JOURNAL OF CLINICAL CASE STUDIES, REVIEWS AND REPORTS

Case Report
Volume 5 | issue 5

ISSN: 3069-0781

# Primary Hyperparathyroidism Presenting with Dysphagia Due to a Large Parathyroid Adenoma: A Case Report

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**Submitted:** 12 October 2026 **Accepted:** 22 October 2026 **Published:** 26 October 2026

**Citation:** Burova, V. (2026). Primary Hyperparathyroidism Presenting with Dysphagia Due to a Large Parathyroid Adenoma: A Case Report. J of Clin Case Stu, Reviews & Reports, 5 (5), 01-06.

***Abstract***

***Background***

*Primary hyperparathyroidism (PHPT) is most commonly caused by a solitary parathyroid adenoma, whereas compressive symptoms from large adenomas are uncommon. This report describes an unusual presentation with dysphagia. Methods: A 66-year-old woman with one month of progressive dysphagia and approximately 10 kg of weight loss underwent gastroenterological and otorhinolaryngological assessment, contrast-enhanced computed tomography (CT), ultrasonography, biochemical testing, and parathyroid hormone (PTH) washout. Results: Endoscopy and flexible fiberoptic examination did not identify a cause of dysphagia. CT demonstrated a 3.0 × 1.9 × 4.7 cm heterogeneous cervical mass extending toward the superior mediastinum and displacing adjacent structures. Total calcium was 3.02 mmol/L, ionized calcium 2.60 mmol/L, and serum PTH 365.1 pg/mL. PTH washout exceeded 3438 pg/mL. Surgical excision and histopathology confirmed a parathyroid adenoma. Postoperative PTH decreased to 58.4 pg/mL and dysphagia resolved completely. Conclusions: A large parathyroid adenoma should be considered in patients with unexplained dysphagia, particularly when hypercalcemia and elevated PTH are present.*

***Case Presentation***

*A 66-year-old woman presented with progressive dysphagia and a 10-kg weight loss over one month. Initial gastroenterological and otorhinolaryngological investigations failed to identify the cause. Contrast-enhanced computed tomography revealed a heterogeneous cervical mass measuring 3.0 × 1.9 × 4.7 cm, extending toward the superior mediastinum and displacing the trachea and adjacent structures. Total calcium was 3.02 mmol/L, ionized calcium 2.60 mmol/L, and serum parathyroid hormone 365.1 pg/mL. Ultrasonography showed a hypervascular lesion posterior to the left thyroid lobe. Fine-needle aspiration with parathyroid hormone washout yielded >3438 pg/mL. The patient underwent excision of the left parathyroid lesion. Histopathology confirmed parathyroid adenoma. Postoperatively, PTH normalized to 58.4 pg/mL and dysphagia resolved completely.*

***Conclusions***

*Large parathyroid adenomas may rarely present with compressive symptoms such as dysphagia. Persistent dysphagia with negative gastrointestinal and otorhinolaryngological findings should prompt consideration of cervical pathology and evaluation of calcium–parathyroid hormone metabolism.*

**Keywords:** Primary Hyperparathyroidism, Parathyroid Adenoma, Dysphagia, Hypercalcemia, Neck Mass.

## Introduction

Primary hyperparathyroidism (PHPT) is among the most common endocrine disorders and is caused by a solitary parathyroid adenoma in approximately 80–85% of cases. The disorder is characterized by autonomous or inappropriately elevated parathyroid hormone secretion with hypercalcemia. Although many patients are now identified through biochemical testing before classic renal and skeletal manifestations develop, patients with large lesions may present with atypical local symptoms. Large or giant parathyroid adenomas can occupy the lower neck and extend toward the superior mediastinum, producing displacement or compression of adjacent structures. Dysphagia is a rare pre-

senting symptom of parathyroid adenoma and may lead to extensive diagnostic investigations involving gastroenterology and otorhinolaryngology. Because dysphagia has a broad differential diagnosis, patients are frequently investigated first for esophageal, pharyngeal, laryngeal, or neurological causes. When these evaluations are unrevealing, a structural lesion in the thyroid/parathyroid region or superior mediastinum may be overlooked. This is particularly relevant when the cervical mass is posterior to the thyroid and does not produce an obvious mucosal abnormality on endoscopy or flexible endoscopy.

## Materials and Methods

This manuscript presents a single-patient clinical case. The diagnostic and therapeutic information was obtained from the patient's clinical record and from the investigations performed during the reported hospitalization. No experimental intervention or animal study was involved. The diagnostic assessment followed the patient's principal complaint of progressive dysphagia. Initial evaluation included gastroenterological assessment with esophagogastroduodenoscopy and otorhinolaryngological assessment with flexible fiberoptic endoscopy. Because these examinations did not identify a sufficient explanation for the symptoms, cross-sectional imaging of the neck was performed.

Contrast-enhanced computed tomography was used to characterize the cervical lesion, its dimensions, internal morphology, extension toward the superior mediastinum, and relationship to adjacent structures. Thyroid and cervical ultrasonography were subsequently performed to assess the thyroid gland and to determine the likely origin and vascular characteristics of the lesion. Biochemical evaluation included total serum calcium, ionized calcium, parathyroid hormone, thyroid-stimulating hormone, and free thyroxine. The biochemical profile was interpreted together with the imaging findings to assess for primary hyperparathyroidism and to establish whether the cervical mass was likely to represent a functioning parathyroid lesion.
Ultrasound-guided fine-needle aspiration with measurement of PTH in the needle-washout fluid was performed because confirmation of the parathyroid origin was clinically useful for operative planning. Contemporary literature supports PTH washout as an adjunctive localization method in selected patients; recent studies have reported high diagnostic performance when washout results are interpreted together with imaging and serum PTH. □cite□turn1search0□turn1search1□turn1search10□

The patient subsequently underwent surgical excision of the left parathyroid lesion. Intraoperative assessment included frozen-section examination, followed by definitive histopathological examination. Postoperative assessment included clinical evaluation of swallowing and repeat serum PTH measurement. Treatment success was assessed by the clinical resolution of dysphagia and biochemical normalization of PTH. Current diagnostic practice relies on biochemical confirmation of PHPT followed by localization imaging for operative planning. Ultrasonography and technetium-99m sestamibi-based imaging are widely used, while multiphasic CT or other advanced imaging may be helpful in selected patients. Recent studies have also supported the use of PTH measurement in needle-washout fluid as an adjunct when a cervical lesion is suspected to be of parathyroid origin. A 2024 multicenter study reported that a positive PTH washout could provide sufficient localization information in selected patients and may reduce the incremental value of sestamibi imaging when ultrasonography and washout results are concordant. □cite□turn1search10□

The present case is clinically relevant because dysphagia was the dominant presenting complaint and persisted despite initial gastroenterological and otorhinolaryngological investigations. The aim of this report is to describe the diagnostic pathway, biochemical and imaging findings, surgical management, and outcome of a large parathyroid adenoma presenting with dysphagia, and to emphasize the importance of considering parathyroid disease among structural causes of otherwise unexplained swallowing difficulty.

## Case Presentation

A 66-year-old woman was admitted with progressive dysphagia of one-month duration. During the same period, she experienced an unintended weight loss of approximately 10 kg. The patient was initially hospitalized in a gastroenterology department. Esophagogastroduodenoscopy demonstrated chronic inactive superficial gastritis with negative Helicobacter pylori testing. The esophagus was patent without evidence of obstruction or stenosis, and the lower esophageal sphincter was functionally preserved. A polypoid lesion in the descending duodenum was identified and histologically confirmed as a hyperplastic polyp. Because of persistent dysphagia despite the absence of significant gastrointestinal findings, the patient was referred for otorhinolaryngological evaluation. Clinical examination demonstrated only mild hyperemia of the posterior pharyngeal wall. Flexible fiberoptic examination revealed no abnormalities involving the pharynx or larynx.

Further diagnostic evaluation included contrast-enhanced computed tomography of the neck, which revealed a large heterogeneous lesion with smooth and well-defined margins, central hypodense areas, and peripheral calcifications. The lesion measured approximately 3.0 × 1.9 cm in the axial plane and 4.7 cm in craniocaudal diameter. It extended toward the superior mediastinum and displaced the trachea and adjacent cervical structures. Laboratory investigations demonstrated hypercalcemia with total serum calcium of 3.02 mmol/L and ionized calcium of 2.60 mmol/L. Serum parathyroid hormone concentration was markedly elevated at 365.1 pg/mL. Thyroid function tests, including thyroid-stimulating hormone and free thyroxine, were within normal limits.

Ultrasonographic examination of the thyroid gland identified a 5-mm spongiform nodule within the left thyroid lobe without suspicious sonographic characteristics. Posterior and lateral to the middle third of the left thyroid lobe, a predominantly solid isoechoic lesion measuring approximately 4 × 2 × 3 cm with markedly increased vascularity was visualized. No pathological cervical lymphadenopathy was detected. Fine-needle aspira-

tion with parathyroid hormone washout was subsequently performed. The concentration of PTH in the aspirate exceeded 3438 pg/mL, confirming the parathyroid origin of the lesion.

Based on the biochemical, imaging, and cytological findings, the patient underwent excision of the left parathyroid lesion. Intraoperatively, a well-circumscribed lesion measuring approximately 5 × 3 cm was identified and excised. Frozen-section examination was performed intraoperatively. Definitive histopathological evaluation confirmed the diagnosis of parathyroid adenoma. The postoperative course was uneventful. The patient resumed normal oral intake shortly after surgery and reported complete resolution of dysphagia. Postoperative serum parathyroid hormone concentration decreased to 58.4 pg/mL, indicating successful surgical treatment.

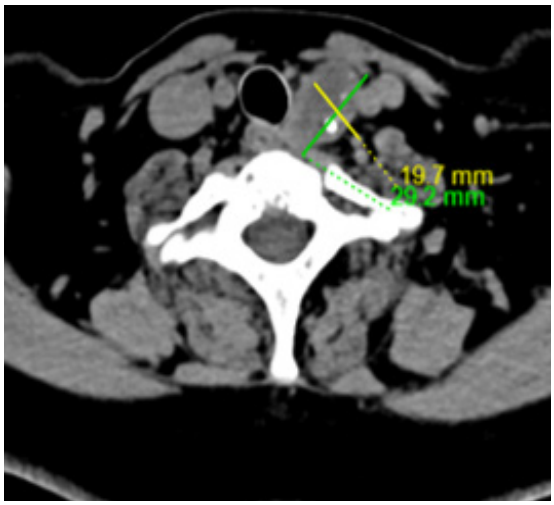



**Figure: 1 Biochemical Findings Before and After Surgery**

| Parameter | Preoperative Value | Postoperative Value | Reference Range |
|---|---|---|---|
| Total calcium | 3.02 mmol/L | Not available | 2.15–2.55 mmol/L |
| Ionized calcium | 2.60 mmol/L | Not available | 1.12–1.32 mmol/L |
| Serum PTH | 365.1 pg/mL | 58.4 pg/mL | 15–65 pg/mL |
| PTH washout | >3438 pg/mL | Not applicable | Not applicable |
| TSH | Normal | — | 0.4–4.0 mIU/L |
| Free T4 | Normal | — | 10–23 pmol/L |

## Discussion

Primary hyperparathyroidism is commonly encountered in endocrine practice; however, presentation with compressive cervical symptoms remains unusual. The majority of patients present with asymptomatic hypercalcemia or complications involving the kidneys and skeleton [1, 2]. Dysphagia as the primary manifestation of PHPT is rare and has been described only sporadically in the literature [1-10].

The diagnostic process in the present case was particularly challenging because both gastroenterological and otorhinolaryngological evaluations failed to identify a cause for the patient's symptoms. The absence of significant endoscopic findings and normal fiberoptic examination necessitated further investigation. Cross-sectional imaging ultimately demonstrated a large cervical mass extending toward the superior mediastinum and causing displacement of adjacent structures. Large parathyroid adenomas may produce symptoms through direct compression of the esophagus, trachea, or surrounding cervical tissues. In such cases, the differential diagnosis includes thyroid nodules, thyroid carcinoma, parathyroid carcinoma, lymphadenopathy, and other mediastinal masses [4-7]. The presence of significant hypercalcemia and markedly elevated serum PTH levels was highly suggestive of primary hyperparathyroidism [1-7].

Fine-needle aspiration with PTH washout has emerged as a valuable adjunctive diagnostic technique in cases where the origin of a cervical lesion is uncertain. In the present case, the markedly elevated washout PTH concentration (>3438 pg/mL) provided strong evidence of parathyroid tissue and facilitated preoperative planning [8, 9]. Several authors have reported that exceptionally large parathyroid adenomas may mimic thyroid tumors and present with compressive symptoms. Although the exact weight of the excised lesion was not available, its dimensions (approximately 5 × 3 cm) are comparable to those reported in large and giant parathyroid adenomas described in the literature [4-7].

The complete resolution of dysphagia after surgery, accompanied by normalization of serum PTH levels, strongly supports a

causal relationship between the adenoma and the patient's presenting symptoms. Similar postoperative outcomes have been described in previously published cases of compressive parathyroid adenomas [5, 6].



**Figure: 2 Contrast-enhanced CT scan demonstrating a heterogeneous left-sided cervical mass with central hypo, peripheral calcifications, and displacement of the trachea.**

The size of the lesion in this case is clinically important. A mass measuring 4.7 cm in its greatest dimension is considerably larger than the parathyroid lesions encountered in many patients with biochemically detected PHPT. Large lesions can produce a different clinical phenotype because their local anatomical effects become clinically apparent in addition to the systemic consequences of excess PTH. The combination of a cervical mass, biochemical hyperparathyroidism, and symptoms related to neighboring structures should therefore raise suspicion for a large functioning parathyroid adenoma. Large parathyroid adenomas may rarely present with compressive symptoms such as dysphagia and may remain unrecognized when initial gastrointestinal and otorhinolaryngological investigations are unrevealing. In this case, the combination of progressive dysphagia, a large cervical lesion, marked hypercalcemia, elevated serum PTH, and markedly increased PTH in washout fluid established the diagnosis and guided definitive surgical treatment.

The complete postoperative resolution of dysphagia together with normalization of PTH strongly supports a clinically relevant relationship between the adenoma and the swallowing disorder. The case emphasizes that persistent unexplained dysphagia may warrant evaluation for extraluminal cervical pathology, including functioning parathyroid lesions. The principal limitations are the single-patient design, the absence of objective preoperative swallowing-function measurements, and limited long-term follow-up information in the available clinical record. These limitations prevent conclusions regarding the prevalence of dysphagia in large parathyroid adenomas. Future research should include standardized swallowing assessments and quantitative imaging of esophageal and tracheal displacement in patients with large or giant adenomas to better define predictors of compressive symptoms.

**Institutional Review Board Statement**

Not applicable. This publication describes a single case report. Written informed consent for publication was obtained from the patient.

**Informed Consent Statement**

Written informed consent was obtained from the patient for publication of this case report.

**Data Availability Statement**

The data presented in this case report are contained within the article. Additional information may be available from the corresponding author on reasonable request, subject to patient confidentiality.

**Conflicts of Interest**

The authors declare no conflict of interest.

**Funding**

No funding was received for this study.

**Declarations**

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