

Thyroid

Inflammatory Processes

- **Acute**
 - Women
 - 35-45 years of age
 - Hyperthyroidism
 - Peri/post-gravidic
 - **Suppurative** (from strepto/staphylococci) following penetrating lesions or sepsis
 - **Non-suppurative**, together with other infectious diseases (mumps, influenza, diphtheria, scarlet fever, ileo-typhus)

Thyroid

Inflammatory Processes

- **Subacute**
 - **De Quervain Thyroiditis** (giant-cell granulomatous or pseudotubercular)
 - **Young women** (25-40 years old)
 - Preceded by systemic viral infections
 - Painful swelling
 - Mild hyperthyroidism
 - **Symmetric expansion**
 - Increased consistency
 - White-yellowish in colour
 - Granulomatous foci Tbc-like, with PMN-plasmacell halo and marginal fibrosis with intrafollicular endocytosis
 - Heals completely in most of the cases

Thyroid

Inflammatory Processes

- **Chronic**
 - **Hashimoto Thyroiditis**
 - **Middle-aged women**, peri-menopausal, sometimes with familial prevalence
 - Often associated with **other autoimmune diseases** (SLE, atrophic gastritis, Sjogren, rheumatoid arthritis)
 - Caused by an **autoimmune aggression** of the thyroid, with progressive evolution into **mixxoedematous hypothyroidism** and peculiar seric auto-antibodies
 - Moderate hyperthyroidism with mild tenderness, without functional alterations
 - Progressive enlargement (up to 250 gr) with subsequent **atrophy and hypofunction**

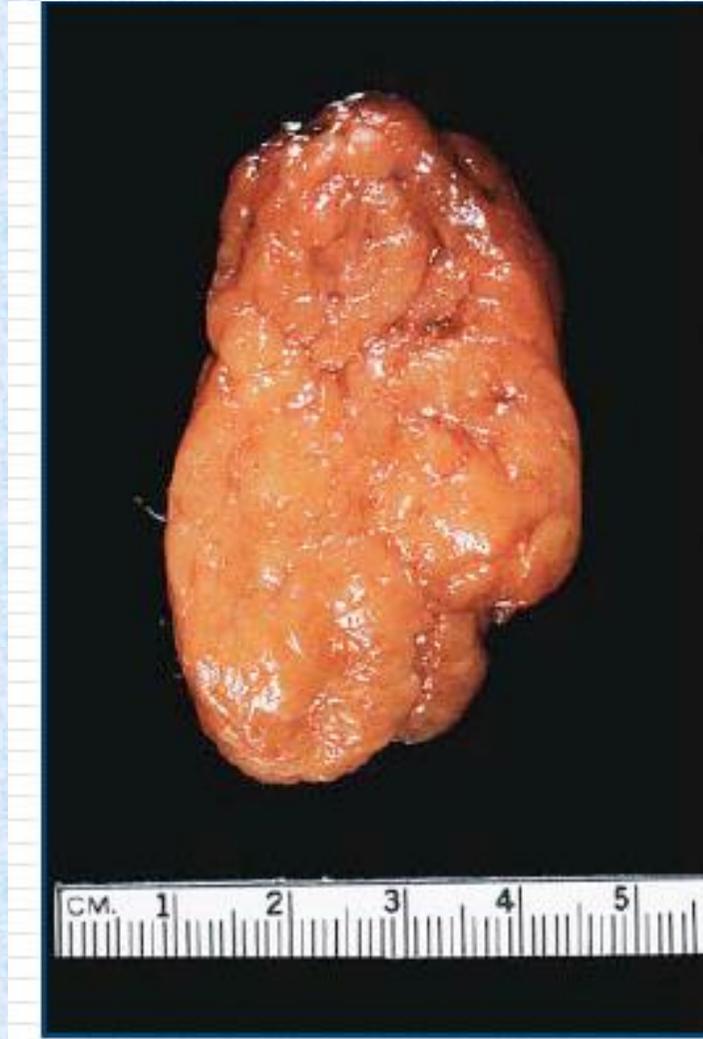
Thyroid

Inflammatory Processes

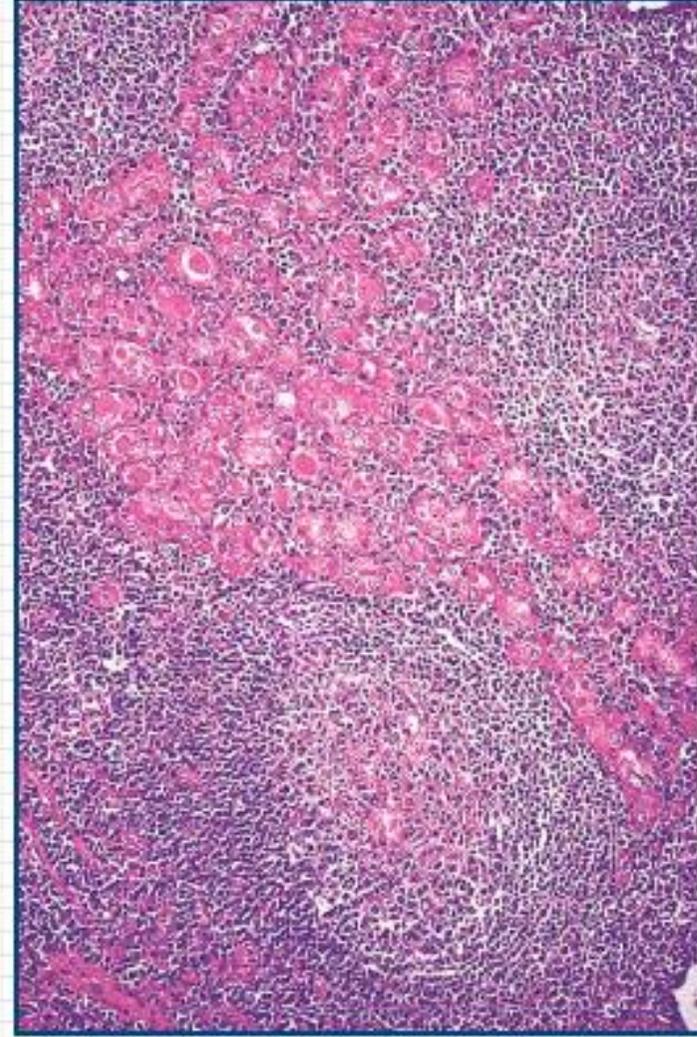
- **Chronic**
 - **Hashimoto Thyroiditis**
 - **Diffuse lymphocytic infiltration** with emperipolesis
 - **Oncocytic metaplasia** (**Hurtle cells**)
 - **Vasculitis** and colloido-phagic granuloma
 - Formation of **germinal centers**
 - Possible evolution into **MALT-NHL**
 - D.D.: lymphocytic thyroiditis (young people, no antibodies)

Thyroid

Inflammatory Processes



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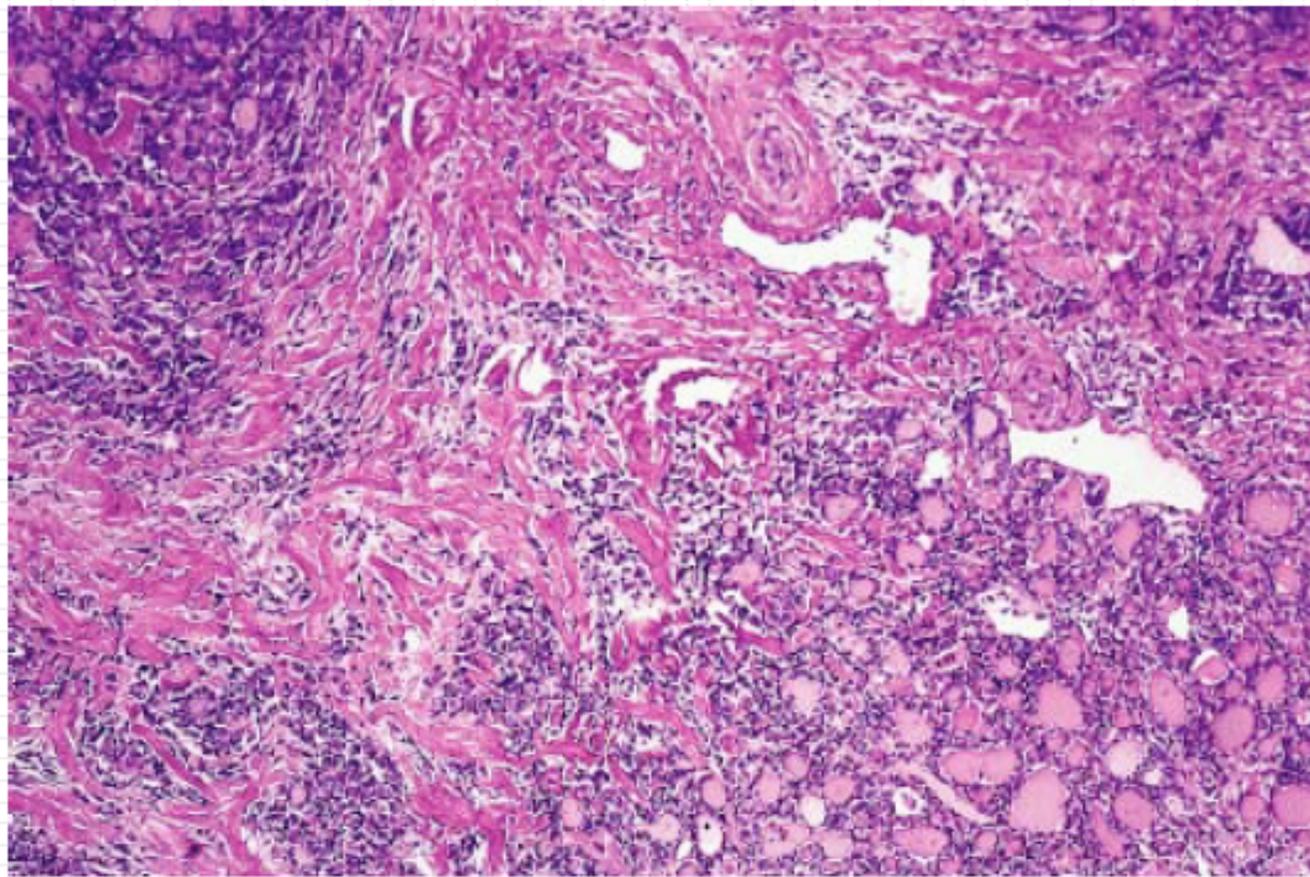
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Thyroid

Inflammatory Processes

- **Chronic**
 - **Riedel Thyroiditis** (ligneous thyroiditis)
 - **Males** of any age
 - Previous goiter
 - Circumscribed/diffuse enlargement
 - Bumpy surface
 - Strong **adherences to other organs** of the neck and extension into the surrounding tissues
 - Diffuse **parenchymal fibrosis**, with rare colloido-phagic granulomas
 - Evolves into **Hypothyroidism**
 - Simulates carcinoma
 - Considered **Organ Fibromatosis**, similar to idiopathic retroperitoneal fibrosis, and abdominal fibrosis

Thyroid Inflammatory Processes



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Thyroid

Inflammatory Processes

- Chronic
 - Actinic Thyroiditis
 - Following irradiation of the neck or administration of I_{131} for therapeutic purposes
 - Diffuse fibro-sclerosis
 - High prevalence of **papillary carcinoma**

Thyroid

Hyperplastic Processes

Goiter or struma

(diffuse/circumscribed thyroid hyperplasia)

- Volumetric enlargement of the thyroid gland
- Non inflammatory or neoplastic
- The most frequent (90%) thyreopathy
- Female sex (90%)
 - **Euthyroideal** / Hypothyroideal / Hyperthyroideal
 - Endemic / **sporadic** (post-puberal, post-gravidic, post-infective)
 - Congenital (cretinism) / **Acquired**

Thyroid

Hyperplastic Processes

Goiter or struma

Dyshormogenetic

➤ Associated with **hypothyroidism** (+/- mixoedema)

- Defective production of TSH/TSH-RH
- Insufficient iodine supply (endemic)
- Administration of anti-thyroideal drugs
 - Thiocyanates, thiourea
 - Sulfonamides
 - Phenylbutazone, Para-Amino-Salicylic acid
- Dietary excess of **cabbages, bananas, peanuts**
- Uptake defect
- Organification defect
- Altered synthesis of T3-T4 or T1-T2 conjugation defect

Thyroid

Hyperplastic Processes

Goiter or struma

Dyshormogenetic

➤ Associated with **hyperthyroidism**

- Hyperincretion of TSH/TSH-RH (hypophyseal adenoma)
- Autoantibodies with thyroid-stimulating activity

Thyroid

Hyperplastic Processes

Goiter or struma

❑ *Dyshormogenetic*

➤ Macro:

- Slow and progressive, symmetric / asymmetric, increase in size
- Red/winey color
- Granulosis/bumpy/deformed surface
- Outstretched and hyper-vascularized capsule
- On section: nodules of different size, often with interspersed gelatinous areas and sclerotic bands

Thyroid

Hyperplastic Processes



Thyroid

Hyperplastic Processes

Goiter or struma

☐ *Dyshormogenetic*

➤ Micro (multinodular thyroiditic hyperplasia):

- Normo / micro / macrofollicular
- Colloid cysts (cystic goiter)
- Lobular growth
- Unencapsulated nodules
- Morphologic variability
- Lack of atrophy of the residual thyroid
- Flattened cuboidal epithelial cells
- Pseudo- papillary hyperplasia
- Hemorrhagic areas and 'colloido-phagic granulomas'

Thyroid

Hyperplastic Processes

Goiter or struma

❑ Basedow Disease (Graves' disease)

- The most frequent hyperthyroideal struma
- Females (4:1)
- Associated with:
 - Exophthalmos
 - Insomnia
 - Hypertension
 - Thymic hyperplasia
- Caused by autoantibodies with thyroid-stimulating activity

Thyroid

Hyperplastic Processes

- **Basedow Disease** (Graves' disease)
 - Symmetric and discrete increased volume
 - **Micronodular or compact appearance**
 - Hypervascularization
 - Lobulated, parenchymatous section
 - Micro/ normodimensional follicles with irregular borders
 - Scarce, dense colloid
 - Columnar or cylindrical epithelium with abundant cytoplasm
 - **Oncocytic metaplasia**
 - **Lymphoid infiltrate**

Thyroid Neoplasia

- **Benign (90%) / malignant**
- **Primitive (90%) / secondary**
- **Epithelial (95%) mesenchymal**
- **Thyrocytic (90%) /parafollicular**

Thyroid Neoplasia

Thyroid cysts

- Developmental abnormalities (failed atrophy) of the **thyroglossal duct**, present in any tract of its course, **median** to the neck
- **Thin wall**, covered by cylindrical cells, surrounded by follicles of various dimensions

Thyroid Neoplasia

Adenoma

- **Single and circumscribed** glandular epithelial proliferation, unbound and separated from the remaining parenchyma, with evident fibrous **capsular demarcation**, associated with **compression atrophy** of the adjacent follicles.

Thyroid Neoplasia

Adenoma

- **Female sex (7/1)**
- Adulthood (20-50 years of age)
- Rarely associated with Hyperthyroidism (**toxic adenoma**)
- Uniform and compact structure, non-lobulated

Thyroid Neoplasia



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Thyroid Neoplasia

Carcinoma

- 90% from *thyrocytes*
- Females (70%)
- Adulthood
- Often in **hyperplastic thyroids** (more frequent in areas where goiter is highly endemic)

Thyroid Neoplasia

Carcinoma

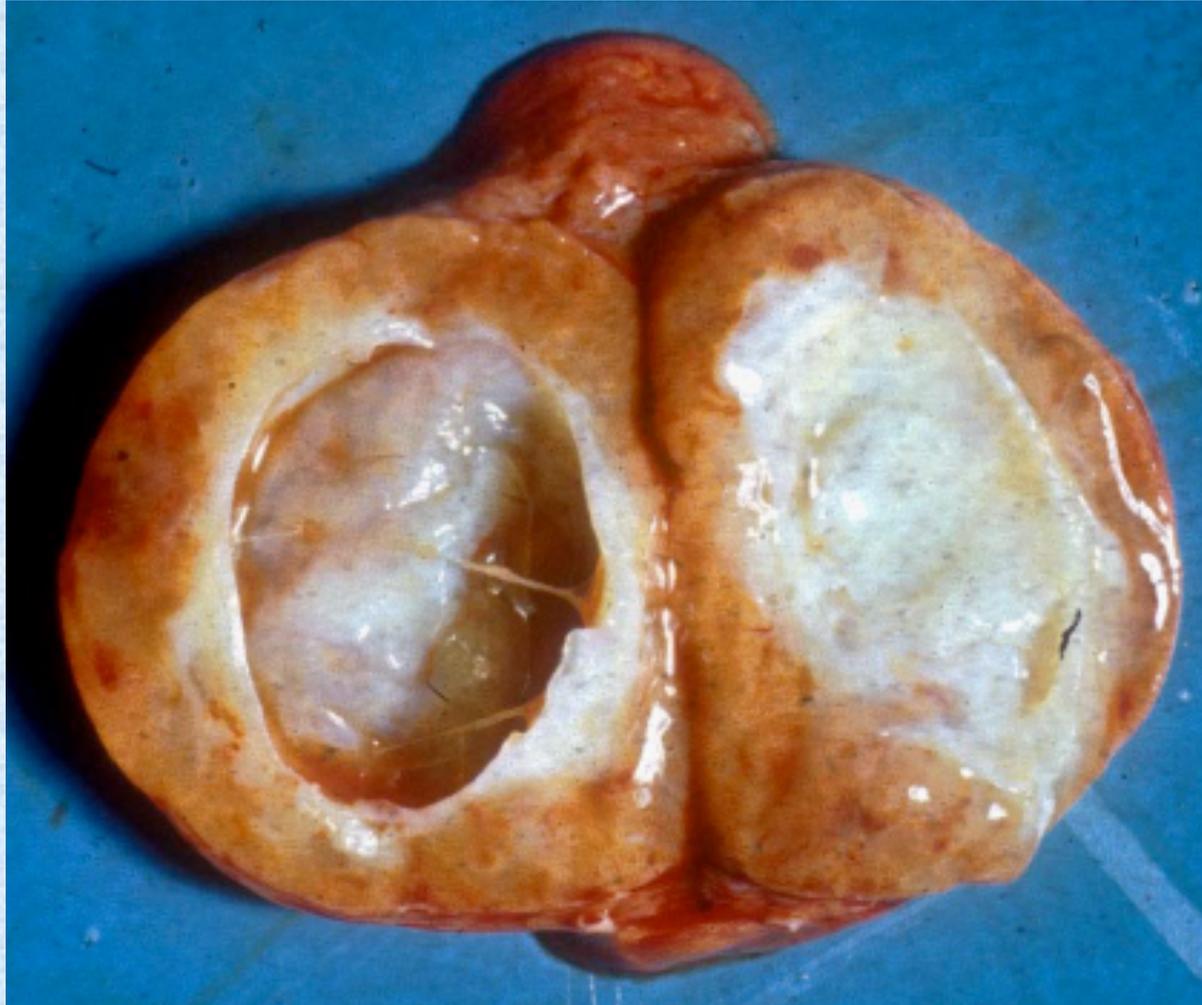
▪ Well differentiated

➤ Papillary

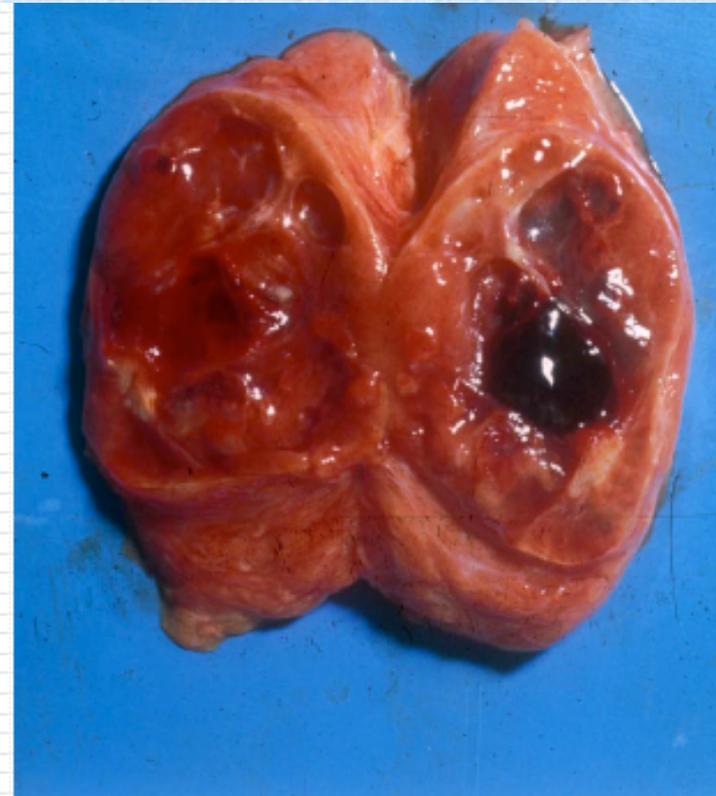
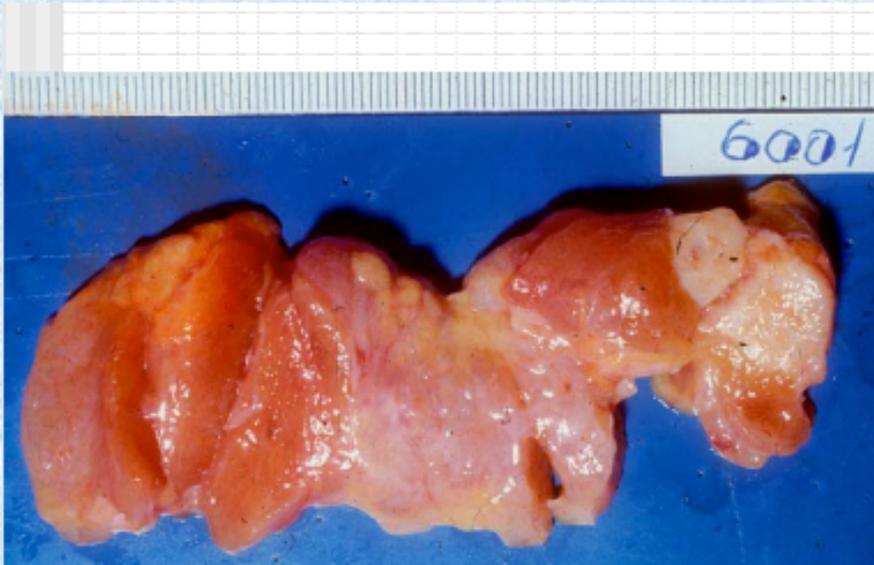
- Ground glass nuclei
- *Nuclear grooves*
- Nuclear pseudoincisions
- Psammoma bodies
- **Variants:**
 - Follicular
 - Macrofollicular
 - Microcarcinoma (<1 cm)
 - Fully encapsulated
 - Diffusely sclerosing
 - With epidermoid metaplasia

Thyroid

Papillary Carcinoma

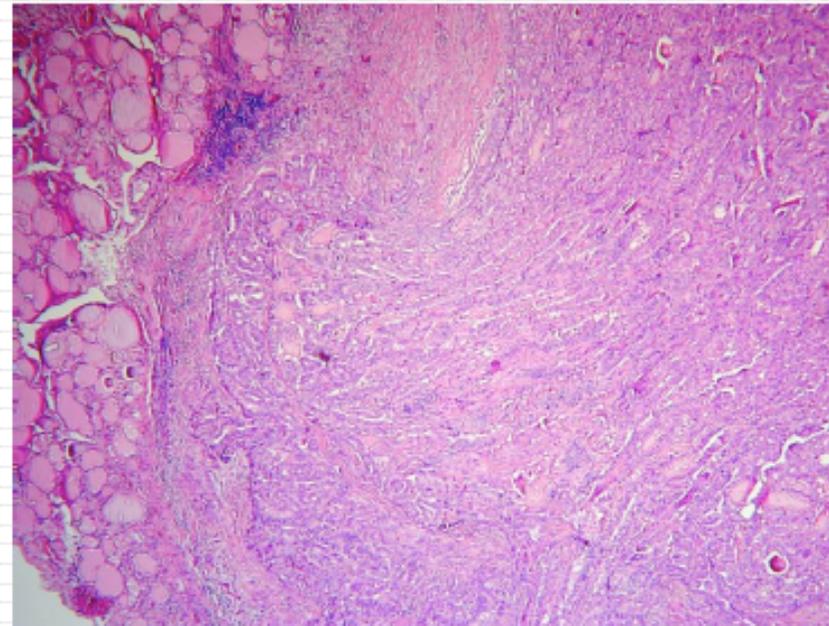
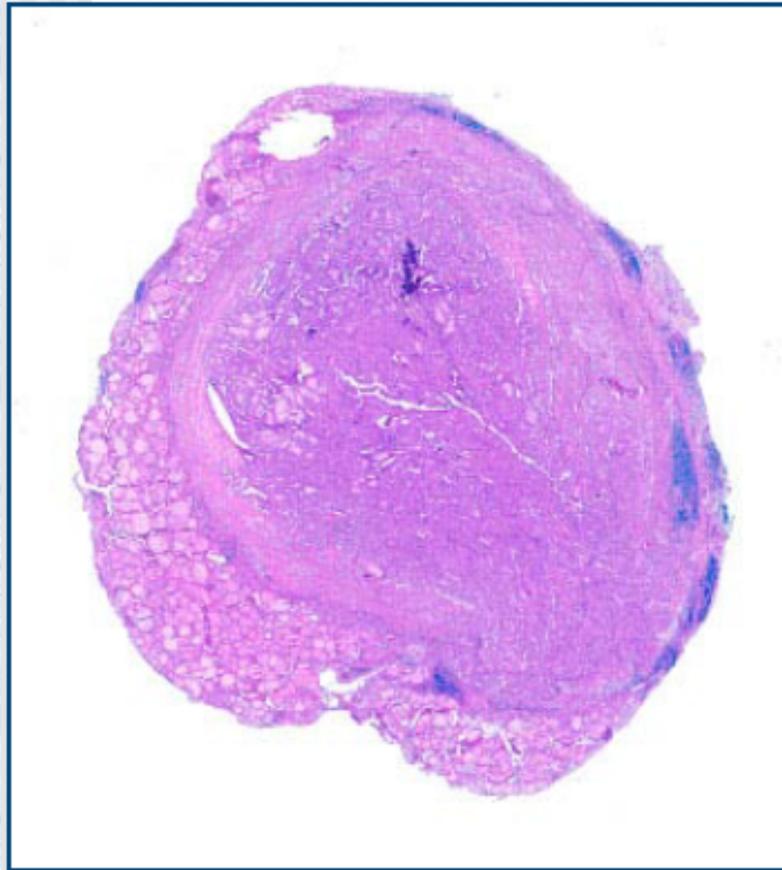


Thyroid Papillary Carcinoma



Thyroid

Papillary Carcinoma



Thyroid

Papillary Carcinoma

Carcinoma

- **Well differentiated**

- **Follicular**

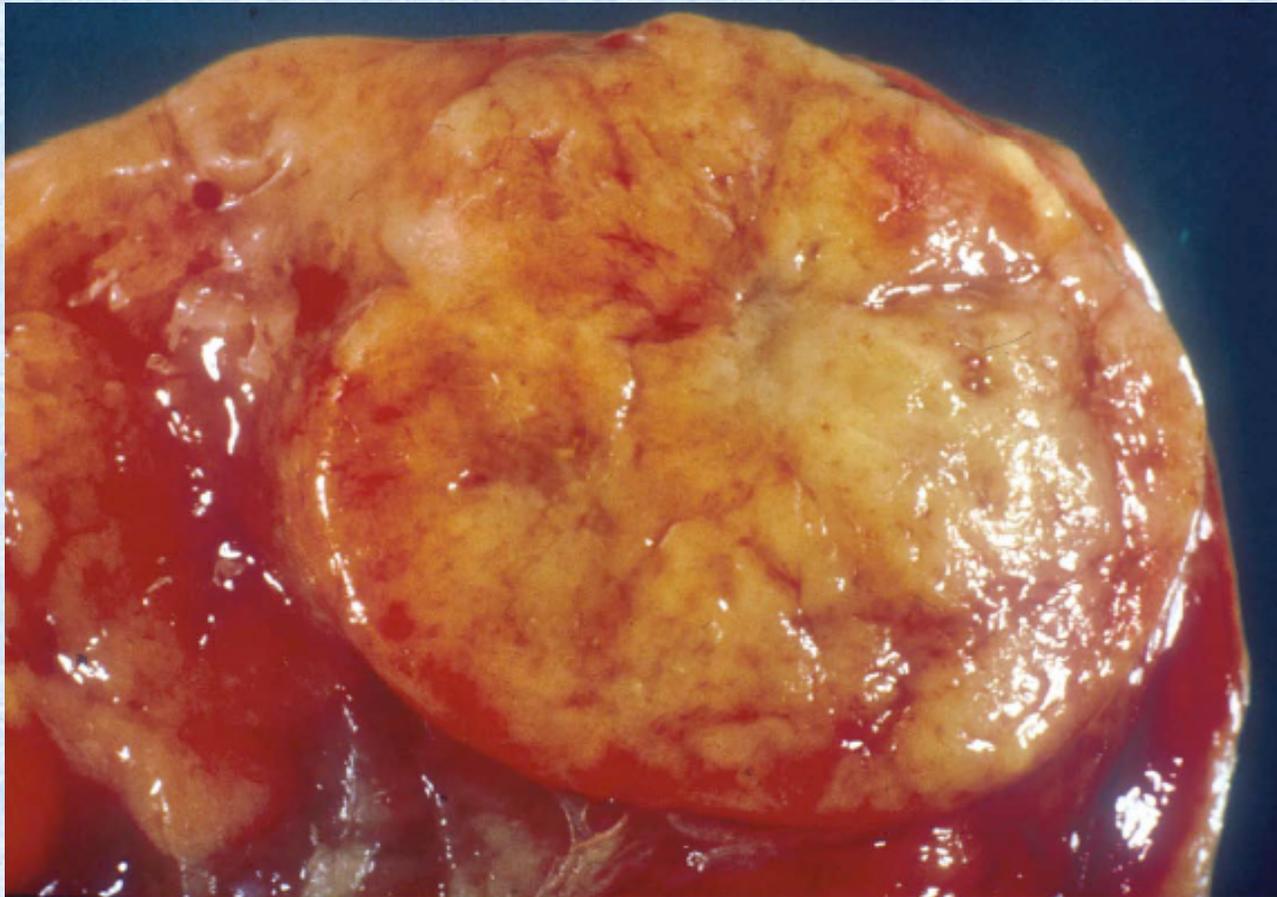
- Adenomatous-like
- Angioinvasive
- Complete infiltration of the capsule

- **Oncocytic**

- **Clear-cell carcinoma**

Thyroid

Papillary Carcinoma



Thyroid

Papillary Carcinoma

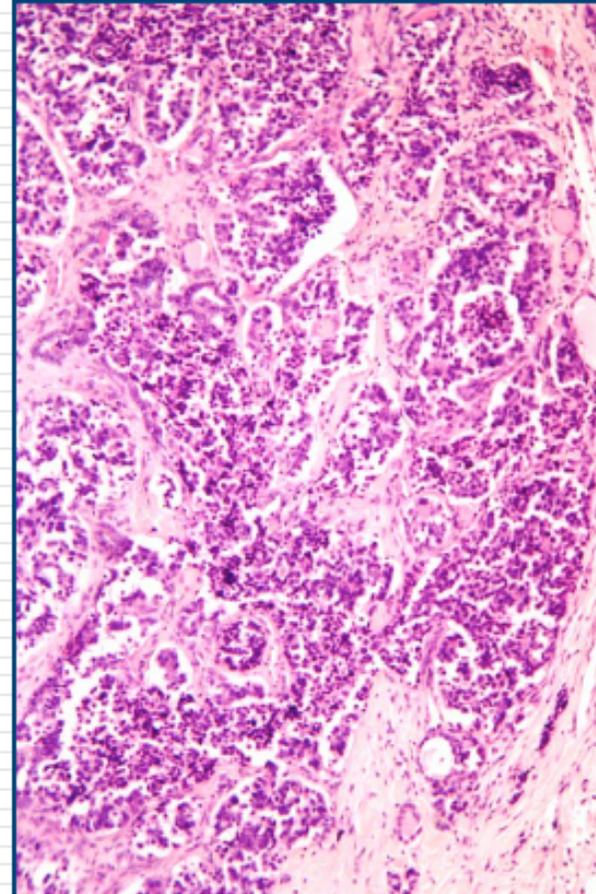
Carcinoma

- **Poorly differentiated**
 - Insular carcinoma
 - Tall-cell carcinoma
 - Columnar-cell carcinoma

Older age (>50 years old)

Higher prevalence (50%) of lymph node and parenchymal metastases

Thyroid Insular Carcinoma



Thyroid Neoplasia

Carcinoma

▪ Undifferentiated

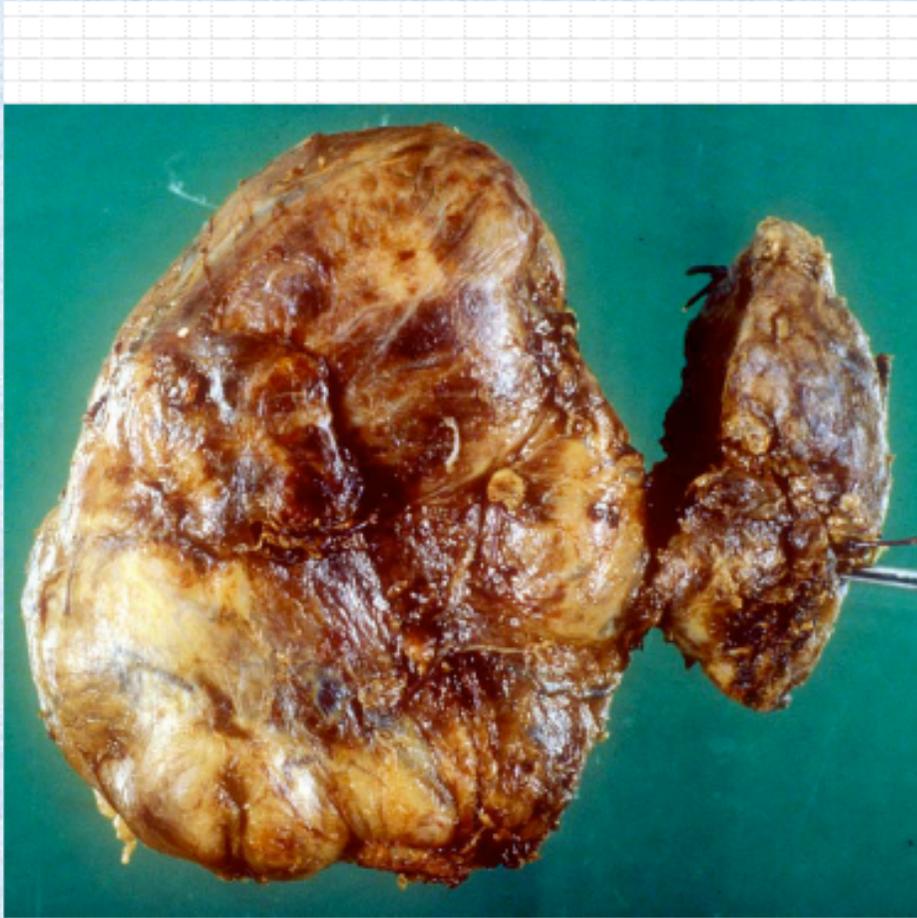
- Small cell carcinoma
- Epidermoid carcinoma
- Sarcomatoid carcinoma

Older age (>60 years)

Lymphatic (latero-cervical lymph-nodes) and pre-clinic metastases, as well as haematogenous (lungs, liver, and brain).

Thyroid

Anaplastic Carcinoma



Thyroid Neoplasia

Carcinoma

- Diagnostic value of:

- Ecography

- **F.N.A.B.**

- Impossible to discriminate follicular/ oncocytic adenoma from carcinoma = follicular/ oncocytic neoplasia

Thyroid Neoplasia

Carcinoma

■ Prognosis

- Age (< 45 y.o. every T/N = Stage I)
- Degree of differentiation
- Size (< 1, <5 cm)
- Extensive capsular infiltration / extra – thyroideal extension
- Metastases

Thyroid Neoplasia

Medullary carcinoma (10%) with amyloid stroma

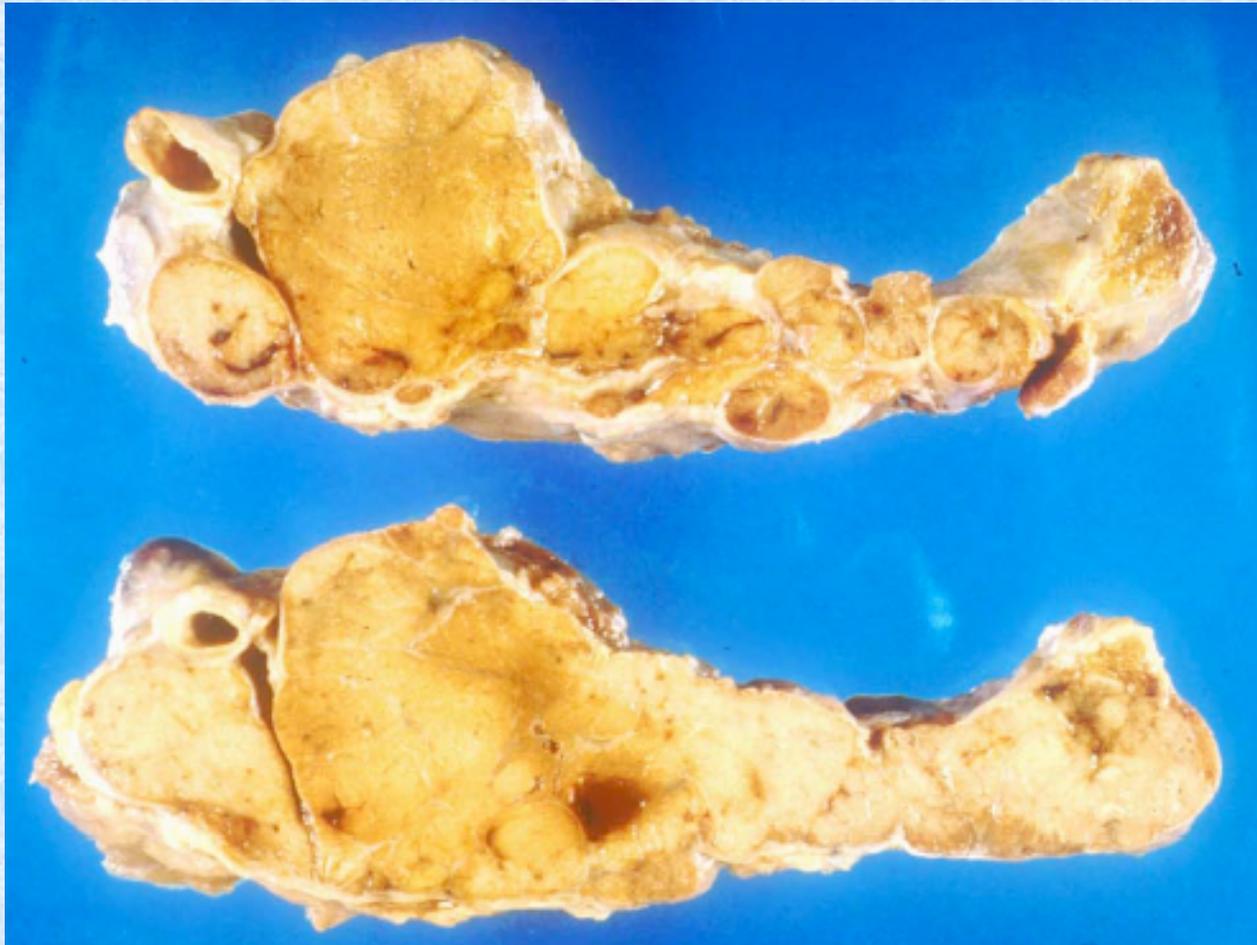
- From parafollicular C cells producing **calcitonin**
- Adult males (<50 y.o.)
- Unassociated with previous thyroid lesions but with C-cell hyperplasia

Thyroid Neoplasia

Medullary carcinoma

- About 20-30% has familiar outbreak (MEN II A/B) in association with:
 - Pheochromocytoma
 - Parathyroid adenoma
 - Neurofibromatosis type I (Recklinghausen's disease)
- Usually localized at the **superior 2/3** of the lobes, well circumscribed and **whitish** in colour.

Thyroid Medullary Carcinoma



Thyroid Neoplasia

Medullary carcinoma

- Microscopically:
 - Follicular
 - Plasmacytoid
 - Small cell / spindle cell
 - Cord-like
 - Solid
- Intermediate aggressiveness, with possible (25-45%) lymphohematogenous and adrenal metastases.