

endo- patho - Heyam

- normal parathyroid : fat , chief cells ,Oxyphil cells (eosinophilic cytoplasm + mitochondria).
- PTH increases blood calcium by its effects on the kidneys (reabsorption ca , excrete phosphate) , GIT and bone (releasing).
- Hyperparathyroidism : increase in parathyroid hormone, increase ca, common in women .
- primary Hyperparathyroidism : autonomous (not ca) , as a paraneoplastic syndrome , hypercalcemia .
- Secondary Hyperparathyroidism : due to decreased calcium level , cause ☹renal failure.
- Tertiary hyperparathyroidism: developed secondary to autonomous .
- atypia is not necessarily a malignant feature
- Parathyroid adenoma (85% to 95%) : **one gland** , no fat , encapsulated, compressing .
- Parathyroid hyperplasia 5% to 10%: **four glands** , no fat , encapsulated, compressing .
- Parathyroid carcinoma-(1%) : one gland , mushroom-like invasion ,metastasis , no fat , large most likely .
- Skeletal changes: ↑osteoclastic activity, foci of hemorrhage and cysts, Brown tumors .
- Osteitis fibrosa cystica : thin cortex , hemorrhage , fibrosis , cysts .
- Brown tumors : benign , hemorrhage .
- Kidney changes : Calcification >> stones (nephrolithiasis) .
- The most common cause of clinically **apparent** hypercalcemia in adults is malignancy: paraneoplastic syndromes or bone metastasis.
- The most common cause of clinically **silent** hypercalcemia in adults is malignancy: Primary hyperparathyroidism.
- Clinical Manifestations :painful bones, renal stones, abdominal groans, psychic moans.
- Why the abdominal groans : ulcers + stones .
- HYPOPARATHYROIDISM: less common , causes (removal of parathyroids , Congenital absence ,Di George syndrome , Autoimmune) , sensitive nerves , spasms , replacement : Vit D , ca .



Thyroid gland=common in women

- goiter : Thyroid enlargement no effect on hormones .
- Hyperthyroidism = thyrotoxicosis ,Primary (Graves , Toxic multinodular goiter HOT , adenoma) , Secondary (rare , axis) .
- increase heart rate , appetite , fat breakdown , body temperature (intolerance) , tremor.
- HYPOTHYROIDISM : differ with age , child (Cretinism = mental droplet , short stature ,Coarse facial) , adults (Myxedema or Gull syndrome) . no iodine or Hashimoto (autoimmune destruction) .
- Thyroiditis : Hashimoto , Granulomatous=de Quervain , Riedel = fibrosis , Lymphocytic =postpartum .
- diffuse , **painless** , hypothyroidism , symmetric enlargement : (**Hashimoto**) Thyroiditis .
- **Hashimoto** : with development of B cell non-Hodgkin lymphomas, papillary carcinomas.

- atrophic follicles , **Hürthle cells**(large , eosinophilic) , lymphoid aggregates with germinal center : histology **Hashimoto** .
- Subacute **Granulomatous** (de Quervain) : giant cells , viral , self-limiting - painful .
- Subacute Lymphocytic Thyroiditis : post partum - painless - autoimmune - no **Hürthle** .
- Riedel thyroiditis : unknown etiology , fibrosis .
- diffuse - toxic goiter -Infiltrative ophthalmopathy & dermopathy = **Graves** .
- Diffuse - non toxic - hypothyroidism = **Hashimoto** .
- diffuse - non toxic - normal = simple goiter .
- multinodular - toxic - hyper -asymmetrically - colloid -autonomous = Plummer syndrome .
- Thyroid neoplasms present as single nodules .
- benign neoplasm : follicular adenoma (Hurthle cell adenoma, atypical adenoma) , solo , encapsulated ,not premalignant , **NOT DIAGNOSS BY FNA.**
- Papillary Carcinoma : ionizing radiation , RAF + RET , 95% survival , lymph node , papillae (RBC), nuclear features + psammoma bodies ,lung metastasis , **DIAGNOSS BY FNA** (NO clearing) .
- nuclear features : Orphan Annie eye , pseudoinclusions , coffee bean .
- Follicular carcinoma : iodine deficiency , RAS , Loss-of-function mutations of PTEN , **bloodstream** (exception), bad prognosis , capsular invasion , **NOT DIAGNOSS BY FNA** .
- Anaplastic carcinoma : aggressive >>death , old , TP53 .
- Medullary carcinoma : neuroendocrine << parafollicular cells , Secrete calcitonin , RET , accumulation of amyloid (Congo red stain) .
- multi-focal : familial Medullary carcinoma , Papillary Carcinoma .

**WELL
DONE**