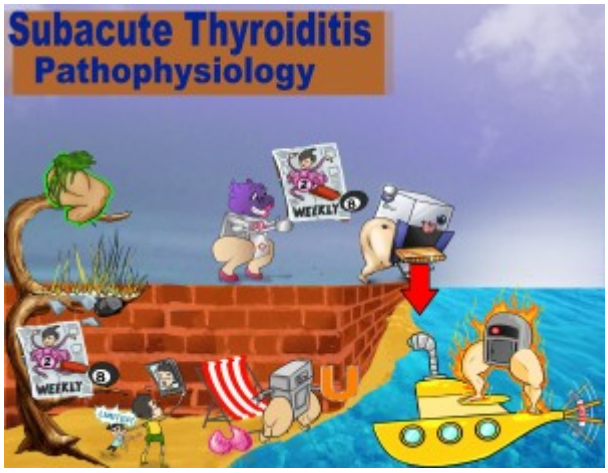
Subacute Thyroiditis Pathophysiology

Subacute thyroiditis is a self-limiting disease characterized by a triphasic response. This disease begins with the thyrotoxic phase, where damaged follicular cells release pre-formed colloid. This typically lasts from 2-8 weeks. Following this is the hypothyroid phase, where thyroid hormone synthesis is decreased because of the damage. This lasts about 2-8 weeks as well. A euthyroid phase comes last, which is characterized by recovery of the thyroid gland.



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Characteristics

Self-Limiting
Self-Limiting
Subacute thyroiditis is largely self-limited. Self-limiting disease refers to a medical condition that resolves on its own without requiring significant medical intervention, although symptomatic management may be necessary. While Subacute thyroiditis thyroid gland recovers spontaneously over a few weeks to months. However, some patients experience relapses and permanent hypothyroidism occurs in 15% of cases.

Triphasic Response
(3) Tree
Subacute thyroiditis, which involves inflammation of the thyroid, manifests as a triphasic response. Each phase varies in duration and includes the thyrotoxic, hypothyroid, and euthyroid phases.

Thyrotoxic Phase

Thyrotoxic Phase
Thigh with Toxic-green-glow
The first phase of the triphasic response is referred to as the thyrotoxic phase. This phase typically last 2-8 weeks and is due to damage of the follicular cells and the release of pre-formed colloid or stored T3/T4.

Damaged Follicular Cells Release Pre-formed Colloid
Damaged Follicles Releasing Coals
The thyrotoxic phase is due to damage of the follicular cells and the release of stored T3/T4 (i.e. pre-formed colloid). When follicular cells are damaged due to inflammation, autoimmune attack, or infection as seen in subacute thyroiditis, they lose their structural integrity and release performed colloid into the bloodstream. This leads to a transit increase in thyroid hormones and depletion of stored colloid.

2-8 Weeks
(2) Tutu and (8) Ball on Weekly-newspaper
The thyrotoxic and hypothyroid phases typically last 2-8 weeks.

Hypothyroid Phase

Hypothyroid Phase
Hippo-thigh-droid
The second phase of the triphasic response is the hypothyroid phase, which can be permanent in ~15% of subacute granulomatous thyroiditis cases. The hypothyroid phase involves the depletion of pre-formed colloid along with the impaired synthesis of new thyroid hormones as a result of follicular cell damage.

Decreased Thyroid Hormone Synthesis

Down-arrow with Thigh-droid with Harmonica

The hypothyroid phase involves the depletion of pre-formed colloid and as a result leads to the impaired synthesis of new thyroid hormones (i.e. colloid) due to the damage of the follicular cells.

2-8 Weeks

(2) Tutu and (8) Ball on Weekly-newspaper

The thyrotoxic and hypothyroid phases typically last 2-8 weeks.

Euthyroid Phase

Euthyroid Phase

Letter-U Thigh-droid

The last phase of the triphasic response - the euthyroid phase - involves recovery of thyroid functioning along with pathological changes no longer being visible in the thyroid gland.

Thyroid Gland Recovery

Thyroid in Recovery Chair

The euthyroid phase involves the recovery of the thyroid along with pathological changes no longer being visible in the thyroid gland.