroid carcinoma in these patients is extremely rare, rare, and to our knowledge, only 9 patients with documented synchronous parathyroid and thyroid carcinomas have been reported. Here, we present a case of recurred parathyroid carcinoma with multiple lymph node metastasis combined with papillary thyroid carcinoma.

Clinical Case

• Patient : 57-year-old female

• Present illness

- She was presented with high serum calcium level (14.4mg/dL) in medical check-up.
- The patient didn't complaint any symptoms and had no history of nephrolithiasis or osteoporosis.

• Past medical history

- Invasive ductal carcinoma of Right breast, invasion to axillary lymph node : Modified radical mastectomy + Neo-Adjuvant chemotherapy (2004)

• Laboratory findings

- WBC 6620/uL, Hemoglobin 10.2 g/dL, Platelet 290 k/uL
- Calcium 14.4 mg/dL, Phosphate 2.7 mg/dL, ALP 1048 U/L
- Intact PTH 1275 pg/dL, 1,25 (OH) D3 32.43 pg/ml
- Creatinine 1.19 mg/dL
- TSH 0.71 mu/l, free-T4 9.98 pmol/l, T3 2.01 nmol/l

• Initial assessment

- Neck ultrasonography (US) at that time showed 0.7~4.5cm sized multiple thyroid nodules at both lobes.
- Tc-99m sestamibi scan resulted marked increased radiotracer activity in the region of the inferior left lobe of the thyroid.
- Bone scan showed diffuse activity in the skull, which is associated with hyperparathyroidism.

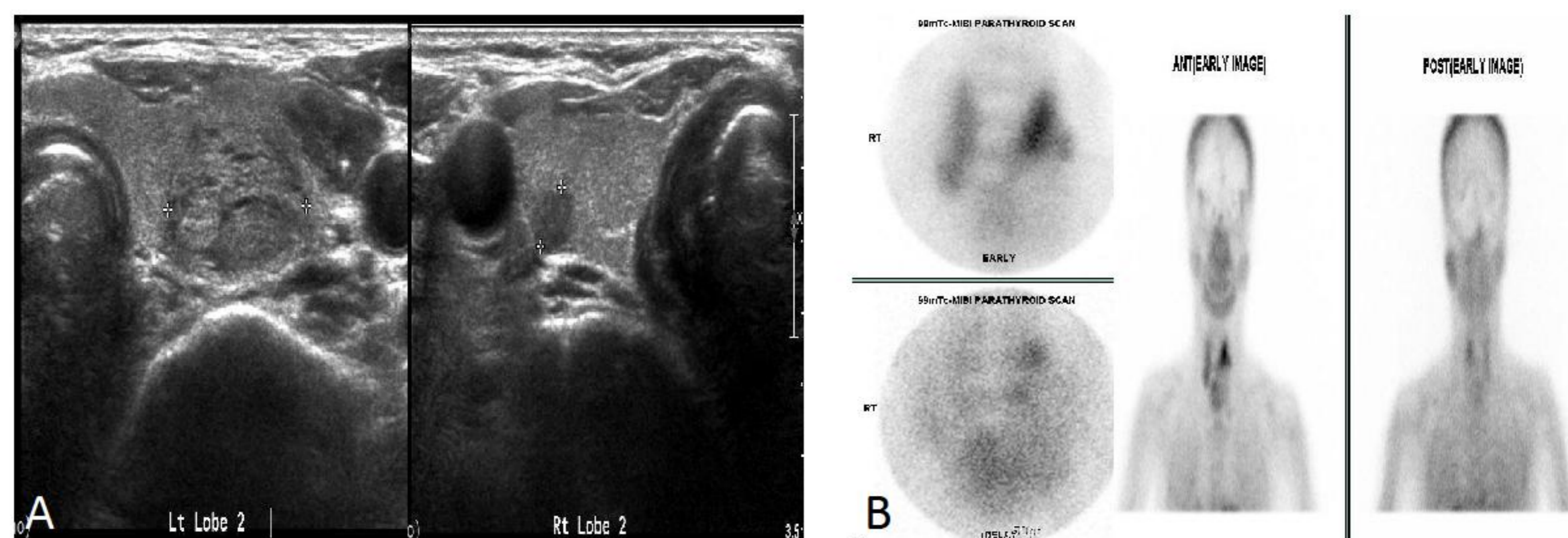


Figure 1. (A) Neck ultrasonography showed multiple thyroid nodules at both lobes. (B) Tc-99m sestamibi scan. Delayed image showed marked increased radiotracer activity in the region of the inferior lobe of the thyroid.

• Surgery(2010)

- Total thyroidectomy with left central compartment neck dissection and left parathyroidectomy was done. There was 4.5 cm sized irregular fixed mass at post margin of thyroid left lobe, with severe adhesion to adjacent tissue.

• Pathologic report

- Left parathyroid gland was defined parathyroid carcinoma with vascular invasion.
- Right thyroid gland was follicular adenoma, and left was papillary thyroid carcinoma.

Progression

Serum calcium and PTH returned to normal range after surgery. Recurrence at the previous surgery site was detected 2 years later, and mass excision was done.

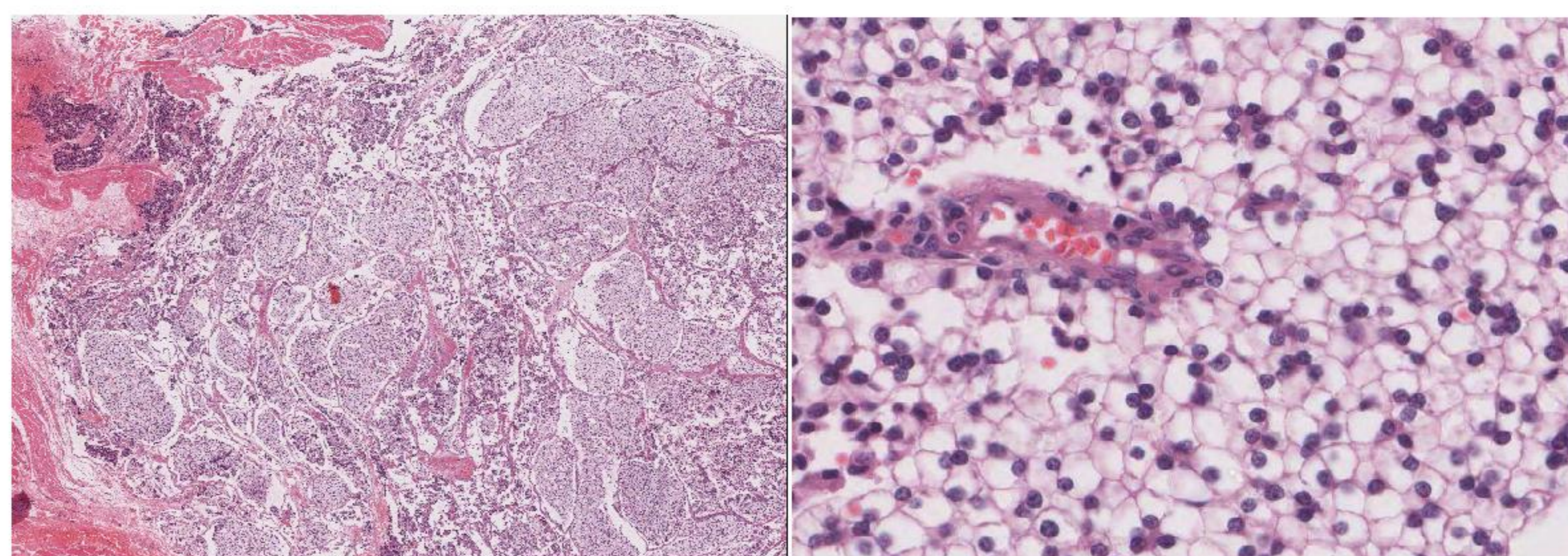
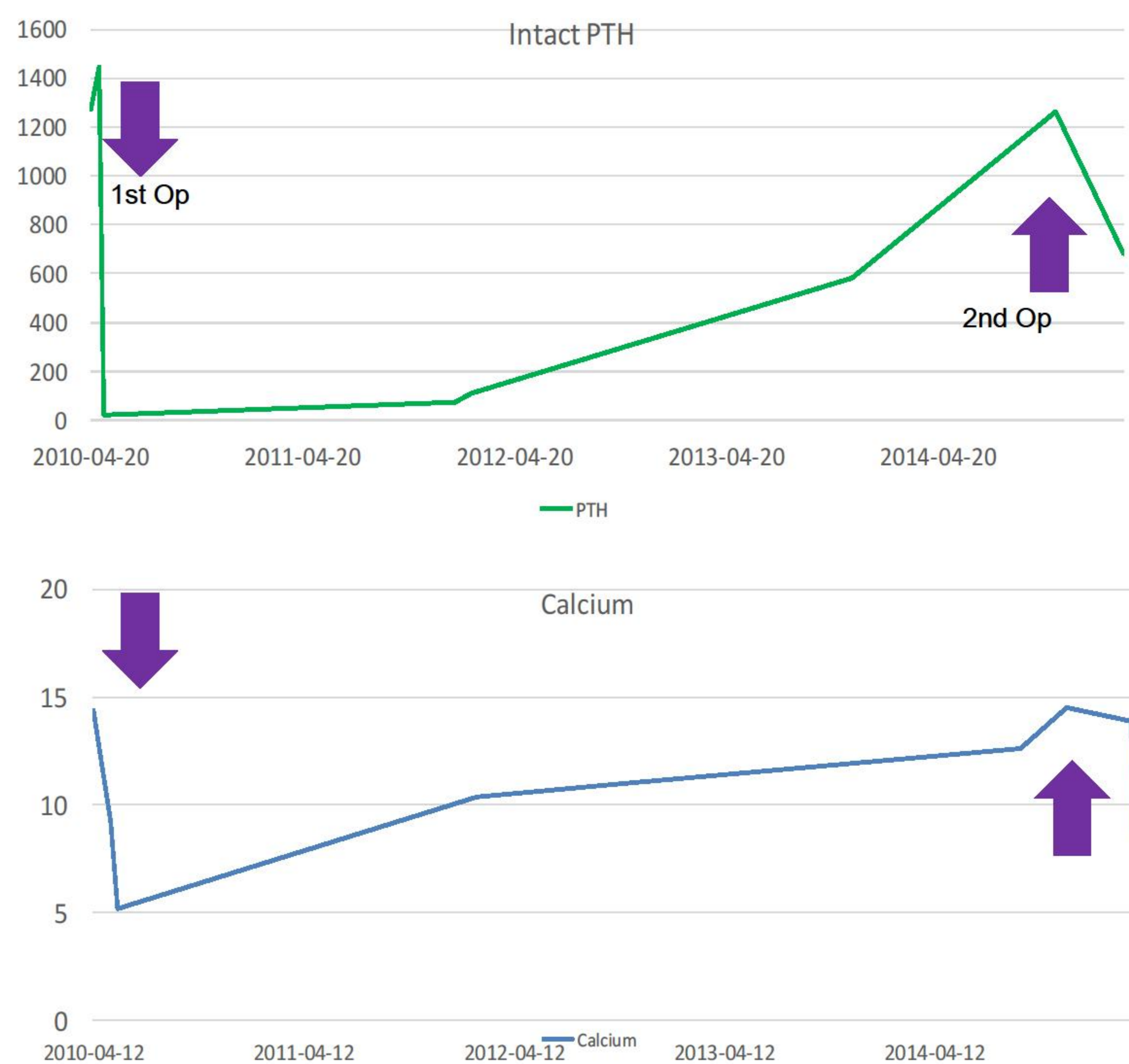


Figure 2. Histopathology of parathyroid carcinoma from the left side and removed at the patient's second operation. (A) Hematoxylin-eosin stains of the resected specimen demonstrated evidence of capsular and vascular invasion. (x15) (B) High power view showed closely packed cells with nuclear atypia and mild pleomorphism. (x200)

After 4 years, follow up PET showed local recurrence and cervical metastatic lymphadenopathy.

Third operation was done. 5 x 9 cm² sized soft, well marginating mass was found at previous op site, and at level 6, 7 area, enlarged lymph nodes were detected and excision was done. Pathologic report confirmed diagnosis of metastatic parathyroid carcinoma.



Summary & Conclusion

Recurrent parathyroid carcinoma is an uncommon cause of primary hyperparathyroidism. In patients with severe hypercalcemia, parathyroid carcinoma should be considered a possible underlying cause. If the finding supports the suspicion of parathyroid carcinoma, an en bloc resection of the parathyroid tumor and the adjacent thyroid lobe should be performed. Moreover, patients with hyperparathyroidism can have concomitant thyroid disease, emphasizing the importance of thyroid imaging before neck exploration for hyperparathyroidism.

