Case Report:

Normocalcemic primary hyperparathyroidism in a case of parathyroid adenoma

Dr. Kaustubh Mench, Dr. Sunil Magadum, Dr. Madhushree Khandale, Dr. Vasim Mulla

Dept. of General Surgery, R. C. S. M. Govt. Medical College, KOLHAPUR, Maharashtra, India
Corresponding Author: Dr. Sunil B Magadum

Abstract:
Normocalcemic primary hyperparathyroidism is a new entity which possibly represents a clinically symptomatic disease and which has generated a considerable scientific interest in the last decade. Primary hyperparathyroidism is a common disorder of mineral metabolism characterized by incompletely regulated, excessive secretion of parathyroid hormone from one or more of the parathyroid glands. The classical form of the disease is characterized by hypercalcemia, kidney stones, and severe bone disease. Currently a new phenotype has arisen, in which normocalcemia is observed, despite persistently high levels of PTH.

Keywords - Normocalcemic hyperparathyroidism, bone disease, Asymptomatic Hyperparathyroidism

Introduction
Primary hyperparathyroidism (PHPT) is a disease characterized by elevated or inappropriately normal parathyroid hormone (PTH) levels due to excessive secretion by one or more parathyroid glands. The classical form of the disease is characterized by hypercalcemia, kidney stones, and severe bone disease.\(^{1}\) Currently a new phenotype has arisen, in which normocalcemia is observed, despite persistently high levels of PTH.

Here, we report an unusual case of a single parathyroid adenoma with bilateral hydronephrosis due to multiple calculi, primary hyperparathyroidism but normal serum calcium levels.

Case Report
A 30 year old lady presented with a long standing neck swelling with abdominal pain. She had normal vitals with tenderness over both renal angles. There was a neck swelling to the left of midline without signs of thyrotoxicosis or pressure. All routine investigations were normal except pus cells in urine. TFTs were within normal range. A parathyroid adenoma was suspected and parathyroid hormone levels were found very high, 1128pg/ml. However, serum calcium was normal. Ultrasound confirmed bilateral hydronephrosis due to multiple renal calculi. CT scan of neck characterized a mass posterior to the left lobe of thyroid displacing the thyroid anteriorly. On exploration, the left superior parathyroid gland was found enlarged, with three normal appearing parathyroid glands with normal thyroid lobes. Histopathology confirmed a parathyroid adenoma. Postoperative period was uneventful with rapid decline in serum PTH after 1 week. Some degree of hypocalcemia was also seen with symptoms like circumoral paresthesia, but it resolved with calcium supplements.
Discussion

NPHPT may not be an idle condition as it may progress to complication regardless of the development of hypercalcemia. Controversies abound regarding the suggestion that NPHPT should be treated, since the disease can lead to a deterioration in bone mineral density, fractures, and kidney stones. Thus, the routine determination of PTH could detect these individuals early on in an attempt to prevent an unfavorable clinical course.\(^2\) Maruani and cols.\(^3\) postulated in normocalcemic primary hyperparathyroidism, that there is resistance to target tissues. After an oral calcium load, normocalcemic subjects showed inadequate suppression of PTH when matched with a cohort of subjects with hypercalcemic primary hyperparathyroidism. For any amount of calcium entering the extracellular fluid, subjects with normocalcemic primary hyperparathyroidism had lower serum calcium levels than hypercalcemic individuals. Another concept relevant to the pathophysiology of normocalcemic primary hyperparathyroidism is based upon the evolution of the hypercalcemic form. Rao and cols.\(^4\) argued that the first detectable abnormality of the parathyroids in primary hyperparathyroidism should be an increase in the circulating PTH level. This first phase was postulated to be subclinical. Their hypothesis went on to state that the second phase of the evolution of primary hyperparathyroidism would be the clinical stage when hypercalcemia became overtly present. The hypothesis of Parfitt, Kleerekoper and Rao also carries with it the idea that a certain percentage of these patients should become hypercalcemic over time.

It is distinctly possible that there is another cohort of subjects with normocalcemic primary hyperparathyroidism who are the forerunners of the asymptomatic disease that we typically see today. At the time of the Third International Workshop on the Management of Asymptomatic Primary Hyperparathyroidism\(^5\) the entity of normocalcemic primary hyperparathyroidism was recognized officially. These data argue that a certain percentage of patients who have normocalcemic primary hyperparathyroidism will progress to overt hypercalcemic primary hyperparathyroidism, and are consistent with earlier reports of Lundgren and cols.\(^6\) There is no consensus about when to treat patients with HPTPN, but if there is progression to clinical complications such as urolithiasis, bone mass loss, or fractures, surgery is indicated.\(^7\) In our case, parathyroid adenoma was confirmed on histopathology. Though, calcium levels were normal, presence of bilateral renal calculi and identification of adenoma on preoperative CT neck, were considered to be adequate indications for surgery.

FIG 1. Clinical photograph of neck swelling.
FIG 2. Excised specimen of parathyroid adenoma.

References