

## Thyroid conditions - Hashimoto's disease

Hashimoto's disease is a common cause of hypothyroidism (underactive thyroid). It is an autoimmune condition. Immune system cells attack the thyroid gland, causing inflammation and, in most cases, eventual destruction of the gland. This reduces the thyroid's ability to make hormones.

The thyroid gland lies at the front of the throat, below the larynx (Adam's apple). It is made up of two lobes that sit on either side of the trachea (windpipe). The thyroid gland makes chemicals called hormones that regulate many metabolic processes, including growth and the rate at which your body burns up energy. Hypothyroidism means the thyroid gland is sluggish or underactive.

### Causes

Various conditions can cause hypothyroidism. One of the most common causes is Hashimoto's disease, which is inflammation of the thyroid gland that reduces the secretion of thyroid hormones.

Hashimoto's disease is considered to be an autoimmune disease. Immune system cells that normally defend the body against foreign invaders (such as disease-causing bacteria and viruses) attack the thyroid gland. About one in every 15 people is diagnosed with Hashimoto's disease.

The condition is also called Hashimoto's thyroiditis, chronic lymphocytic thyroiditis or autoimmune thyroiditis.

### Symptoms

Hashimoto's disease progresses very slowly over many years, so the symptoms may go unnoticed. The symptoms and signs vary depending on individual factors including the severity of the condition, but may include:

- Unrelenting fatigue
- Feeling the cold
- Constipation
- Swollen face
- Dry, coarsened skin
- Dry hair that is prone to breakage, hair loss
- Voice changes, such as persistent hoarseness
- Fluid retention (oedema)
- Sudden weight gain that cannot be explained by dietary or lifestyle changes
- High blood cholesterol
- Stiff and tender joints, particularly in the hands, feet and knees
- Cognitive changes, such as depression or forgetfulness
- Enlargement of the thyroid gland (goitre)
- In women, heavy menstrual bleeding (menorrhagia).

Sometimes Hashimoto's disease does not cause any noticeable symptoms. The condition may be discovered during investigations for other, perhaps unrelated, medical problems.

### Hashimoto's disease reduces production of thyroid hormones

The thyroid gland makes two main hormones – thyroxine (T4) and tri-iodothyronine (T3). Two brain structures, the pituitary gland and the hypothalamus, regulate the hormones released by the thyroid gland. The steps in the process are:

- The chain of command begins at the hypothalamus, which prompts the pituitary gland to make a chemical called thyroid-stimulating hormone (TSH).
- The pituitary gland checks the amount of T4 and T3 in the blood and releases TSH if the T4 and T3 levels need to be topped up.

- The thyroid gland secretes T4 and T3 depending on the 'order' it receives from the pituitary gland. Generally speaking, the more TSH the thyroid receives, the more T4 and T3 it secretes.
- The pituitary gland may order the thyroid gland to make T4 and T3 but, in the case of Hashimoto's disease, the thyroid gland can't deliver.
- The immune system creates antibodies that attack thyroid tissue. The thyroid gland becomes inflamed (thyroiditis) and thyroid cells become permanently damaged, which hampers the thyroid's ability to make T4 and T3.
- In response, the pituitary gland secretes more thyroid-secreting hormone (TSH).
- The thyroid may enlarge (goitre) as it attempts to obey the pituitary gland.

### Possible causes of Hashimoto's disease

The cause of the immune system attack against the thyroid gland is unknown. Most medical researchers believe that a number of both genetic and environmental factors working in combination cause Hashimoto's disease. Current theories include:

- Some type of microbe, such as a bacterium or virus, may prompt the immune system to attack the thyroid.
- A genetic defect may trigger the immune response. Genetic factors may play an important role, since women are more commonly affected.
- The condition may be related to ageing, since older people are at increased risk.
- Hashimoto's disease also tends to run in families, which suggests that heredity may be important.

### Common complications

Complications of untreated Hashimoto's disease may include:

- **Goitre** – the thyroid gland enlarges. In severe cases, the throat looks as if a tennis ball is lodged under the skin. Occasionally, a large goitre can interfere with breathing or swallowing.
- **Emotional problems** – low thyroid levels can increase the risk of depression and libido problems, such as reduced sex drive.
- **Heart conditions** – low levels of thyroid hormones allow levels of the 'bad' cholesterol (low-density lipoprotein or LDL cholesterol) to rise. This can increase the risk of heart disease, including heart attack. In some cases, Hashimoto's disease causes other cardiac conditions such as heart enlargement or heart failure.
- **Congenital defects** – the unborn baby of a woman who has untreated Hashimoto's disease risks various birth defects including cleft palate, and heart, kidney or brain malformations.
- **Myxoedema** – this severe form of hypothyroidism produces symptoms and signs which may include unnatural sleepiness, extreme sensitivity to cool temperatures and coma. This condition may be fatal in severe cases. However, myxoedema is a very rare complication of untreated Hashimoto's disease.

### Diagnosis

Diagnosis of Hashimoto's disease may include:

- Medical and family history
- Physical examination
- Blood tests to check levels of T4, T3 and TSH
- Blood test to check antibody levels.

### Treatment

With treatment, the outlook for most people with Hashimoto's disease is excellent. Treatment usually includes medication with the synthetic thyroid hormone (thyroxine). The doctor will recommend regular blood tests to monitor your thyroid hormone levels to ensure they are within the recommended range.

You will need to take the medication for life. Medication does not cure the condition, but helps maintain normal thyroid hormone levels. The symptoms will return if thyroid medication is stopped. Surgery may be required if the enlarged gland causes pressure symptoms.

### Where to get help

- Your doctor
- Endocrinologist
- Thyroid Australia Tel. (03) 9888 2588, 10am to 3pm, Monday to Friday

### **Things to remember**

- Hashimoto's disease is a common cause of hypothyroidism (underactive thyroid).
- Hashimoto's disease is an autoimmune condition – immune system cells attack the thyroid gland, and the resulting inflammation and destruction of thyroid tissue reduces the thyroid's ability to make hormones.
- Treatment includes hormone replacement therapy with synthetic thyroid hormone (thyroxine), and the prognosis is usually excellent.

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