

Original Article: Chronic thyroiditis: Hashimoto's disease



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ABSTRACT

A client who is sitting in a chair and still has enough arm strength should be taught how to lift himself using his arms at a rate of twice an hour. The use of pressure relief mattresses may be necessary for clients with multiple pressure ulcers. If the patient is able to rotate and change position, despite the use of pressure relief devices on the mattress, he should not sleep on the wound, because these devices are compressed under the pressure of the patient's weight, so they become ineffective. If an extra mattress is used, the decompression below the pressurized area should be checked. To check for pressure relief, place your hand (palm facing up and fingers flat) below the support surface just below the pressure point. Do not bend your fingers, and with adequate support, at least one inch of non-pressurized support surface is placed between the client's hand and body. The heels should be placed above the calf using a few pillows under the calf or with pressure-reducing boots. If the patient is sitting on a chair or while moving to a chair, the seat cushions are secured with inch foam. Dedicated cushions are also available for clients using a wheelchair.

Introduction

Inflammation of the thyroid gland may be acute, chronic, or subacute. It is a rare disorder. Thyroid gland infection is caused by bacteria, fungi, mycobacterium and parasites. Staphylococcus aureus is one of the most common causes of acute thyroiditis. This infection causes pain and swelling in the front of the neck, fever, dysphagia, change in tone of voice. In the examination, warmth, redness, sensitivity of the thyroid gland may be determined [1].

Treatment: Administration of antimicrobial drugs and fluid replacement in case of abscess formation, surgical incision and drainage of the abscess [1-3].

Subacute thyroiditis

It may present as subacute granulomatous thyroiditis or painless thyroiditis (silent thyroiditis), an inflammatory disorder of the thyroid gland that is common in women aged 40 to 50 years. Painless thyroiditis often occurs in the postpartum period and is thought to be caused by an autoimmune process [4-6].

Symptoms: It appears as a painless swelling in the front of the neck, it lasts for about one to two months. It recovers spontaneously without any complications. Symptoms of hyperthyroidism or hypothyroidism may be seen. Weight loss, restlessness, insomnia and nervousness and difficulty in swallowing are common pharyngitis [7-9]. The aim of

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treatment is to control inflammation and relieve pain, which is relieved by non-steroidal anti-inflammatory drugs. ASA should be avoided in case of hyperthyroidism [9].

Chronic thyroiditis: Hashimoto's disease

It is also called chronic lymphocytic thyroiditis and is seen mostly in women between the ages of 30 and 50. Its diagnosis is based on the presence of inflammation in the thyroid tissue sample. Probably, cellular immunity and genetic factors play an important role in the occurrence of this disease [10-12].

This type does not have pain, fever and pressure symptoms, thyroid function is normal or less than normal.

Treatment: The goal of treatment is to reduce the size of the thyroid gland and prevent hypothyroidism. In case of hypothyroidism, replacement of thyroid hormone and in case of persistent pressure symptoms: Surgery for chronic thyroiditis. If left untreated, chronic thyroiditis has a slow and progressive course and eventually leads to hypothyroidism [12].

Thyroid tumors

The classification of thyroid tumors is based on whether they are benign or malignant, the presence or absence of thyrotoxicosis, the diffuse and irregular size of the thyroid gland. If the size of the thyroid gland is seen as a swelling in the neck, it is called goiter, which has different types. Its types include:

- **Toxic goiter:** Goiter with hyperthyroidism;
- **Non-toxic goiter:** Goiter with normal thyroid function (euthyroid) [13];
- **Simple or endemic goiter:** Thyroid hypertrophy (compensatory in response to TSH increase);
- **Nodular goiter:** Regional hyperplasia of the thyroid gland, in the form of a nodule and endemic nodular goiter (due to iodine deficiency).

Endemic goiter

The most common type of goiter is caused by iodine deficiency and is also called simple goiter or keloid.

- Iodine deficiency;
- Excessive consumption of goiter-causing substances (iodine, lithium);
- Compensatory hypertrophy of the secondary thyroid gland is caused by the stimulating effect of the pituitary gland. The pituitary gland controls the release of thyroid hormone from the thyroid gland by producing thyrotropin or TSH. When thyroid activity is lower than normal due to lack of iodine to produce thyroid hormone, TSH increases [14].

Symptoms: These goiters usually have no symptoms except swelling in the neck area, but if the thyroid gland is too large, it may put pressure on the trachea.

Correction of iodine deficiency, the use of iodine-containing products, such as SSKI, to suppress the stimulating activity of the pituitary gland, and if surgery is required (prescribing antithyroid drugs before surgery) are less common. It is more in women than men [15].

Nodular goiter

Regional hyperplasia of the thyroid gland is called nodular and nodular goiter, which is caused by iodine deficiency. It usually has no symptoms, but sometimes it causes local pressure symptoms. Some become malignant or cause symptoms of hyperthyroidism. Surgery may be required [16].

Types of thyroid cancer

Papillary adenocarcinoma: It is the most common thyroid cancer with the least invasive 70%. Atypical nodule in a normal gland, onset

in childhood or early puberty, local growth in case of untreated lymph metastasis [17].

Follicular adenocarcinoma: Appearing after 40 years of age, elastic on touch without capsule and relatively poor prognosis, 15%.

Medullary: Appearance after 50 years of age, part of multiple endocrine neoplasia syndrome, metastasizing through lymph, moderate prognosis [18].

Anaplastic: 50% of cases in patients over 60 years old, hard and irregular mass with rapid growth and direct spread to surrounding tissues, survival rate is usually less than 6 months.

Thyroid lymphoma: Appearing after the age of 40, sometimes with a history of goiter, harshness of voice, shortness of breath, pain and feeling of pressure, good prognosis. Lesions that are stable and immobile on palpation and are associated with cervical lymphadenopathy suggest the possibility of malignancy [19-21].

Check and diagnose

- Physical examination: Isolated lesions, hard and fixed and motionless;
- TFT;
- FNA;
- MRI;
- CT-scan [22];
- Radioactive iodine absorption test.

The choice is surgery, total or near-total thyroidectomy, radioactive iodine, thyroxine drug, radiation therapy.

Nursing care

- The best position after surgery is half-sitting with head support with several pillows.
- After surgery, there is a possibility of hypocalcemia due to the removal or injury of the parathyroid gland, so the nurse should carefully check the symptoms of calcium deficiency.

- There is a possibility of laryngeal spasm, damage to laryngeal nerves, and airway obstruction after thyroidectomy due to the risk of parathyroid removal and hypocalcemia, and the patient should be carefully monitored for signs of respiratory distress after surgery, hypocalcemia, and tetany.
- Complications of thyroidectomy surgery include: Bleeding, hematoma formation, swelling of the glottis and damage to the nerves of the larynx.

Parathyroid gland

An overview of the anatomy and physiology of the parathyroid gland: Every human naturally has four parathyroid glands, which are located in the neck area and the posterior surface of the thyroid gland. Parathyroid hormone is secreted from the parathyroid gland. At the time of decreasing the amount of phosphorus, the release of PTH hormone is increased, which leads to an increase in the absorption of calcium from the kidney, bone intestine, and increases blood creatinine, increasing blood calcium through a negative feedback mechanism reduces the production of parathormone hormone. Some actions of parathormone done by vitamin D. Excessive secretion of parathormone increases the serum level of calcium to a significant and lethal amount. If the serum calcium concentration increases, calcium may be deposited in different organs of the body (kidneys), which causes tissue calcification [23].

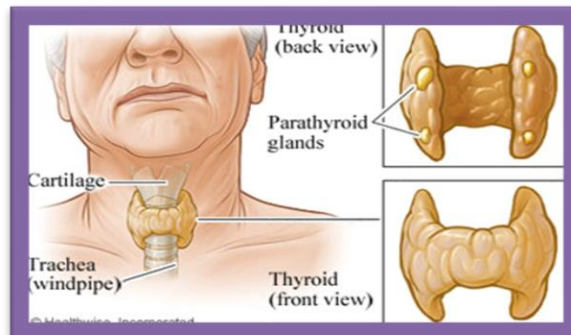


Figure 1. Thyroidectomy: What to Expect at Home

Parathyroid gland disorders

Hyperparathyroidism: It is characterized by the excessive secretion of hormones from the parathyroid gland with the reduction of bone mineral salts and the appearance of calcium-containing kidney stones. It is divided into primary and secondary:

Primary type: It is a disorder in the parathyroid gland, it is the most common cause of benign adenomas, it is 2-4 times more common in women than in men, it is seen in the ages of 60 to 70 years.

Secondary type: Occurs in patients with kidney failure, due to phosphorus retention, the stimulation of the parathyroid gland increases and the parathormone hormone increases. Generally, it occurs after increasing the natural effects of PTH hormone and hypercalcemia [24]. An increase in PTH hormone leads to an increase in calcium removal from bones and osteopenia. In the renal system, the increase in PTH leads to an increase in the reabsorption of phosphorus and calcium and an increase in the excretion of bicarbonate from the body. Also, increasing the production of activated vitamin D increases calcium reabsorption from the digestive system [23-25].

Clinical signs

- In some patients, it may be asymptomatic or show the involvement of several systems.
- Indifference, fatigue, muscle weakness, vomiting and nausea, constipation and high blood pressure, irregular heartbeat, all these symptoms are related to the increase of calcium in the body.
- The effect of calcium on the brain and nervous system can be observed in the form of instability to the state of psychosis.
- Stone formation in one or both kidneys (the most important complication of hyperparathyroidism).
- Muscular and skeletal symptoms: bone pain and sensitivity, short stature, morbid fracture.
- Gastrointestinal involvement: Pancreatitis, peptic ulcers [26].

Laboratory tests

- Increased calcium serum level (non-specific);
- Increased parathormone serum level;
- Bone changes in the radiology picture;
- Sonography;
- Thallium scan;
- X-ray bone scan;
- MRI;
- FNA biopsy [27].
- The first step is to treat hypercalcemia including administration of normal saline serum and oral diuretics (ethacrynic acid);
- Restricting the intake of oral calcium and replacing potassium and phosphorus (phosphate reduces serum calcium by inhibiting the absorption of calcium from bones.);
- Prohibition of receiving thiazide drugs because it reduces the excretion of calcium in the urine and increases the serum calcium level;
- In primary hyperparathyroidism, the selective treatment is surgical removal of abnormal parathyroid tissue, fluid therapy (2000 cc daily);
- The use of Qara Qart extract (to reduce the PH of urine) [28]
- If the serum calcium level is slightly increased and the kidney function is normal, the operation is postponed and the patient is monitored for hypercalcemia,

bone destruction, kidney dysfunction, and kidney stones;

- Encouraging the mobility of the patient, reducing the absorption of calcium from the bones, reducing the urinary excretion of calcium from the kidney and reducing the risk of kidney stone production [29];
- Low calcium diet (almonds, hazelnuts, cabbage, dairy products, pasta and eggs).

Care after surgery

- Openness of the airway, correction of dehydration and prevention of dehydration, prevention of immobility, diet.

Note: The earliest symptom after surgery is tetany. We educate the patient about the symptoms of hypocalcemia and remind the patient about calcium control.

Complications of acute calcium crisis: Hypercalcemia, calcium above 13 mg/dl, which is life-threatening.

Serum therapy, calcitonin, diuretics, corticosteroids, which lead to increased calcium deposition in bones and decreased serum calcium [30-32].

Hypoparathyroidism

Inadequate secretion of parathyroid hormone that occurs after the reduction of parathyroid hormone, the causes of its development include:

- **Surgery:** Cutting off the blood supply to the parathyroid glands or removing them during thyroidectomy or parathyroidectomy;
- **Idiopathic:** Atrophy of parathyroid glands with unknown cause;
- **Functional:** Chronic increase in blood magnesium leads to disruption of PTH release.

It is related to parathormone deficiency which leads to an increase in blood phosphate

(hyperphosphatemia) and a decrease in blood calcium (hypocalcemia).

In the absence of parathormone

- Decreased intestinal absorption of calcium;
- Removal of calcium from bones;
- And its reabsorption from the renal tubules [33].

Conclusion

The excitability of the neuromuscular system becomes numbness, tingling of the lips, fingers, tetany, laryngeal stridor, headache, convulsions, depression and delirium.

Diffuse muscle hypertonia with uncoordinated tremors and contractions. Numbness, tingling, itching, muscle cramps and stiffness of hands and feet.

- Spasm of the larynx and bronchi;
- Spasm of fingers and toes;
- Fear of light;
- The presence of a positive Truso and Shuvestak sign.

Cardiac manifestations: Prolongation of QT and ST, reduction of cardiac output due to CHF, resistance to digitalis, decrease in blood pressure.

Ocular manifestations: Cataract, blindness, sensitivity to light.

Skin manifestations: Brittle nails, dry skin, skin infection.

Laboratory tests: Tetany occurs when calcium levels reach 5 to 6 mg/dL or less.

- **Trousseau's sign:** Stoppage of brachial blood flow, carpopedal spasm;
- Chvostek's sign: A quick hit on the pink nerve in front of the parathyroid gland and in front of the ear causes tremors and spasms in the mouth, nose and eyes;
- Tetany in low serum level of calcium and increased phosphorus;

- Increased bone density in X-ray and calcification studies.
- The goal of treatment is to increase the calcium serum level to 9 to 10 mg/Dl;
- Prescribing Vitamin D;
- Oral calcium tablets;
- Or calcitriol containing calcium, magnesium, vitamin D2;
- Thiazide diuretic: Reducing calcium excretion from urine.

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