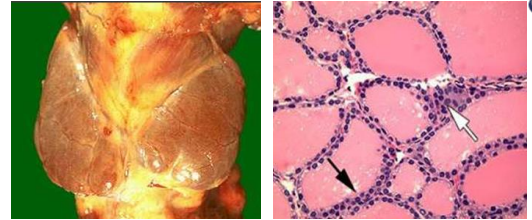




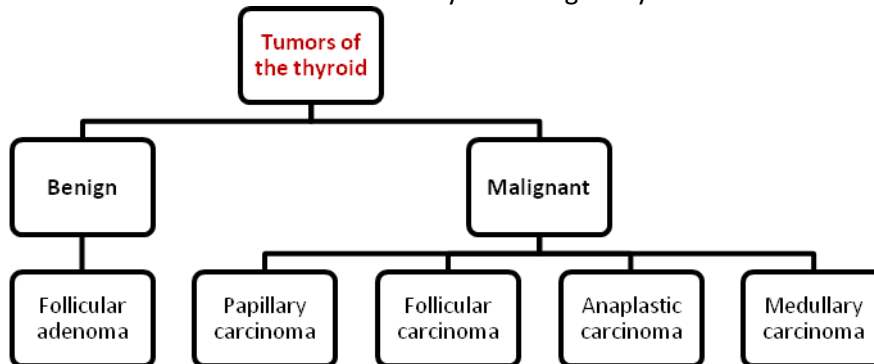
- **Histology of the thyroid gland:** it is composed of follicles filled with colloid (storage of T3 & T4). These follicles are lined by follicular cells (black arrow). Also you can find parafollicular cells (white arrow) which secrete calcitonin.



- **Solitary thyroid nodules:**

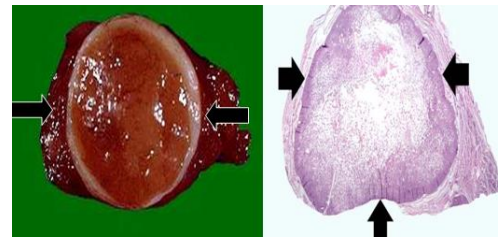
- They are solitary, well-defined nodules (surrounded by capsules).
- Majority of solitary nodules are benign (follicular adenoma or localized non-neoplastic conditions).
- Less than 1% of these nodules become carcinoma.
- **Nodules are more common to be neoplastic:**
 - ✓ When they are solitary.
 - ✓ When present in younger patients.
 - ✓ In males.

Note: nodules taking up radioactive iodine in imaging studies (hot nodules) are more likely to be benign than malignant. A history of radiation treatment to the head and neck region is associated with an increased incidence of thyroid malignancy.



- **FOLLICULAR ADENOMA:**

- Common, solitary cold nodule.
- Well-defined by a capsule which is separating it from the normal parenchyma of the thyroid gland.
- The centers of the nodule might have hemorrhage or necrosis.
- The nodule is composed of compact follicles.



Carcinoma of the thyroid:

- 1-2% of all malignancies, more common in females.
- **Pathogenesis:**
 - ✓ Ionizing radiation (leading to papillary carcinoma).
 - ✓ Autoimmune thyroiditis (↑risk to develop B-cell lymphoma).
 - ✓ Activation of RET proto-oncogen either by rearrangement of chromosome 10 in papillary carcinoma or point mutation in medullary carcinoma
 - ✓ Mutations in ras (adenoma) or in p53 (anaplastic carcinoma).

- **PAPILLARY CARCINOMA:**

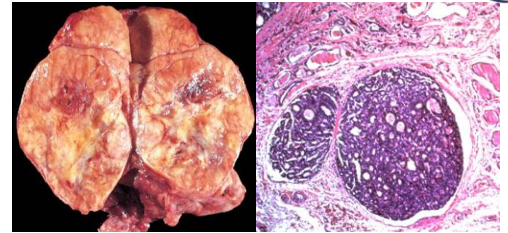
- **Cold, solitary, un-encapsulated nodule.**
- **Histology:** composed of papillary architecture with no follicles. Diagnosis is based in nuclear features (glassy nucleus with grooves and inclusion know as “orphan Annie eye”). Psammoma bodies are common.
- **Metastasis:** by lymph nodes.
- **Prognosis:** excellent.





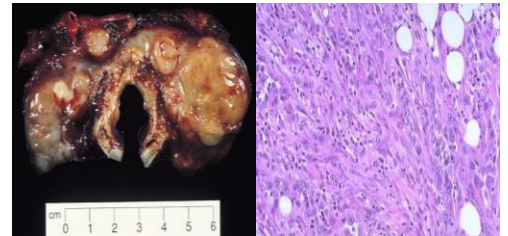
FOLLICULAR CARCINOMA:

- **Cold, encapsulated tumor.**
- **Diagnosis is based on:** capsular and vascular invasion (to differentiate it from follicular adenoma in which there is no invasion).
- **Metastasis:** hematogenous (to bone, lung and liver).
- **Prognosis:** not as good as papillary carcinoma except in well-differentiated tumors.



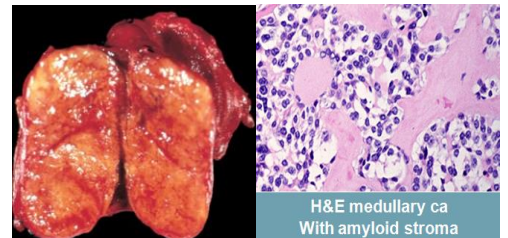
ANAPLASTIC CARCINOMA:

- **Most aggressive** human neoplasm with a near-uniform mortality rate.
- Markedly infiltrative tumor, **invading the neck.**
- Rapidly progressive pressure symptoms.
- Radiosensitive tumor with no surgery.
- **Prognosis:** extremely bad.



MEDULLARY CARCINOMA:

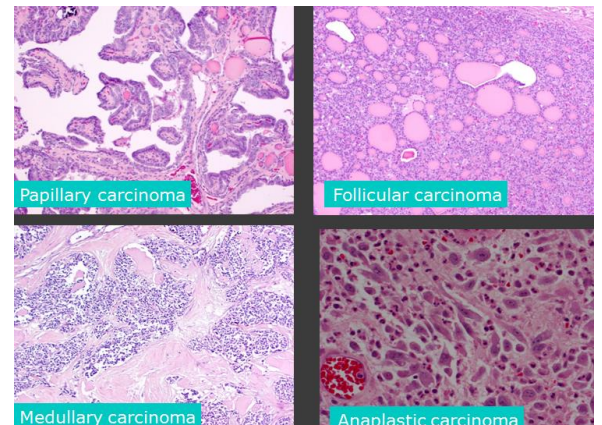
- **Arising from C-cells secreting calcitonin.**
- 80% are sporadic, 20% familial ± MEN-2 syndrome.
- **Histology:** demonstrable amyloid in the stroma. Calcitonin is demonstrated in tumor cells and the level of calcitonin in the serum may be useful for follow-up.
- **Metastasis:** hematogenous.
- **Prognosis:** intermediate but worse in sporadic and MEN-2 syndrome.



H&E medullary ca
With amyloid stroma

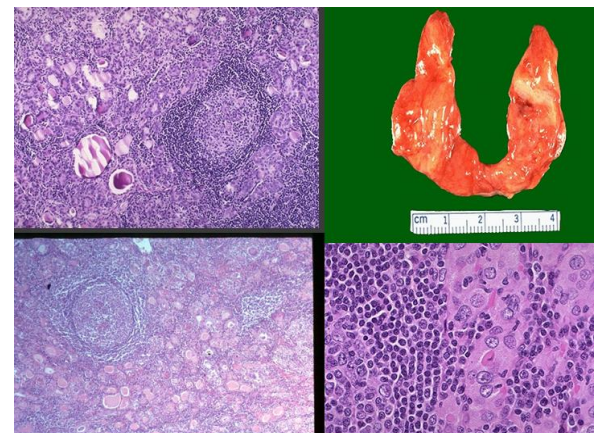
Summary of thyroid carcinoma:

Type	%	Age	Spread	Prognosis
Papillary	65	Young <45y	Lymph	Excellent
Follicular	20	Middle age	B.V.	Good
Anaplastic	10	elderly	Local	Poor
Medullary	5	Elderly familial	All	variable



THYROIDITIS:

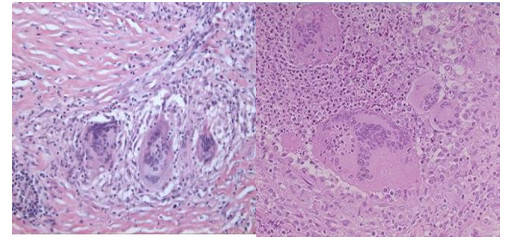
- **HASHIMOTO'S THYROIDITIS:**
 - ✓ Autoimmune disease.
 - ✓ Produces diffuse swelling of the thyroid gland (goiter).
 - ✓ Histology: infiltration with lymphocytes and plasma cells.
 - ✓ May progress to stromal fibrosis.
 - ✓ Serum anti-thyroglobulin and anti-microsomal antibodies are increased.
 - ✓ Patients eventually become hypothyroid.
 - ✓ Long-term: ↑ risk of thyroid lymphoma.





- **SUBACUTE GRANULOMATOUS THYROIDITIS:**

- ✓ Less common than hashimoto's thyroiditis.
- ✓ Occurrence: post viral infection of the upper respiratory tract.
- ✓ The gland is firm, with intact capsule and may be enlarged.
- ✓ Histology: disruption of thyroid follicles – extravasation of colloid – granulomatous reaction with giant cells.
- ✓ Prognosis: usually self-limiting.



- **REIDEL THYROIDITIS:**

- ✓ Rare disorder with unknown etiology.
- ✓ Characterized by: extensive fibrosis involving the thyroid gland and the adjacent structure in the neck. Also, there is a hard, fixed thyroid mass which simulates a thyroid neoplasm.
- ✓ It may be associated with idiopathic fibrosis in other sites in the body.

