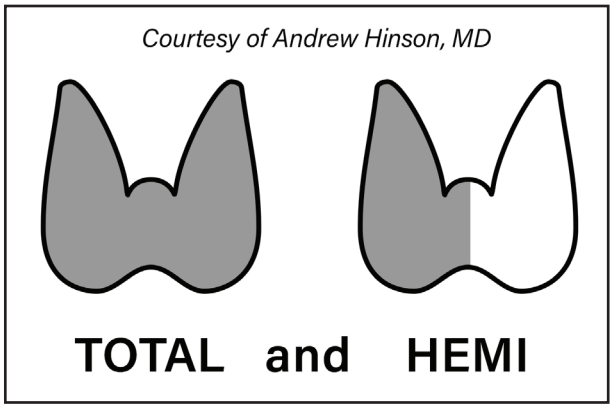
Thyroid Surgery

NORMAL FUNCTION OF THE THYROID GLAND

Your thyroid gland is a butterfly-shaped gland located in the lower front of your neck. The job of your thyroid gland is to make thyroid hormones. Thyroid hormones are released into your blood and carried to every tissue in your body. Thyroid hormones help your body use energy, stay warm and keep your brain, heart, muscles, and other organs working normally.

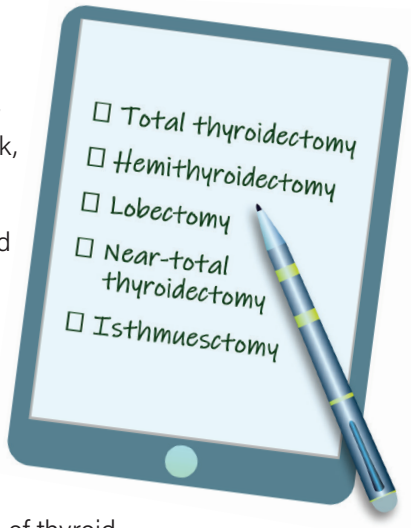
THYROID CONDITIONS THAT CAN BE MANAGED WITH SURGERY



Certain thyroid conditions can be managed with surgery to remove part of the thyroid, or the entire thyroid gland. Sometimes, your doctor may refer you to a thyroid surgeon to get more information about how surgery compares to other treatments.

1. Thyroid nodules that are suspicious for thyroid cancer based on thyroid biopsy (aka fine needle aspiration biopsy or FNA) and/or molecular testing
2. Thyroid cancer
3. Enlarged thyroid gland (aka goiter) that is causing problems with difficulty laying down, swallowing, or breathing.
4. Hyperthyroidism that is caused by a thyroid nodule that is overproducing thyroid hormone (aka toxic nodule) or by conditions that affect the entire thyroid gland (Graves' disease, toxic multinodular goiter).

COMMON TYPES OF THYROID SURGERIES



The thyroid is a butterfly shaped gland in the neck, which wraps around the trachea. There is a left half called the left thyroid lobe, and the same on the right. There is a narrow connection between the two that is called the thyroid isthmus. The reason for thyroid surgery can help patients and clinician decide the type of thyroid surgery that is needed. The most common types of thyroid surgery are:

1. **Total Thyroidectomy** – The entire thyroid gland is removed. Patients that undergo complete removal will require lifelong supplementation with thyroid hormone after surgery. Complete removal is typically necessary for high-risk thyroid cancers, Graves' disease, and large goiters.
2. **Thyroid Lobectomy** – One of the two lobes (half) of the thyroid is removed. Depending on your current level of thyroid function, there is a possibility the remaining half of the thyroid can produce all the hormone your body needs. If not, you may still need to take thyroid hormone supplements life-long.
3. **Isthmusectomy** – The isthmus is the bridge of thyroid tissue connecting the left half to the right half.

THYROID OPERATIONS MAY ALSO INCLUDE:

1. **Central neck dissection** – This term refers to removal of all the lymph nodes that live next to the thyroid in the middle of the neck. This is performed for patients with thyroid cancer in order to remove lymph nodes that may have spread from thyroid cancer cells into them. Central neck dissections are called *therapeutic* when lymph nodes that appear abnormal are being removed. Central neck dissections done as a precaution when the lymph nodes appear normal is called *prophylactic*.

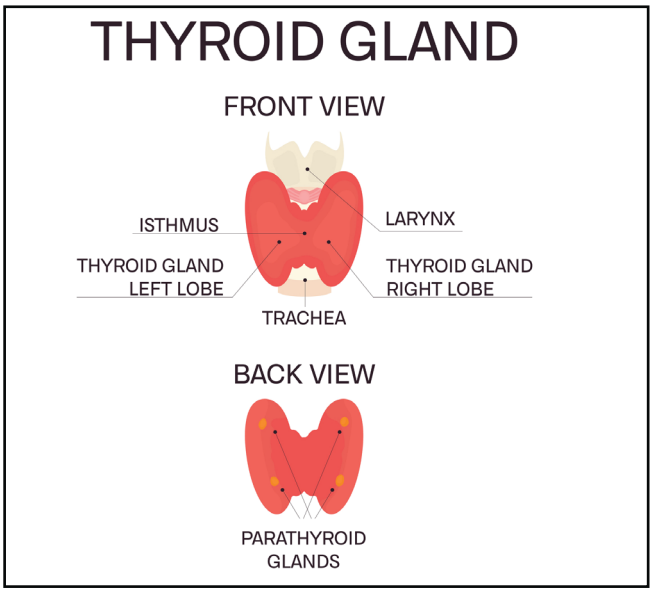
THYROID SURGERY

COMMON TYPES OF THYROID SURGERIES (continued)

2. **Lateral neck dissection** – Similar to central neck dissection, lateral neck dissection (aka modified radical neck dissection) refers to removal of the lymph nodes on the right or left side of the neck. For thyroid cancer, this typically involves the lymph nodes from the collarbone to below the ear.
3. **Median sternotomy** – This term refers to cutting the breastbone in the middle of the chest. Some goiters grow very large and extend into the chest, and those patients may need the help of a thoracic surgeon to open the sternum to safely remove the large goiter.

LESS COMMON, BUT WELL-KNOWN THYROID OPERATIONS:

1. **Trans-oral Thyroidectomy** – Removal of the thyroid through 3 cuts placed inside the mouth behind the lip. This can also be performed using robotic surgery as well. The main advantage is leaving no visible scar on the neck but the downside is that it does add some additional surgical risks.
2. **Bilateral Axillo-Breast Approach (aka BABA)** – Thyroid is removed through incisions placed under the armpit and below the breast. Similar to trans-oral, this leaves no visible scar in the neck but adds additional surgical risk.
3. **Sub-total or Near-total Thyroidectomy** – In these operations, the surgeon chooses to leave a small portion of the thyroid behind. Most thyroid surgeons no longer perform this procedure, because it can lead to an incomplete surgery and does not reduce risk of nerve injury.



RISKS ASSOCIATED WITH THYROID SURGERY

Every operation involves some risk. Here are the main risks associated with thyroid surgery:

Hoarse Voice: The recurrent laryngeal nerves are important nerves that control the vocal cords and your voice. If the nerve is irritated during the operation, it stops sending signals to the vocal cords, which gives patients a hoarse voice. This can also cause difficulty swallowing thin liquids like water, since the vocal cord also help block liquids from splashing into the airway. There is a 5-7% risk of temporary hoarseness that gets better on its own as the nerve has time to recover. There is a 0.5% risk of permanent nerve injury. If that occurs, the voice can still be brought back to normal with additional procedures. Nerve monitoring can be used to preict the function of the nerves but does not prevent injury.

Change in Projection / Singing Voice: The external branch of the superior laryngeal nerve is another nerve that lives just above the thyroid. This nerve controls a muscle that helps you project your voice and reach a high pitch when singing. Risk of injury is low, but can result in change in singing voice and ability to yell. The most common voice change is deepening of the voice from scarring on the muscles and nerves on the outside of the voice box.

Low Calcium / Hypoparathyroidism: The parathyroid glands are four tiny glands that live next to the thyroid and control our body's calcium levels. When patients undergo total thyroidectomy, there is a 1-3% chance that all four glands can be damaged or accidentally removed, there is also the risk that 1-2 of the parathyroid glands are affected but not all. If that happens, patients will not have enough parathyroid hormone, causing them to have low blood calcium. The main symptom of low calcium is typically numbness and tingling in the digits and around the lips. In severe cases, it can cause muscle cramps. When patients undergo thyroid lobectomy, there is no risk of low calcium. Low calcium is treated with oral calcium and vitamin D.

Wound Infection: Less than 1% of patients will experience a wound infection. Since the neck is a clean area this happens very infrequently. Infections are typically treated with antibiotics, but may need surgical drainage in severe cases.

Neck Hematoma: Rarely, bleeding after surgery can lead to a build-up of blood in the neck called a hematoma. This can lead to neck swelling and bruising. When severe, this can cause difficulty breathing and require emergency surgery. Bleeding usually occurs in the first 2 hours after surgery, but patients will need to avoid heavy lifting for 2 weeks.

Learn More More details on this and other thyroid-related topics are available online at *www.thyroid.org*.

For information on thyroid patient support organizations, please visit the *Patient Support Links* section on the ATA patient information page at *https://www.thyroid.org/patient-thyroid-information/*.