

# Thyroiditis Hashimoto's De-quervain's, Reidel's Solitary thyroid nodule approach

**Dept of Surgery**

## Thyroiditis

- Inflammation of the thyroid gland
- Acute illness
- Severe thyroid pain
- Manifested primarily by thyroid dysfunction

# Types

Acute (Suppurative) Thyroiditis	<ul style="list-style-type: none"><li>Streptococcus and anaerobes (70% Escherichia coli, Pseudomonas aeruginosa, Haemophilus influenzae, Eikenella corrodens, Corynebacterium, Coccidiomycosis species</li><li>More common in children</li><li>Diagnosis : leukocytosis on blood tests and FNA biopsy for Gram's stain, culture, and cytology</li><li>Treatment : parenteral antibiotics and drainage of abscesses</li></ul>
Subacute Thyroiditis	<ul style="list-style-type: none"><li>Painful or painless</li><li>Post viral inflammatory response, Genetic predisposition, autoimmune</li><li>TSH is decreased, and thyroglobulin, T<sub>4</sub> and T<sub>3</sub> levels are elevated</li><li>beta blockers and thyroid hormone replacement (after hyperthyroid phase)</li><li>Surgery for recurrent attacks</li></ul>
Chronic Thyroiditis	<ul style="list-style-type: none"><li>Hashimoto's</li><li>Reidel's</li><li>De-quervain's</li></ul>

# Hashimoto Thyroiditis

- First described by hashimoto, in 1912, as **struma lymphomatosa**—
- Transformation of thyroid tissue to lymphoid tissue
- Most common inflammatory disorder of the thyroid
- Leading cause of hypothyroidism

## Etiology

- Autoimmune process
- Increased intake of iodine
- Medications: interferon, lithium, and amiodarone
- Inherited predisposition
- Chromosomal abnormalities : turner's syndrome and down syndrome.
- Associations with hla-b8, dr3, and dr5 haplotypes

## Pathogenesis

Activation of CD4+T (helper) lymphocytes

T cells recruit cytotoxic CD8+T cells to the thyroid.

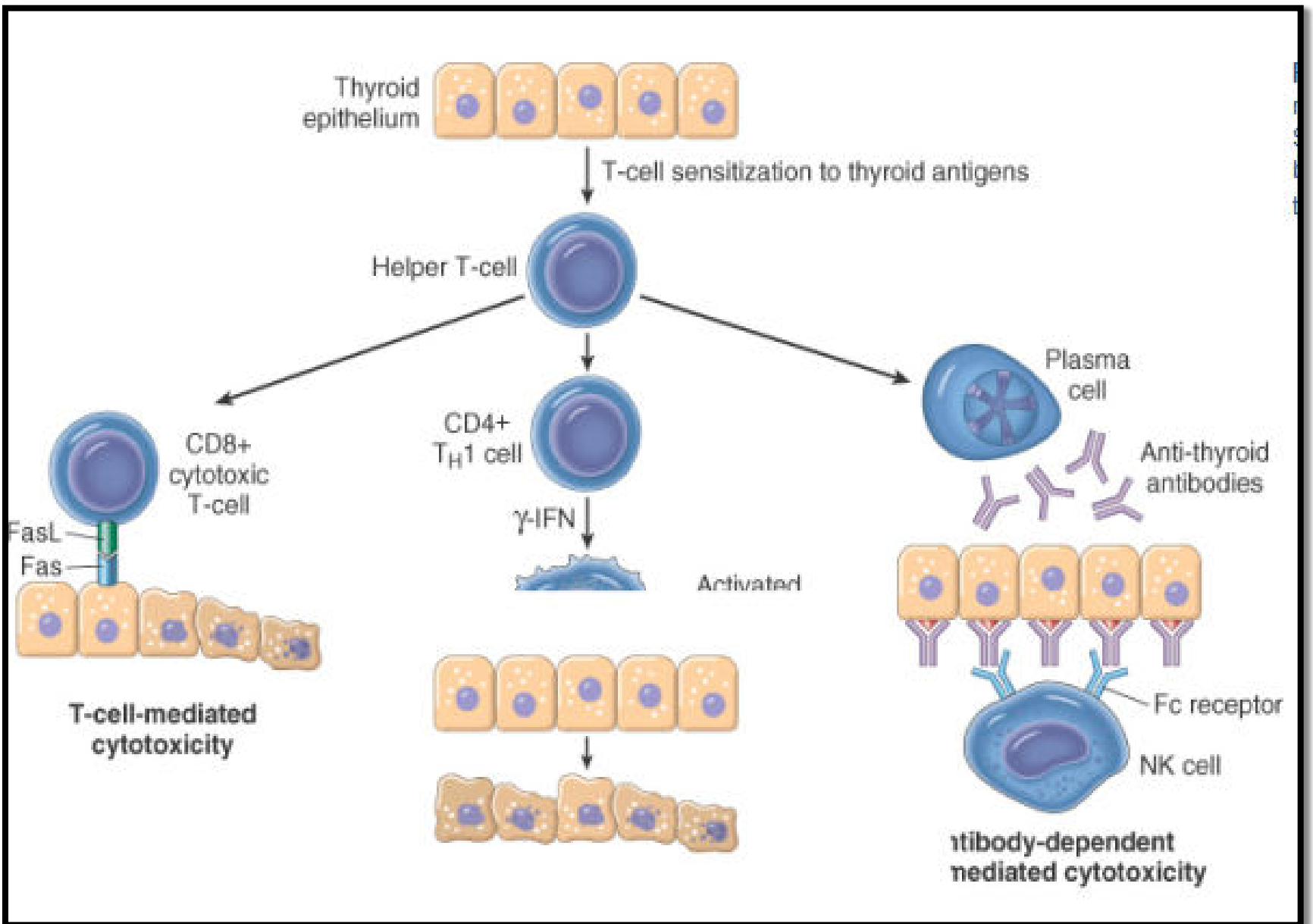
Hypothyroidism results from:

- destruction of thyrocytes by cytotoxic t cells
- autoantibodies, which lead to complement fixation and killing by natural killer cells or block the TSH receptor

Antibodies are directed against the three main antigens

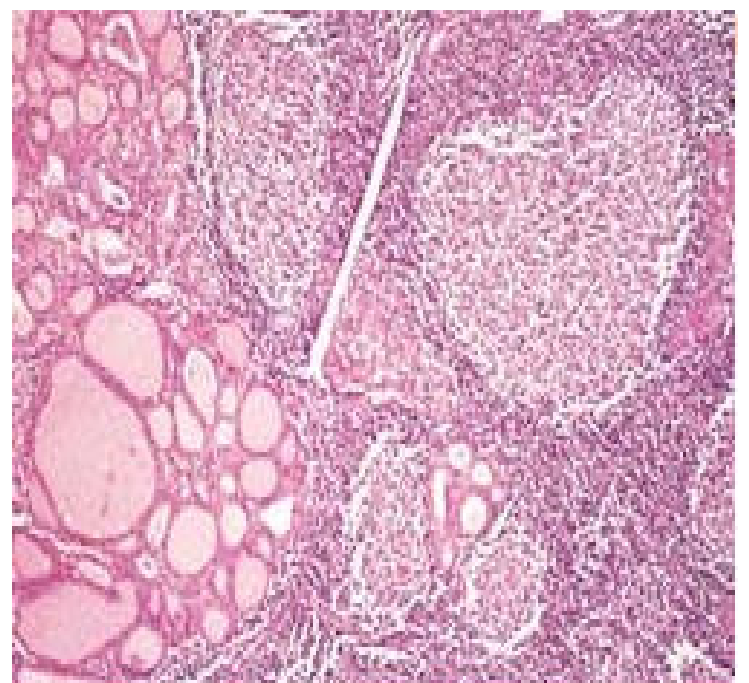
- Tg (60%)
- TPO (95%)
- TSH-R (60%)
- sodium/iodine symporter (25%)

Apoptosis (programmed cell death) also implicated



## Pathology

- Gland is diffusely infiltrated by small lymphocytes and plasma cells, occasionally shows well-developed germinal centers
- Thyroid follicles are smaller than normal with reduced amounts of colloid and increased interstitial connective tissue
- Follicles are lined by **hürthle or askanazy cells**, which are characterized by abundant eosinophilic, granular cytoplasm.



## Clinical Presentation

- Male: female ratio 1:10 to 20)
- Ages of 30 and 50 years.
- Minimally or moderately enlarged firm gland
- 20% of patients present with hypothyroidism
- 5% present with hyperthyroidism ( hashitoxicosis)

## Diagnostic Studies

↑ TSH ↓ T<sub>4</sub> and T<sub>3</sub> levels

Thyroid autoantibodies

FNA biopsy if solitary suspicious nodule or a rapidly enlarging goiter

# Treatment

Overtly hypothyroid:

- Thyroid hormone replacement therapy

Subclinical hypothyroidism:

- Male patients
- TSH greater than 10 mu/L
- Euthyroid patients to shrink large goiters
- Surgery may occasionally be indicated for suspicion of malignancy or for goiters causing compressive symptoms or cosmetic deformity

## De Quervain's thyroiditis

- First described in 1904
- Granulomatous thyroiditis
- Viral infections: Adenovirus, Coxsackievirus, Influenza virus, Epstein barr virus, Mumps, Echovirus & Enterovirus
- Less common than Hashimoto's thyroiditis
- Gland swells up is very painful and tender
- Patient becomes hyperthyroid but the gland cannot take up iodine so the radioactive iodine uptake is very low

- **Absence of thyroid antibodies** differentiates this condition from autoimmune thyroiditis
- Recovery is invariably complete and **response to prednisolone** is so dramatic that it is almost diagnostic

## Riedel's Thyroiditis

- Riedel's struma or invasive fibrous thyroiditis
- Replacement of all or part of the thyroid parenchyma by fibrous tissue

### Etiology :

- Autoimmune diseases, such as pernicious anemia and graves' disease
- Mediastinal, retroperitoneal, periorbital, and retro-orbital fibrosis
- Sclerosing cholangitis
- Women between the ages of 30 and 60 years.

**Presentation:**

- Painless, hard anterior neck mass
- Dysphagia
- Dyspnea
- Choking
- Hoarseness
- Symptoms of hypothyroidism & hypoparathyroidism
- Hard, "woody" thyroid gland

**Diagnosis:**

- Open thyroid biopsy

**Treatment:**

- Surgery
- Thyroid hormone replacement
- Corticosteroids and tamoxifen

## Solitary Thyroid Nodule

An isolated nodule in the thyroid gland

**Benign:**

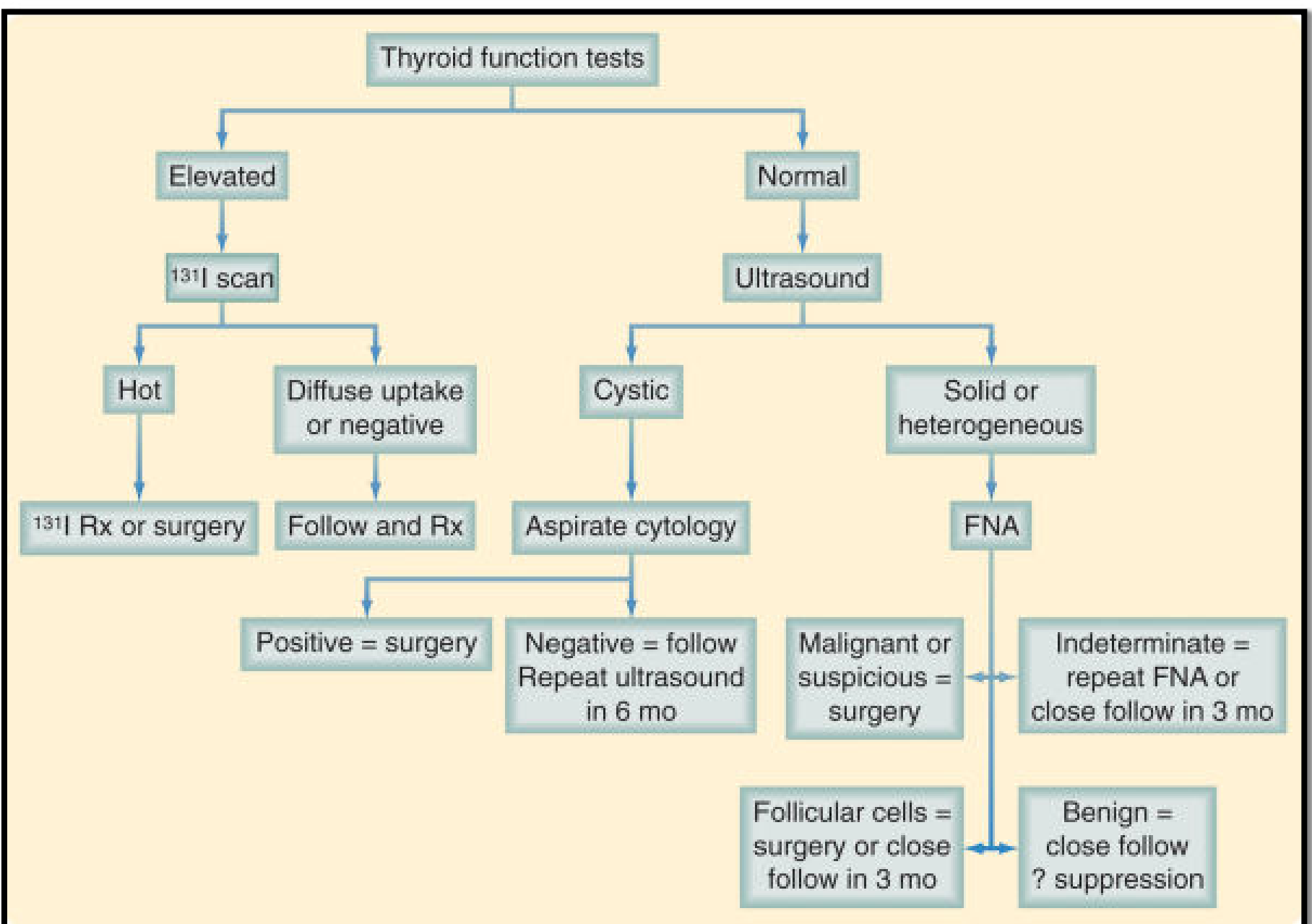
- Cysts
- Adenoma-
  - Papillary
  - Follicular
  - Hurthle cell type
- Toxic Adenoma- solitary hyper-functioning thyroid nodule
- Non toxic Adenoma-solitary nonfunctioning thyroid nodule

**Malignant:**

- Primary
- Metastatic



- Nodules common, whereas cancer relatively uncommon
- Higher in women (1.2:1 → 4.3:1)
- Estimated 5-15% of nodules are cancerous
- Although cancer more common in women, a nodule in a man is more likely to be cancer



**Workup of a solitary thyroid nodule**

## Laboratory Studies

**Most patients with thyroid nodules are euthyroid**

- Blood TSH level
- Serum Tg levels
- Serum calcitonin levels
- RET oncogene mutations
- 24-hour (urine) for vanillylmandelic acid (VMA), metanephrine, and catecholamine

## Imaging

Ultrasound is helpful for:

- detecting nonpalpable thyroid nodules
- differentiating solid from cystic nodules
- identifying adjacent lymphadenopathy
- Follow up of size of suspected benign nodules

CT and MRI are unnecessary in the routine evaluation of thyroid tumors, except for large, fixed, or substernal lesions.

Scanning the thyroid with  $^{123}\text{I}$  or  $^{99\text{m}}\text{Tc}$  for evaluating patients for "hot" or autonomous thyroid nodules

## Management

- Malignant tumors are treated by thyroidectomy
- Simple thyroid cysts: aspiration

**If the cyst persists after three attempts at aspiration, unilateral thyroid lobectomy is recommended.**

- Lobectomy is also recommended for:
  - cysts greater than 4 cm in diameter
  - complex cysts with solid and cystic components

## Management

- If a colloid nodule is diagnosed by FNA biopsy, patients should still be observed with serial ultrasound and Tg measurements.
- l-thyroxine in doses sufficient to maintain a serum TSH level between 0.1 and 1.0 U/mL may also be administered.
- Thyroidectomy should be performed if:
  - Nodule enlarges on TSH suppression, compressive symptoms
  - Cosmetic reasons
  - H/o previous irradiation of the thyroid gland
  - Family history of thyroid cancer