# Hashimoto Thyroiditis

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## Risk

- Hashimoto thyroiditis is the most common cause of hypothyroidism in iodine-sufficient countries and primary hypothyroidism in adults.
- Incidence in USA: Approximately 100,000–400,000 new cases diagnosed each year.
- Causes thyroid failure in 10% of pts.
- Prevalence increases with age but it is also the most common cause of hypothyroidism in children as young as 1–2 y of age. Individuals between the ages of 30–50 y are most commonly affected.
- No documented ethnic predominance.
- Gender predominance: F:M ratio 7:4; age 30–50 y.

## Perioperative Risks

- Increased risk of thyroid storm even if pt is euthyroid preop, as the progressive inflammatory process may cause significant apoptosis of thyroid follicles, leading to the release of thyroid hormone. Life-threatening illness can ensue if hyperthyroidism is severely exacerbated by the stress of operation, typically manifested by hyperpyrexia, tachycardia, and alterations in consciousness.
- Risk of respiratory failure or insufficiency and increased bleeding periop.
- Chronic hyperthyroidism and its concomitants.
- Coexisting autoimmune disease and adrenal failure.

## Overview

- Hashimoto thyroiditis, or chronic autoimmune thyroiditis, involves progressive thyroid dysfunction due to autoimmune-mediated destruction of the thyroid gland through the apoptosis of thyroid epithelial cells. Typical manifestations of the disease may encompass high serum concentrations of antibodies against one or more thyroid antigens, diffuse lymphocytic infiltration of the thyroid, and destruction of the thyroid gland, resulting in thyroid failure.
- Chronic inflammation of the thyroid (painful or painless) with lymphocytic infiltration due to autoimmune factors.
- Acute inflammation results in increased release of preformed hormone with hyperthyroidism.
- Chronic inflammation results in decreased thyroid gland function with resistant hypothyroidism.

## Etiology

- Autoantibodies against thyroid peroxidase, thyroglobulin, or TSH receptors causing immune-mediated destruction of thyroid epithelial cells, although a small percentage of pts do not have such antibodies
- Associated with other autoimmune diseases, including Sjögren syndrome, SLE, RA, pernicious anemia, autoimmune endocrinopathies, Addison disease, hypoparathyroidism, diabetes mellitus, and gonadal failure
- Increased incidence in pts with a family Hx and with chromosomal disorders such as Turner, Down, or Klinefelter syndrome
- Also linked to several polymorphisms in genes for HLA and T-cell antigen receptors
- Precipitating causes: Thyroid injury (infection, radiation, drugs), stress, steroids, pregnancy, and excessive iodine intake

## Standard Treatment

- Chronic thyroid hormone replacement in hypothyroidism
- NSAIDs in acute thyroiditis for pain and propranolol to control symptoms of hyperthyroidism

## Assessment Points

| System | Effect | Assessment by Hx | PE | Test |
|---|---|---|---|---|
| HEENT | Swollen, tender neck<br>Enlarged tongue<br>Tracheal compression | Neck pain, hoarseness | Examine airway and neck | Lateral neck x-rays or CT of the neck |
| CV | Dehydration, tachydysrhythmias or bradydysrhythmias | Orthostatic symptoms | | Tilt-table test, ECG |
| RESP | Decreased respiratory muscle strength | Shortness of breath<br>Dyspnea on exertion | | |
| GI | Ileus<br>Constipation | | | |
| ENDO | Acute hyperthyroidism<br>Chronic hypothyroidism | Shaking, anxiety, emotional lability | Reflex speed, HR<br>Tremor, nervousness<br>Mental status | Free $T_4$ estimate |
| HEME | Anemia | | | Hgb, Hct |
| CNS | Cold intolerance<br>Slow or fast movement, depending on stage | Cold intolerance | Reflexes, mental status exam | |
| DERM | | Rough pale skin<br>Coarse dry hair | Careful inspection of hair and skin | |
| MS | | Arthralgias and myalgias | | |
| GENERAL | Other autoimmune dysfunction | Weakness | Inability to arise from chair without using hands | Serum $K^+/Na^+$ |

**Key References:** Bennett-Guerrero E, Kramer DC, Schwinn DA: Effect of chronic and acute thyroid hormone reduction on perioperative outcome, *Anesth Analg* 85:30–36, 1997; Wiersinga WM: Clinical relevance of environmental factors in the pathogenesis of autoimmune thyroid disease, *Endocrinol Metab (Seoul)* 31(2):213–22, 2016.

## Perioperative Implications

### Preoperative Preparation

- Assess NPO status (may have poor gastric emptying).
- Use preop drugs cautiously (increased sensitivity of central nervous and respiratory systems to depressants).
- Make sure that pt is euthyroid so as to avoid thyroid storm.
- Assess fluid status.
- Assess for comorbidities (autoimmune/adrenal/pancreatic dysfunction),

### Monitoring

- Temp (consider placing cooling blanket on OR table as treatment for thyroid storm)
- Consider invasive monitoring if there is CV or resp compromise.

### Airway

- If normal preop, consider routine management.
- If displaced or distorted, consider awake fiberoptic and armored tube intubation.

### Induction/Maintenance

- No data indicate that one technique is preferred over another.

### Extubation

- Consider extubation in an optimal situation for reintubation.

### Postoperative Concerns

- Routine monitoring and treatment of comorbidities if there is coexisting autoimmune disease

### Adjuvants

- Beta-blockade for acute hyperthyroidism.
- Steroids are sometimes necessary to treat for adrenal dysfunction.
- Oral hypoglycemics (chronic use) can cause hypoglycemia for longer duration and of greater severity in a periop pt.