

## Case Report

# Endoscopic Ultrasound-guided Transesophageal Biopsy of Parathyroid Adenoma

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ABSTRACT

Parathyroid adenoma (PTA) causing hyperparathyroidism and hypercalcemia leading to pancreatitis is reported. Endoscopic ultrasound (EUS) can help in the localization of PTA. We report a case of EUS-guided fine-needle aspiration biopsy-proven PTA which is not reported in literature to our knowledge.

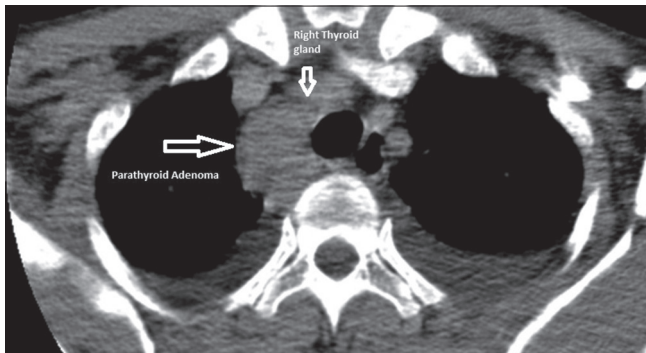
**KEYWORDS:** Endoscopic ultrasound, pancreatitis, parathyroid adenoma

## INTRODUCTION

Parathyroid adenoma (PTA) is a benign tumor of parathyroid gland causing hyperparathyroidism in 80%–85% of cases.<sup>[1]</sup> Ectopic mediastinal parathyroid tissue is found in 11%–25% of patients presenting with primary hyperparathyroidism. Ectopic inferior parathyroid glands are more common and are located in the anterior mediastinum.<sup>[2]</sup> Preoperative studies (sestamibi/neck ultrasound or computed tomography (CT)/image-guided biopsy including endobronchial ultrasound) help in localization of PTA.<sup>[2,3]</sup> Endoscopic ultrasound (EUS) localization and fine-needle aspiration (FNA) of suspected PTA to assess parathyroid hormone (PTH) are reported in literature.<sup>[4,5]</sup> We report a case where EUS-FNA confirmed PTA causing hyperparathyroidism and pancreatitis.

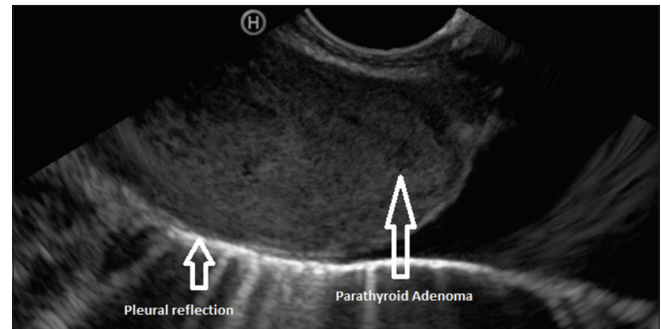
## CASE REPORT

A 35-year-old man presented with the first episode of



**Figure 1:** Contrast-enhanced computed tomography neck showing heterogeneously enhancing mass extending from right thyroid gland to superior mediastinum

pancreatitis without prior history of biliary colic/trauma. Lipid profile was normal. Ultrasonography revealed bulky pancreas with minimal fluid collection and no gallstones. His serum calcium was 14.7 mg/dl (normal: 8.5–10 mg/dL). Vitamin D3 and phosphate were normal. PTH level was more than 1000 pg/ml (normal 10–65 pg/mL). Ultrasound neck revealed a right apical thoracic mass of 2.6 cm × 2.4 cm extending into the mediastinum. Contrast-enhanced CT of the neck, thorax, and abdomen revealed a 6 cm × 3 cm × 2 cm mass extending from right inferior aspect of the thyroid gland into the mediastinum till tracheal bifurcation [Figure 1]. In view of the size, to differentiate from parathyroid carcinoma, EUS-FNA was performed using a linear echoendoscope (Pentax EG-3870 UTK connected to a Hitachi Avius estiva ultrasound machine) under conscious sedation. EUS revealed a 4



**Figure 2:** Linear endoscopic ultrasound image with scope in cervical esophagus showing parathyroid mass

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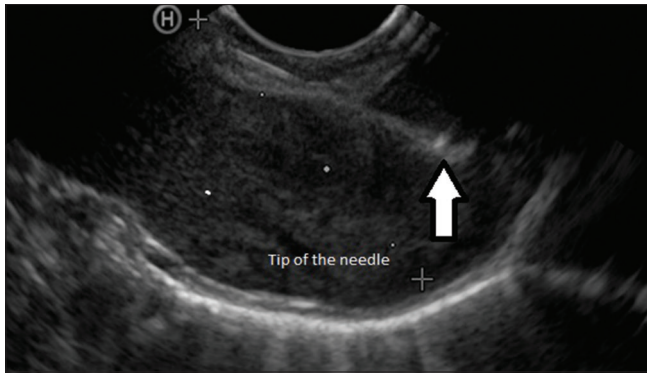
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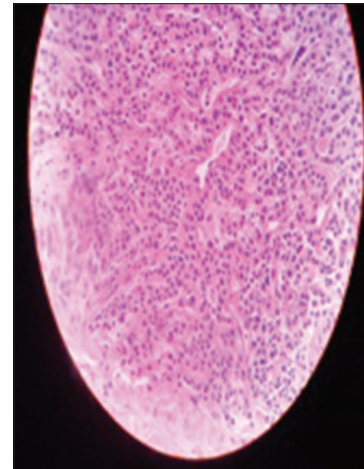
**Figure 3:** Linear endoscopic ultrasound image with scope in cervical esophagus showing transesophageal needle biopsy



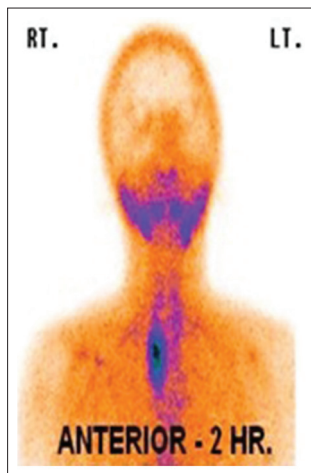
**Figure 4:** Linear endoscopic ultrasound image with scope at gastroesophageal junction showing peri-splenic collection resolving pancreatitis



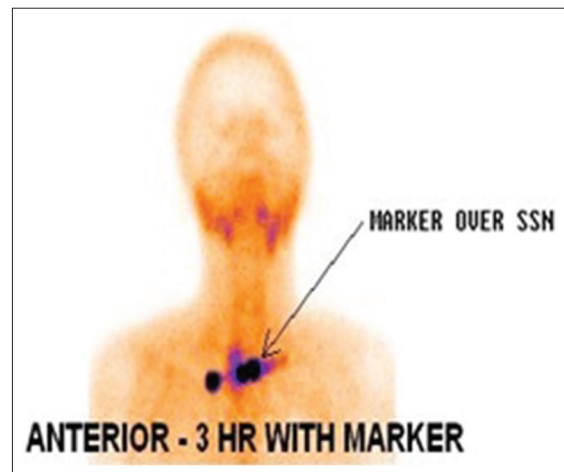
**Figure 5:** Histopathology picture showing round cells with moderate amount of eosinophilic cytoplasm suggestive of parathyroid adenoma



**Figure 6:** Histopathology picture showing monomorphic hypercellularity with bland round nuclei suggestive of parathyroid adenoma



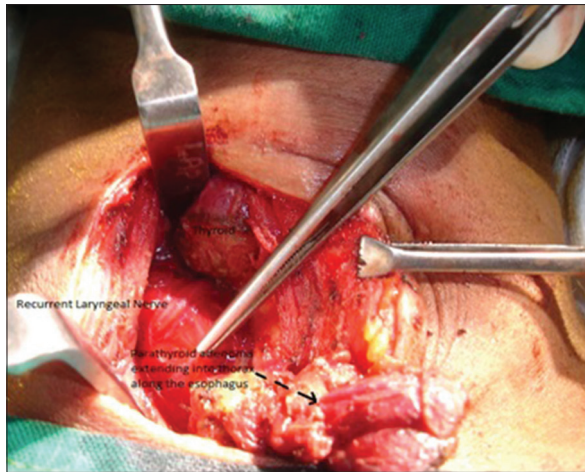
**Figure 7:** Technetium 99m sestamibi image showing positivity for parathyroid adenoma



**Figure 8:** Technetium 99m sestamibi image showing positivity for parathyroid adenoma after 3 h

cm × 2 cm hypoechoic lesion in superior mediastinum [Figure 2], and using a 22-gauge Wilson-cook fine needle, aspiration biopsy was performed [Figure 3]. Sestamibi scan and the biopsy confirmed PTA [Figures 5-8]. He underwent right superior parathyroidectomy through

neck incision, and 12 g of PTA of 8 cm × 2 cm × 2 cm was removed [Figure 9]. Right inferior parathyroid



**Figure 9:** Intraoperative image of right superior parathyroidectomy through neck incision

gland appeared normal. Intraoperative serum PTH was normal. Hungry bone syndrome was treated in immediate postoperative course with intravenous calcium and changed to oral calcium (3 g/day) and vitamin D3 (1 mcg/day) once stabilized. The resected PTA was well demarcated from normal tissue with no capsular invasion, no fat cells, lobular pattern, or evidence of malignant change. Six months after parathyroidectomy, he is symptom free with normal PTH and calcium.

EUS-FNA can confirm the diagnosis of superior PTA which is rare and usually located in the tracheoesophageal groove. To our knowledge, this is the first case in literature of EUS-FNA-proven PTA.

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#### Conflicts of interest

There are no conflicts of interest.

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