Thyroid pathology Practical part
My Algorithm

- After a good macroscopy and a microscopic overview of the lesion, I especially look at the capsule and the thyroid just above and just beneath the capsule.
- Capsule: vascular invasion and capsular breakthrough
- Nodules above are baby nodules or are mushrooms at the edge.
My Algorithm

- Especially look for PTC nuclei just under the capsule. PTC nuclei are not always present in a diffuse manner. FV PTC Micro PTC, multifocal PTC.
- PTC nuclei are not always easy to detect
- Look at scars, calcifications.
- Neuroendocrine nuclei: Pepper and Salt nuclei.
My Algorithm

- If thin capsule: No FC
- If macro-follicular or normo-follicular: No FC
- Small dark nuclei or all cleared nuclei: No PTC
Case 1

Male, 68 years.
Left lobe: normal
Right lobe: nodule, not well demarcated of 4/3/3 cm.
Mucicarmine
PAS Alfa
**Intracellular Mucine in:**

- Medullary carcinoma (frequent)
- Signet ring cell adenoma
- Mucoepidermoid carcinoma
- Mucinous carcinoma
- Rare but do occur: PTC. FC. UDC
- The presence of mucin especially in metastatic setting cannot rule out a thyroid origine
Diagnosis

- Mucoepidermoid Carcinoma,
  Low grade Tumour
Literature

- Squamous cells in the human thyroid gland.

- Primary Mucoepidermoid carcinoma of the thyroid gland: a report of six cases and a review of the literature of a follicular epithelial derived tumor.

- Composite FVPTC and a Mucoepidermoid carcinoma of the thyroid.
Case 2

Female, 42 years.
Resection of left lobe.
A white nodule of 6/4.5 cm.
Weak consistence.
What do we see

- Intact capsule. No vascular invasion
- Normo-follicular pattern
- PTC nuclei
Diagnosis

- Encapsulated FV PTC
- Lindsay tumor
- Baloch and Livolsi: Encapsulated Follicular variant of papillary Thyroid Carcinoma and Bone Metastases.

Case 3

Female, 45 years.
Right lobe: 4/2/1 cm with a nodule of 1.2 cm.
(larger than 1 cm)
Left lobe: two nodules were enucleated: 1.5 cm. Each with macroscopic and microscopic appearance of adenomatoid nodules.

*Slide of the nodule of the right lobe*
What do we see

- Clear PTC nuclei
- A second PTC, Micro PTC
Diagnosis

- PTC and Micro PTC
Small lesions

- Micro PTC
- Micro Medullary Carcinoma
- Solid cell nest
- Micro-follicular cluster in an adenoma or adenomatoid nodule
- Nodular C cell aggregate especially in very young and in older patients (J. Rosai)
- Crushed Follicles
Case 4

Male, 34 years.
Left lobe.
Cold nodule.
Nodule of 2.2 cm.
Squamous cells in Thyroid Surgical Pathology of the thyroid, Livolsi, MPP, W.B. Saunders

- Developmental rests
  - Thymic rests
  - Thyroglossal rests
  - Ultimobranchial rests

- Inflammatory
  - Goiter
  - Thyroiditis (all variants)
  - Post Biopsy
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- **Tumours:**
  - PTC
  - Mucoepidermoid
  - Adenosquamous carcinoma
  - Squamous cell carcinoma and variants (primary and metastatic)
  - Teratoma
IHC

- p63
Diagnosis

- Infarcted adenoma with extensive squamous metaplasia
Case 5

Female, 79 years.
SPECT: hypocaptation upper half of thyroid.
Thyroid resection and lymph nodes.
Nodule of 1.2 cm.
Diagnosis

- Solid PTC, Tall cell component and squamous metaplasia
Case 6

Female, 69 years.
Total thyroidectomy
Three nodules 2 cm, each.
Diagnosis

- Follicular carcinoma
Case 7

Female, 74 years.
Partial thyroidectomy.
39 gr. 6/3/3 cm
Diagnosis

- Amyloid Goiter
Case 8

Female, 19 years
Right lobe and isthmus of 32 gr.
Nodule of 3.7/2.5 cm.
Diagnosis

- Mucinous Follicular adenoma
Case 9

Female, 80 years.
Our biopsy is from the right lobe.
Resection of a parathyroid adenoma and left lobe.
Diagnosis

- Follicular adenoma with bizarre nuclei
- Don’t use atypical adenoma
Case 10

Female, 83 years.
Resection of a nodule of 5cm.
Diagnosis

- FV PTC Three areas in this nodule of PTC make it as a whole a PTC
Case 11

Female, 52 years.
Subtotal thyroidectomy.
Diagnosis

- Multifocal PTC
Case 12

Male, 43 years.
Subtotal thyroidectomy.
Diagnosis

- Multiple Solid cell nests
Solid cell nests are indeed (fifth body) ultimobranchial body remnants
They mimic squamous metaplasia
Three components: Clear cells, Main cells and Mixed Follicles (80% of cases)
Clear cells are C cells: Calcitonin + TTF1+/-
Mixed Follicles are “specialised” contain Pas + colloid material, TG +
Main cells CEA+, CK20 –ve, TTF1 –ve, TG –ve are elongated or even spindle shaped. Squamoid with no intercellular bridges. Nuclear grooves.
Not a micro-papillary carcinoma, not a small medullary carcinoma, not a C cell aggregate, not a small adenomatoid nodule

Cartilage can be present
Crushed follicles
Solid Cell Nests

What do you think it is?
Male, 32 year.
Total thyroidectomy for Graves disease. White nodule of 2 cm.