

# Long standing hypercalcemia in a 78-years old woman

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## Abstract

A 78 years-old woman was found with worsening hypercalcemia, osteopenia and memory loss during the past 2 years. Multiple, repeated imaging studies failed to reveal the aetiology of the primary hyperparathyroidism. Bilateral neck exploration revealed a 4.5X2,3 cm right superior parathyroid adenoma in an ectopic position.

## Clinical Image

Long standing hypercalcemia in a 78-years old woman

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**Short title** : Primary Parathyroid adenoma, Diagnostic issues

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## Abstract

A 78 years-old woman was found with worsening hypercalcemia, osteopenia and memory loss during the past 2 years. Multiple, repeated imaging studies failed to reveal the aetiology of the primary hyperparathyroidism. Bilateral neck exploration revealed a 4.5X2,3 cm right superior parathyroid adenoma in an ectopic position.

## Key Clinical Message

Primary hyperparathyroidism is the most common cause of hypercalcemia in unselected patients. The diagnosis mandates inappropriately high PTH levels despite upper normal/elevated Ca<sup>++</sup> serum levels.

Negative imaging studies neither exclude the diagnosis nor contraindicates the operative approach. Open, bilateral 4-gland exploration offers the best chance of cure in this setting.

**Keywords:** Primary Hyperparathyroidism, Parathyroid Adenoma, Neck Exploration, Parathyroidectomy, Neck U/S, Sesta-MIBI Scanning

### **Case Presentation**

A 78 years-old woman was referred due to worsening hypercalcemia during the past 2 years. She complained of memory loss and was found with osteopenia (hip T-score: -2.3 on DXA scan). Her past medical and family history was unremarkable. Calcium and PTH serum levels were 11.6mg/dL, 156 pg/ml 2 years prior and 13.6mg/dL, 662pg/ml on admission (normal values: 8.4-10.1, and 15-65 respectively). Albumin, Vit. D and kidney function were normal. Neck ultrasound/ CT/MRI as well as sestaMIBI did not found any pathologic findings (Fig 1A&B).

Q: What is the diagnosis?

Bilateral 4-gland exploration revealed a right superior parathyroid adenoma at the lower paratracheal area. (Fig.2). Histology confirmed the presence of an encapsulated, 10gr/4.5X2.3 cm, parathyroid adenoma. A peripheral rim of normal glandular tissue was identified.

Primary hyperparathyroidism is the most common cause of hypercalcemia in the adult population. The diagnosis is biochemical and entails an inappropriately high PTH level despite high-normal/high  $Ca^{++}$  serum level. Secondary causes of PTH elevation should be ruled out. Imaging studies does not aid in the diagnosis and are not used for selecting patients for surgical referral [1]. Even though various minimally invasive techniques do exist, open bilateral 4-gland exploration is the preferred operative strategy in cases with discordant or negative preoperative localization studies [1,2].

### **Authorship list**

Andreas Kiriakopoulos MD, PhD, FACS – design/implementation of the study/wrote the manuscript  
Dimitrios Linos MD, PhD, FACS- design/critical review of the manuscript

### **Conflict of interest**

None to declare

### **Informed consent**

Informed consent was obtained from the patient in order to use the imaging studies

### **Funding information**

None

### **Ethics Statement**

There is no identification details of the patient in the studies provided and an informed consent was taken

### **Data availability**

All images and information regarding the case are available upon reasonable request

### **References**

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### Abbreviations

PTH: Parathyroid hormone

Ca<sup>++</sup>: Calcium

DXA scanning: Dual-Energy Absorptiometry

U/S: Ultrasound

CT: Computerized Tomography

MRI: Magnetic Resonance Imaging

### Figures Legends

Figure 1: A: Neck CT scanning with iv contrast and transverse neck U/S showing no pathologic findings from the parathyroid glands

B: Sesta-MIBI scanning 10min and 120 min after the injection of the radiotracer without pathologic foci uptake

Figure 2: Large right superior parathyroid adenoma found at the lower right paratracheal area



