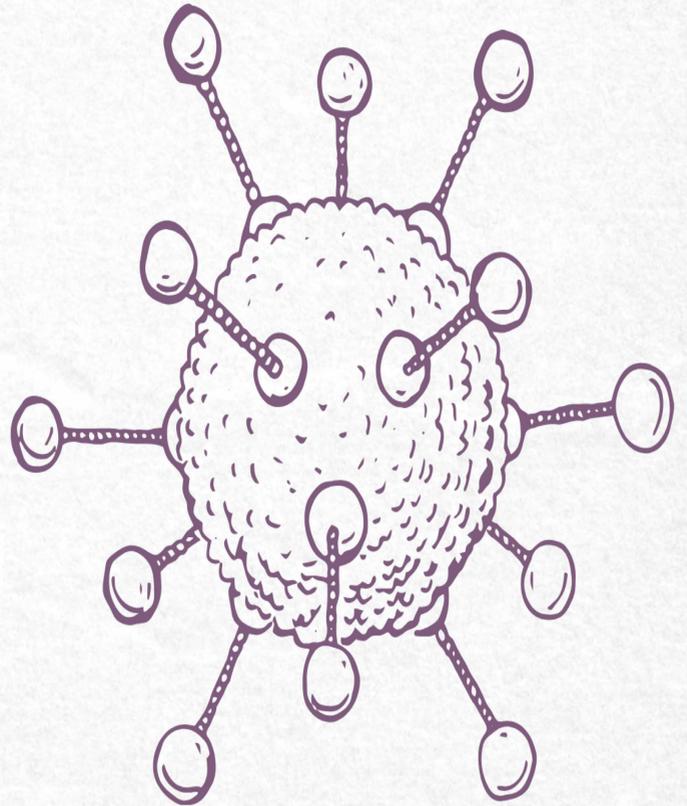


همة الأسنان لديكم

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# PATHOLOGY

## ENDOCRINE 2



# Endocrine system 2

## Graves Disease

<p>- Is the most common cause of endogenous hyperthyroidism</p>	
<p><b>It is characterized by a triad of manifestations</b></p>	<ol style="list-style-type: none"><li>1. Thyrotoxicosis, caused by a diffusely enlarged, hyperfunctional thyroid present in all cases</li><li>2. An infiltrative ophthalmopathy with resultant exophthalmos, present in about 40% of patients</li><li>3. A localized, infiltrative dermatopathy (sometimes designated pretibial myxedema), seen in a minority of cases</li></ol>
<p><b>The clinical manifestations</b></p>	<ul style="list-style-type: none"><li>- Include those common to all forms of thyrotoxicosis ,</li><li>- And those associated uniquely with Graves disease:</li></ul> <p><b>ophthalmopathy</b> is specific to Graves disease and not present in other causes of thyrotoxicosis</p> <ul style="list-style-type: none"><li>- The ophthalmopathy of Graves disease results in abnormal protrusion of the Eyeball(exophthalmos)</li><li>- Sympathetic overactivity produces a characteristic wide, staring gaze and lid lag. Which are not specific to Graves</li></ul> <div style="display: flex; justify-content: space-around;"><div style="text-align: center;"></div><div style="text-align: center;"><p>Pretibial myxedema</p></div></div> <ul style="list-style-type: none"><li>- The exophthalmos may persist or progress despite successful treatment of the thyrotoxicosis, sometimes resulting in corneal injury.</li><li>- The infiltrative dermatopathy most commonly involves the skin overlying the shins, where it manifests as scaly thickening and induration of the skin (<b>pretibial myxedema</b>)</li></ul>
<p><b>Laboratory findings</b></p>	<ol style="list-style-type: none"><li>a. Elevated serum free T4 and T3 and depressed serum TSH.</li><li>b. Because of ongoing stimulation of the thyroid follicles by SIs, radioactive iodine uptake is increased diffusely</li></ol>

## Multinodular goiter:

<b>Notes</b>	<b>Goiter: thyroid enlargement</b> <ul style="list-style-type: none"><li>➤ most common manifestation of thyroid disease</li><li>➤ mostly caused by dietary iodine deficiency</li><li>➤ Impaired thyroid hormone synthesis &gt;&gt; compensatory rise in the serum TSH&gt;&gt;&gt; gross enlargement of the thyroid gland</li><li>➤ Compensatory increase in functional mass &gt;&gt;&gt; euthyroid metabolic state</li></ul>
<b>I. Endemic goiter :</b>	<ul style="list-style-type: none"><li>-Occurs in geographic areas where the soil, water, and food supply contain little iodine.</li><li>- The term endemic is used when goiters are present in more than 10% of the population in a given region.</li><li>- Such conditions are common in mountainous areas of the world, including the Himalayas and the Andes but with increasing availability of iodine supplementation, the frequency and severity of endemic goiter have declined</li></ul>
<b>II. Sporadic goiter</b>	<ul style="list-style-type: none"><li>-<u>Less common than endemic goiter.</u></li><li>- The condition is more common in females than in males, with a peak incidence in puberty or young adulthood, when there is an increased physiologic demand for T4.</li><li>- It may be caused by several conditions, including the:<ul style="list-style-type: none"><li>a. Ingestion of substances that interfere with thyroid hormone synthesis , such as excessive calcium and vegetables such as cabbage, cauliflowers, .</li><li>b. Hereditary enzymatic defects that interfere with thyroid hormone synthesis (dyshormonogenetic goiter).</li></ul></li></ul>

## THYROID NEOPLASMS

- From a clinical standpoint, the possibility of a tumor is of major concern in patients who present with thyroid nodules.
- Fortunately, the overwhelming majority of solitary nodules of the thyroid prove to be either:
  - a. benign adenomas **or**
  - b. Localized, non-neoplastic conditions (e.g., a dominant nodule in multinodular goiter, simple cysts, or foci of thyroiditis)
- Carcinomas of the thyroid, are uncommon, accounting for less than 1% of solitary thyroid nodules.
- Several clinical criteria provide a clue to the nature of a given thyroid nodule:
  1. Solitary nodules, in general, are more likely to be neoplastic than are multiple nodules.
  2. Nodules in very young <20 years or very old more than 70 years individuals are more likely to be neoplastic
  3. Nodules in males are more likely to be neoplastic than are those in females.
  4. A history of radiation exposure is associated with an increased incidence of thyroid malignancy.
  5. Nodules that take up radioactive iodine in imaging studies (hot nodules) are more likely to be benign

## Thyroid Carcinomas

- A female predominance has been noted among patients who develop thyroid carcinoma in the early and middle adult years.
- By contrast, cases seen in childhood and late adult life are distributed equally between males and females.
- Most thyroid carcinomas (except medullary carcinomas) are derived from the thyroid follicular epithelium

### Environmental Factors

1. The major risk factors predisposing to thyroid cancer is exposure to ionizing radiation particularly during the first 2 decades of life.

There was a marked increase in the incidence of **papillary carcinomas** among children exposed to radiation as treatment for malignant tumors such as lymphoma

2. Deficiency of dietary iodine (and by extension, an association with goiter) is linked with a higher Frequency of follicular carcinomas

## Subtypes of thyroid carcinomas

### 1. Papillary Carcinoma

(more than 85% of cases)

- Papillary carcinomas are the most common form of thyroid cancer.
- They may occur at any age
- They account for the vast majority of thyroid carcinomas associated with previous exposure to ionizing radiation

#### Clinical Features

- Papillary carcinomas are nonfunctional tumors
- Manifest most often as a painless mass in the neck, either within the thyroid or as a metastasis in a cervical lymph nodes
- Are indolent lesions, with 10-year survival rates in excess of 95%.
- The presence of isolated cervical node metastases does not have a significant influence on prognosis.
- In a minority of patients, hematogenous metastases are present at the time of diagnosis, most commonly to the lung
- The long-term survival of patients with papillary thyroid cancer is dependent on several factors, including
  - a. age (the prognosis is less favorable among patients older than 40 years of age),
  - b. presence of extrathyroidal extension,
  - c. and presence of distant metastases (stage).

## 2. Follicular Carcinoma

(5% to 15% of primary thyroid cancers.)

- They are more common in women (occurring in a ratio of 3 : 1) and manifest at an older age than papillary carcinomas,
- The peak incidence between 40 and 60 years of age.
- Is more frequent in areas with dietary iodine deficiency (accounting for 25%-40% of thyroid cancers)

### Clinical Features

- Follicular carcinomas manifest as solitary cold thyroid nodules
- In rare cases, they may be hyperfunctional
- Tend to metastasize through the bloodstream (hematogenous dissemination) to the lungs, bone, and liver.
- Regional nodal metastases are uncommon.
- One-half of patients with widely invasive carcinomas succumb die within 10 years
- Less than 10% of patients with minimally invasive follicular carcinomas die within the same period

## 3. Anaplastic Carcinoma

(undifferentiated carcinoma (<5% of cases))

- Anaplastic carcinomas are undifferentiated tumors of the thyroid follicular epithelium, accounting for less than 5% of thyroid tumors.
- They are aggressive, with a mortality rate approaching 100%
- Patients are older than those with other types of thyroid cancer, with a mean age of 65 years.
- Anaplastic carcinomas have poor prognosis despite therapy.
- Metastases to distant sites are common, but in most cases death occurs in less than 1 year as a result of aggressive local growth and compromise of vital structures

## 4. Medullary Carcinoma

(5% of cases)

- Are neuroendocrine tumors derived from the C cells, of the thyroid. So medullary carcinomas secrete calcitonin
- Measurement of which plays an important role in the diagnosis and postoperative follow-up of patients..
  - Medullary carcinomas arise sporadically in about 70% of cases
  - The remaining 30% are familial, occurring
    - A. in the setting of multiple endocrine neoplasia (MEN) syndrome 2A or 2B,
    - B. or familial medullary thyroid carcinoma without an associated MEN syndrome
  - sporadic medullary carcinomas, and familial cases without an associated MEN syndrome, occur in adults.