

Parathyroid gland is surrounded by a connective tissue capsule. The hormone secreted by parathyroid gland is called *parathormone* or *PTH*.

Functions of PTH

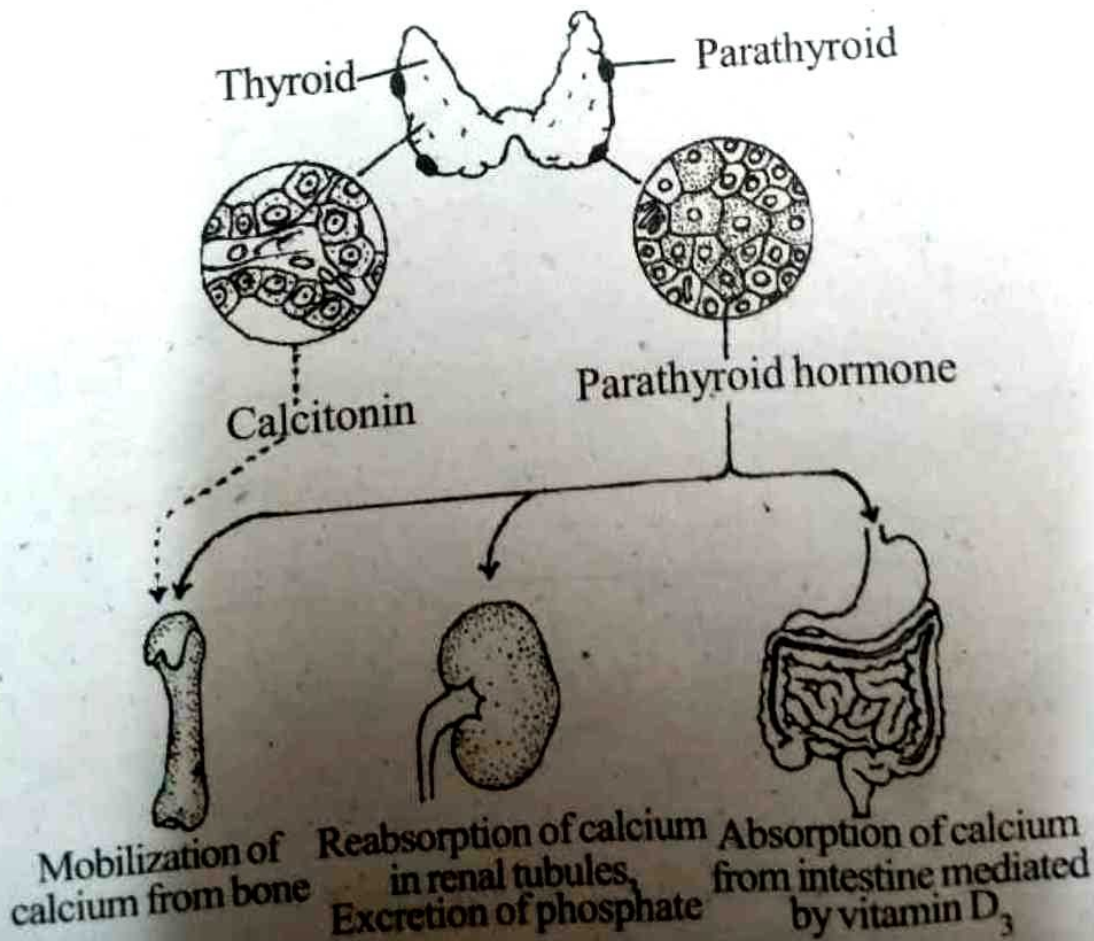
Parathormone was prepared by *J.D. Collip* in 1925. It is a *protein* hormone made up of only one *polypeptide chain*. Parathormone has several biological actions.

1. PTH increases serum calcium level by acting on osteoblasts of bone.
2. It increases renal tubular *reabsorption of calcium*.
3. It may increase the rate of Ca^{++} absorption in the gut.
4. It reduces the secretion of Ca^{++} by the mammary gland.
5. It may also control intracellular deposition of phosphate.
6. Vitamin D is not metabolised to its functional form in the absence of PTH.

Disorders of Parathyroid

Removal of parathyroid gland (extirpation) or the *hyposcretion* of the gland causes *tetany*. It has the following symptoms:

1. Locking of the jaws.
2. Twitching of the muscles.
3. Fall of calcium in blood serum from 1mg to 6 mg% and raise of inorganic phosphate in blood.
4. Respiration becomes rapid and noisy.
5. Heart beat rate increased.
6. It increases salivation and body temperature. The ultimate result is death owing to *asphyxia*.



and hence the name. It is also called *Basedow's disease* because symptoms were also reported by *Basedow* in 1940.

Grave's disease can affect many parts of the body such as nervous system, eyes, skin, hair, nails, lungs, digestive system, muscles, bones and reproductive system.

Graves disease is also called *exophthalmic goitre* as this disease is mainly characterised by the *enlargement of thyroid gland* and the *protrusion of eyes*. The following are the symptoms:

1. The thyroid gland is enlarged.
2. The eye balls are *protruded* with a *staring* look and less twinkling of the eye lids. It is caused by the deposition of fat in the ocular region especially in the eye muscles and the degeneration of eye muscles.
3. The body temperature is raised.
4. The fat deposits are depleted and the body *loses weight*.
5. The patients are *emotional* and *restless*.
6. *Osteoporosis* occurs in the skeleton owing to excessive loss of calcium and potassium.
7. The skin becomes soft, moist and flushed owing to vasodilation, a means for *heat loss*.
8. *Blood sugar* level and *iodine* level are raised. But cholesterol level is lowered.



Fig.18.16: Exophthalmic goitre.

9. Glycogen levels of liver and heart are reduced.
10. Heart beat rate increases. Cardiac output and work of heart are increased.
11. BMR is increased.
12. Vitamin requirements, especially for A, B and C are increased.
13. The patients are sensitive to heat and susceptible to infection.

3. Parathyroid Gland

The parathyroid glands are situated in the thyroid gland in the form of *four patches*. Each

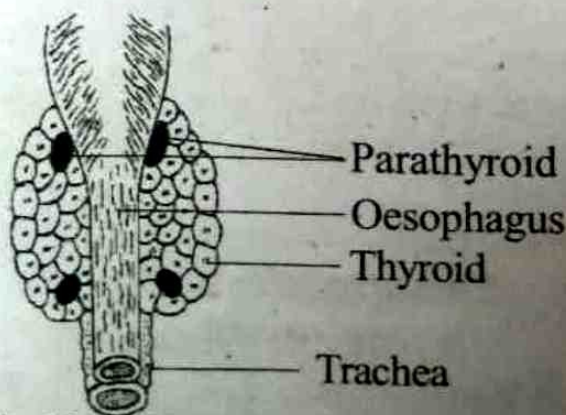


Fig.18.17: Parathyroid gland in man.