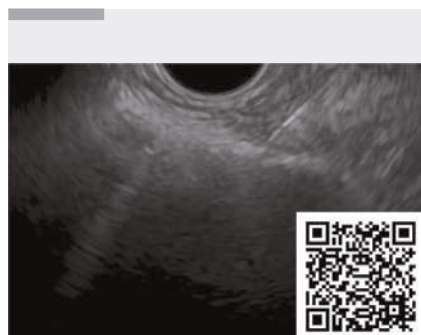


Ectopic mediastinal parathyroid diagnosed by contrast-enhanced endoscopic ultrasound-guided fine-needle aspiration and eluate parathormone level



Video 1 Sequential steps of endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) of an ectopic mediastinal parathyroid.

Primary hyperparathyroidism is defined as an elevated serum calcium with an elevated or inappropriately normal parathyroid hormone (PTH), and rarely it can be due to an ectopic mediastinal parathyroid [1].

We describe a 68-year-old woman with a new diagnosis of primary hyperparathyroidism due to a suspected mediastinal parathyroid. Laboratory tests revealed an elevated serum calcium (11.5 mg/dL [normal range 8.8–10.1]), decreased serum phosphorus (2.1 mg/dL [2.5–4.5]), high parathormone (150 pg/mL [12–72]), and hypercalciuria (313 mg/day [>250 mg/day]). The patient also had multiple co-morbidities, including atrial fibrillation, obesity, and a multinodular goiter. According to recent guidelines, parathyroidectomy was indicated [1].

We performed endoscopic ultrasound (EUS) to identify the precise location of the ectopic parathyroid, using a linear echoendoscope (GF-UCT180; Olympus Medical, Tokyo, Japan) connected to an Arietta S70 (Hitachi-Aloka, Japan) [2,3]. We detected an ill-defined hypoechoic inhomogeneous lesion (19×8 mm) at

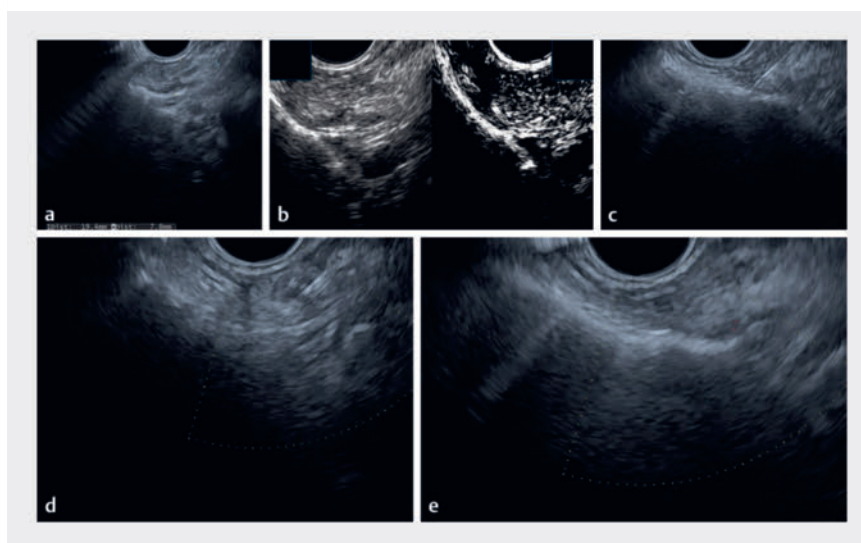


Fig. 1 Endoscopic ultrasound (EUS) images showing the stages of the EUS-guided fine-needle aspiration (EUS-FNA) including: **a** identification of the parathyroid; **b** the use of contrast-enhanced EUS; **c, d** the EUS-FNA procedure being performed; **e** the appearance after the EUS-FNA.

20 cm from the upper incisors on the right side of the esophagus (► **Video 1**). As we deemed B-mode scanning insufficient to proceed with EUS-guided fine-needle aspiration (EUS-FNA) safely, we investigated the lesion further with contrast-enhanced EUS after injection of one vial of Sonovue (Bracco, Italy), which showed a hyperenhanced lesion [4]. EUS-FNA was then performed with a 22G needle (Expect; Boston Scientific, USA). The aspirate was diluted in 2 mL normal saline and a real-time rapid PTH assay was performed. The cytologic appearance and PTH level on the diluted eluate (>2500 pg/mL) were diagnostic of an ectopic parathyroid (► **Fig. 1**).

For the detection of ectopic adenomas, current guidelines [1] recommend imaging methods such as neck ultrasound, scintigraphy, positron-emission tomography, and computed tomography, which may be inconclusive in some cases. EUS-

FNA and PTH testing on the eluate, which is usually more sensitive than the cytology of the specimen, should be considered. We believe that EUS-FNA is safe in these often co-morbid and frail patients, allowing appropriate referral for a major surgical intervention such as parathyroidectomy [5].

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Conflict of Interest

The authors declare that they have no conflict of interest.

The authors

Matteo Parolin¹, **Antonino Caruso²**, **Paola Sartorato¹**, **Andrea Lisotti³**, **Stefano Benvenuti²**, **Ernesto De Menis¹**, **Pietro Fusaroli³**

- 1 Medicina Generale 2, Ospedale Santa Maria di Ca Foncello, Treviso, Italy
- 2 Gastroenterology, Ospedale Santa Maria di Ca Foncello, Treviso, Italy
- 3 Gastroenterology and Digestive Endoscopy Unit, Hospital of Imola, Università di Bologna, Imola, Italy

Corresponding author

Matteo Parolin, MD

Medicina Generale 2, Ospedale Ca Foncello, Piazzale dell'ospedale 1, 31100, Treviso, Italy
matteoparolin@hotmail.it
matteo.parolin@aulss2.veneto.it

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