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Parathyroid Hormone–Suppressed Hypercalcemia Revealing Pulmonary Tuberculosis: A Diagnostic Pitfall for Nephrologists

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Abstract

Hypercalcemia is most commonly caused by primary hyperparathyroidism and malignancy. Granulomatous diseases such as tuberculosis represent a less frequent but clinically important cause of Parathyroid Hormone (PTH) independent hypercalcemia. We report a 55-year-old woman who presented with fatigue and unintentional weight loss and was found to have hypercalcemia with suppressed PTH levels. Thoracic computed tomography revealed a cavitary lung lesion, leading to the diagnosis of pulmonary tuberculosis. Conventional treatment with hydration and loop diuretics was ineffective, whereas serum calcium levels normalized following bisphosphonate therapy and initiation of anti-tuberculosis treatment.

Introduction

Hypercalcemia is a common metabolic abnormality encountered in nephrology practice [1]. Primary hyperparathyroidism and malignancy account for the majority of cases; however, granulomatous diseases such as tuberculosis should also be considered, especially in endemic regions. In tuberculosis-associated hypercalcemia, activated macrophages within granulomas express extrarenal 1-alpha hydroxylase, leading to increased conversion of 25-hydroxyvitamin D to its active form [2]. This results in increased intestinal calcium absorption and suppression of parathyroid hormone secretion.

Case Presentation

A 55-year-old woman presented with fatigue and unintentional weight loss. Her past medical history was significant for hypertension and type 2 diabetes mellitus. She denied the use of vitamin D or calcium supplements.

Laboratory evaluation revealed a corrected serum calcium level of 12.5 mg/dL and a suppressed PTH level of 3 pg/mL. Other laboratory parameters were within normal limits [3]. Physical examination was unremarkable.

Thoracic computed tomography demonstrated a cavitary lung lesion. Pulmonary tuberculosis was diagnosed, and anti-tuberculosis therapy was initiated. Hypercalcemia was resistant to hydration and loop diuretics but resolved following bisphosphonate therapy [4].

Discussion

Tuberculosis-related hypercalcemia is mediated by extrarenal production of active vitamin D by macrophages within granulomas. This condition may be resistant to conventional therapies and

requires treatment of the underlying disease [5,6]. Awareness of this entity is crucial for nephrologists evaluating patients with PTH-independent hypercalcemia.

Conclusion

Pulmonary tuberculosis should be considered in patients presenting with PTH-independent hypercalcemia. Early recognition and appropriate management are essential.

Ethics Statement

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

Author Contributions

Eser Uslu Ates contributed to patient management, data collection, manuscript drafting, and final approval of the manuscript.

Conflict of Interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. Informed consent was obtained for this publication.

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