Parathyroid gland

(قصوصة)

① * parathyroid gland under control of Ca^+ level

② * If Ca^+ ↓ PTH ↑

مهم * all enocrine glands under control of pituitary except para thyroid gland

→ 4 in number

→ located proximately to upper and lowe pole of thyroid gland

→ derived from pharyngeal pouch

→ each gland [yellow-brown in color)

How

Kidney
* increase renal tubular reabsorption of Ca^+.
* increase phosphate excretion in urine. So phosphate decrease so less Ca^+ bind to phosphate ↑ Ca^+ free.

GIt
* activation of V.D
* which increase absorption of Ca^+

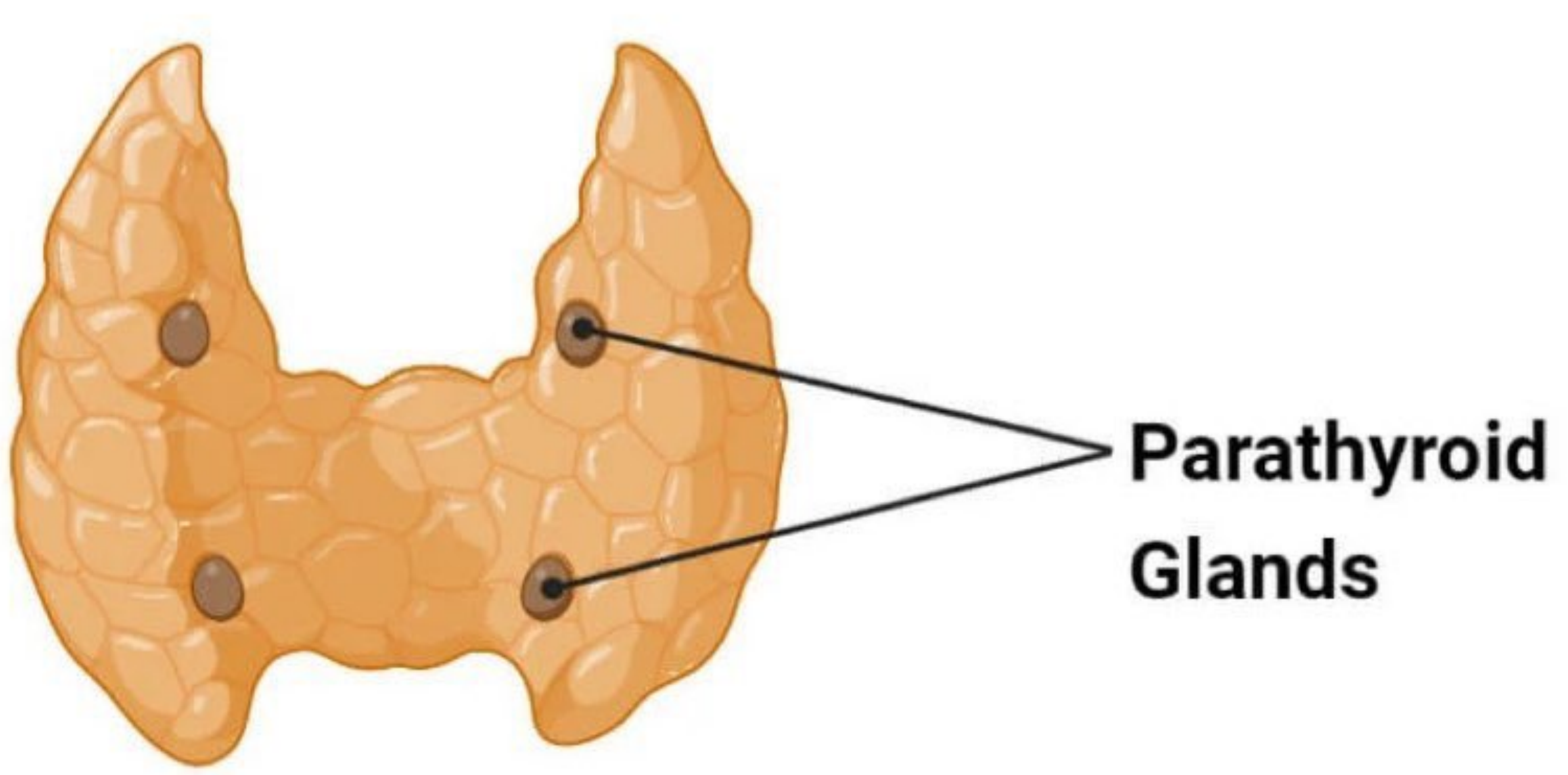
Bone
* increase osteoclastic activity

* normal parathyroid gland → contain fat
* adenoma or hyperplasia ⇒ don't contain fat

→ parathyroid composed of

- **chief cell** → secrete PTH
- **oxyphil cell** (it may secrete PTH in hyperparathyroidism) →
  - eosinophilic
  - contain mitochondria

→ same nuclei but oxyphil cell has larger cytoplasm and eosinophilic due to prencese of mitochondria



Hyperparathyrodism

diseases of parathyroid

① Primary

- * autonomus
- * ↑ PTH not Because Cat decreased
- * the problem inside the gland itself.
- * or there is ectopic secretion of PTH a paraneoplastic syndrom.
- * primary hyperparathyrodism is most common cause of Hypercalcemia.

Primary ⇒ more common in women than men

⇒ most common cause of primary Hyperpara…) is
1. parathyroid adenoma (85%.-95%.)
2. primary-parathyroid - hyperplasia
3. carcinoma (1%.)

② secondary

- ↑ PTH increase due to decease in Cat level (most common cause renal failure)

③ tertiary

- * secondary Hyperparathyrodism + one of the 4 gland become Autonumous not Regulated by Cat level.

(Notes)

- Silent Hypercalcemia ⇒
  - ① primary Hyperparathyrodism
  - apparent Hypercalcemia ⇒
    - carcinoma
      - bone metastitic
      - paraneoplastic syndrom.

- * signs of Hyperglcemia.
  1. Painful Bone
  2. Renal stones
  3. abdominal groans
  4. Psychic moans.

→ Peptic ulcer
→ Gall stones
→ Pancreatitic
→ Renal stones

	Adenoma	Carcinoma	Hyperplasia
Size	0.5- 5 g	exceed 10 g	1.0 g
Features	soft, Salitory, encapsulated + one gland is affected and the other normal or atrophic + non-neoplastic + thin capsule endocrine atypia may be seen [Hyperchromatic + pleomorphic nuclei + musnt not be taken as a sign of malignancy] mitotic Figure very rare • Inconspicous Fatty tissue	→ Invasion + metatasis → one gland is affected → vascular Invasion → capsular Invasion [mushroom-like invasion]	* multi-glandular (more than one gland is affected) + Fat in not clear

— (Changes) —

Skeletal changes	Kidney changes	metastic claciFication
- ↑osteoclast activity [1] osteitis Fibrosa cystica [2] Brown tumor *osteitis Fibrosa cystica * cortex is thinned * marrow is Fibrous tissue * hemorrhage + cyst *Brown tumor * hemorrhage + osteoclast * may be mastiken for neoplasm	* stones * nephrocalcinosis (calciFication)	may be seen in lung + myocardium + stomach + blood vessel

(secondary)

⇒ chronic decrease in Ca+ level

⇒ Renal Failure is the most common cause

[1] Hypephosphatemia = ↓ decrease phosphate excretion

↑ phosphate + Ca ⇒ ↓ Ca+ Free ↑PTH

[2] Reduce the availability of α_1-hydroxylase enzyme that activate OF V.D so decrease the absorption of intestinal Ca+

Hypoparathyrodism

⇒ less common than hyperparathyroidism

⇒ causes :

[1] Removal of parathyroid due to thyroidectomy

[2] Congenital absence: (DiGeorge syndrome) and Cardiac defects

[3] AutoImmune hypoparathyrodism

*hereditary Polyglanular deficiency syndrom

↓

Symptoms:

[1] decrease Ca+ in blood

[2] sensitive nerve

[3] uncontrolled spasm of the limbs

treatment ⇒ daily Ca+ and Vit D supplement.