

Parathyroid Hormone:

- Two superior and inferior parathyroid glands secrete parathormone which controls the calcium level in the blood (8.5 to 10 mg/dl).

- When Ca in the blood reduced

↓

Bone resorption $\uparrow \frac{2}{3} \text{Ca}$

↓

In kidney resorb $\frac{1}{3} \text{Ca}$

Synthesis Calcitriol
Active Vitamin D_3

Calcium
Absorbs Vitamin D
from intestine

Primary:

Hyperparathyroidism:

- Hypersecretion of PTH independent of calcium level.
- Characterized by hypercalcemia, hypophosphatemia, metabolic bone disease, Nephrolithiasis, Renal damage, Peptic ulceration.

Cause:

- Benign adenoma of one parathyroid gland
- Hyperplasia of parathyroid gland
- Carcinoma of one of gland.

Clinical Features:

Bones, Thromboses, Stones, Ovaries, Moans,
Hypercalcemia $\rightarrow$ lethargy, Polyuria, Polydipsia,
Anorexia, Constipation.

Bones $\rightarrow$ Pain, osteitis fibrosa cystica, Osteoporosis,
Osteomalacia.

Stones $\rightarrow$ Recurrent renal stones like Calcium
oxalate, calcium phosphate stones.

Thromboses $\rightarrow$ Polyuria, due to increased calcium
level.

Complications: Constipation, Vomiting, Parosmia, and
peptic ulceration, Muscle weakness.

Mood: Depressed mood and confusion.

Investigations:

Serum Calcium[↓], Phosphate[↑], Vitamin D, PTH level.

Ultrasonography, CT, MRT.

Differential diagnosis:

i) Hypothyroidism. ii) Renal failure iii) Addison's disease.

Treatment:

- Surgical removal.

Secondary Hyperparathyroidism.

- Due to low calcium blood increased PTH.

- Cause: Chronic kidney disease, Rickets, osteomalacia,
Malabsorption syndrome.

Symptoms:

- Calcification in blood vessels due to soft tissues due
to high phosphate $\rightarrow$ stick to available calcium,
and form stone like crystals.

- Bone resorption.

- Symptoms of chronic kidney disease:

Investigation: $\downarrow$ Ca, $\uparrow$ phosphate, $\downarrow$ vit D.

Tertiary Hyperparathyroidism

- When secondary parathyroidism changes to
primary it is tertiary.

- C/F: All symptoms of primary. Deposits of calcium
crystals due to phosphate levels.

- Investigation: $\uparrow$ Calcium.