

# Post Thyroidectomy Follow up is Essential for Early Diagnosis of Iatrogenic Hypoparathyroidism

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## ABSTRACT

Calcium plays vital role in the body. As a result, calcium homeostasis is precisely regulated through the actions of parathyroid hormone (PTH), vitamin D, and calcitonin. Hypoparathyroidism is an endocrine disorder characterized by a deficiency in PTH, resulting in hypocalcemia and hyperphosphatemia. The incidence of a hypoparathyroidism after total thyroidectomy has been highly variable ranging between 7 to 37%. A patient presented to us with complaints of nausea and frequent cramps in fingers since 6 months. She took treatment from local doctor but didn't get relieved. She had undergone total thyroidectomy one year back. She was started on thyroxin with calcium and vitamin-D supplement after which she started getting relief.

**KEY WORDS:** calcium, hypoparathyroidism, parathyroid hormone (PTH), osteolastic

## INTRODUCTION:

Parathyroid glands are  $\leq 5$  mm, often subcapsular or intrathyroidal, and obscured by lymph nodes, making preservation a challenge. Parathyroid hormone is a polypeptide of 84 amino acids secreted from chief cells of parathyroid gland in response to low calcium level in blood. It regulates blood calcium through its effect of bone, intestine and kidney. It indirectly stimulates osteoclastic activity to release ionic calcium from bone to blood. it reabsorbs calcium from distal convoluted tubules & collecting ducts and inhibits the reabsorption of phosphate.

## CASE REPORT:

A young age female presented to the out-patient department with complaints of tingling sensations in both hands and feet with episodes of twitching and cramps in fingers. On examination, we didn't find any neurological deficit. Trousseau's sign and Chvostek sign were positive. Her serum electrolyte and routine investigation were ordered. Her serum calcium was found 4.47mg/dl, serum magnesium 1.4mg/dl and serum phosphorus 7.37mg%. Provisional diagnosis of hypoparathyroidism was made and her serum parathyroid hormone



Figure 1: Chvostek Sign.

estimation was advised which came to  $<1$ pg/dl. As she had thyroid surgery one year back, the diagnosis of iatrogenic hypoparathyroidism was confirmed and started on thyroxin supplement with calcium and vitamin-D. As her calcium level came in normal range, she improved.

## DISCUSSION:

Calcium ions are essential to the function of nearly all cells in the body. Calcium is required for muscle contraction and serves as a nerve cell membrane stabilizer by decreasing nerve cell permeability to sodium. When the extracellular concentration of calcium ions declines below normal range, the nervous system (both PNS and CNS) becomes progressively more excitable because of increased neuronal membrane permeability. Although peripheral signs are dominant, nerve fibers may become so excitable later (with serum calcium  $<6$ mg/dl) that they begin to discharge spontaneously

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Figure 2: Trousseau Sign.

generating impulses to peripheral skeletal muscles, where they elicit tetanic contraction. As a result, hypocalcemia causes tetany.

### CONCLUSION:

Iatrogenic injury of the parathyroid glands is an unintended consequence of total thyroidectomy. Measuring the serum PTH immediately after surgery is a sensitive and specific method of assessing the function of the parathyroid glands and for identifying patients at risk for hypocalcemia. Treatment of Hypoparath-

roidism might be challenging due to high doses of vitamin D and calcium to obtain clinical and biochemical control while avoiding the negative effects of excess calcium deposits. Efforts should be made to respect parathyroids during total thyroidectomy.

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