



## Thyroid Surgery

### Overview

Thyroid surgery is advised for patients who have a variety of thyroid conditions, including both cancerous and benign (non-cancerous) thyroid nodules, large thyroid glands (goiters) and overactive thyroid glands. The following are common questions patients should be aware of when thyroid surgery is recommended.

### What is the thyroid gland?

The thyroid gland located in the neck produces thyroid hormones which help the body use energy, stay warm and keep the brain, heart, muscles, and other organs working normally.

### Why do I need surgery?

Without a doubt, the most common reason a person needs thyroid surgery (part or all of his/her thyroid removed) is due to a worrisome mass or nodule. Many times, these masses have been biopsied with a small needle (fine needle aspiration, or FNA) and the nodule has been found to be abnormal. It may have been found to be a cancer, a nodule highly suspicious for cancer or inconclusive and in need of further testing. In these instances surgery is usually the next step.

In some cases, a person may need his/her thyroid removed due to its extreme size (goiter), nodules that are benign but otherwise causing bothersome symptoms (due to their size or over-functioning) or as a treatment for difficult-to-control hyperthyroidism.

### How much of my thyroid gland needs to be removed?

Patients should discuss with the surgeon what operation on the thyroid is to be performed and how much of the thyroid should be removed.

### Are there other means of treatment?

Surgery is definitely indicated for a diagnosis of thyroid cancer or the possibility of thyroid cancer. In the absence of a possibility of thyroid cancer, there may be non-surgical options of therapy. You should discuss other options for therapy with your physician.



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### How should I be evaluated prior to the operation?

All patients considering thyroid surgery should be evaluated preoperatively with a thorough and comprehensive medical history and physical exam, including cardiopulmonary (heart and lung) evaluation. Any patients who has had any change in voice or who have had a previous neck operation should have their vocal cord function evaluated preoperatively.

### What kinds of surgeries are available?

There are three basic kinds of thyroid surgery.

1. Removal of one half of the thyroid (lobectomy)
2. Removal of almost all of the thyroid (sub-total thyroidectomy), where only a small amount of thyroid is left behind
3. Removal of all of the thyroid (total thyroidectomy)

The surgery that is right for your circumstances will be determined after a consultation with your surgeon. When the surgery is being done for cancer, it will frequently also involve removal of lymph nodes in the areas around the thyroid gland.

Most thyroid surgery is accomplished through a small incision on your lower neck. However, new techniques are being developed, some with the help of a surgical robot, that allow for the incision to be hidden in your axilla (arm pit) or along the back of your neck.

### What are the risks of thyroid surgery?

In addition to the usual risks of any surgery, there are three main risks associated with thyroid surgery, all of which are rather uncommon.

1. Injury to the nerves (recurrent laryngeal and superior laryngeal nerves) that control vocal cords. These course right behind the thyroid gland. This could result in hoarseness, inability to sing high notes and in unusual and extreme cases and/or difficulty with breathing.
2. Injury to your parathyroid glands, which are responsible for regulating calcium levels in the body. This can result in temporary or permanent problems with low calcium levels.



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### **What are the risks of thyroid surgery? *continued***

3. Bleeding. This is a rare but serious problem because it can cause difficulty with breathing due to the fact that the patient's trachea (windpipe) lies right below the thyroid gland and significant bleeding can compress the trachea.

### **How do I select a surgeon?**

Thyroid surgery is best performed by a surgeon who has received special training and performs thyroid surgery on a regular basis. The complication rate of thyroid operations is lower when the operation is done by a surgeon who does a considerable number of thyroid operations each year.

### **What is Afirma® gene expression testing and how do the results affect my care?**

Many thyroid nodules cannot be classified as benign or malignant based on the results of a needle biopsy. These indeterminate or "suspicious" nodules are generally recommended for surgical removal to allow for a diagnosis. However, gene expression testing is a new technology that provides additional information about the proteins that are expressed by a nodule and its risk of cancer. Afirma® gene expression analysis helps guide decision-making for indeterminate nodules and may alter whether a patient is recommended for surgery. If a nodule has a benign Afirma® profile, it is unlikely to be cancerous and can be safely observed without surgery. Nodules that have a suspicious gene expression profile are recommended for surgical removal. Afirma® testing can be performed by an in-office needle biopsy.

### **What is minimally invasive surgery?**

Minimally invasive techniques allow surgeons to use smaller incisions and directed-dissection to perform surgery with less scarring and disruption of the tissues. For minimally invasive thyroid surgery, incisions can be as small as three cm (just over one inch) and can be outpatient procedures in certain cases.



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### **What do I need to do to prepare for surgery?**

Depending on your age and other health issues, you may need very little further workup or you might be asked to complete blood tests, EKGs, among other tests to be sure you are safe for surgery. As with all surgery, patients must stop eating or drinking after midnight the day before the surgery so they are sure to have an empty stomach during the surgery.

Depending on the reason for surgery (such as certain kinds of cancers) and/or your family history, you may need a more extensive workup to look for other kinds of tumors that can be found in certain conditions. For example, if you have some preexisting hoarseness in your voice, you may need to have a formal evaluation of your vocal cords prior to any thyroid surgery. Speak with your physician about any preexisting conditions.

### **What can I expect the day of surgery?**

You will present to the preoperative check-in several hours before the surgery. Any remaining hospital paperwork will be completed, an IV will be started and you will see your surgeon, the operating room staff and anesthesiologist. The length of the surgery varies depending on the surgical need; it can last as little as one hour to several hours. From the operating room, you will be transported to the recovery room where you will be watched closely after the surgery. Once you are stable and fully awake, you will most likely be moved to a regular hospital room and if all goes well, discharged the next day. In general, the incision used for a thyroidectomy is not terribly painful and any discomfort is usually effectively treated with mild oral narcotics. You may experience a sore throat that should subside fairly quickly. Your diet is generally unrestricted.



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### What is a typical recovery after thyroid surgery?

After surgery, you will have a sore throat, and some swelling and discomfort at your incision in the lower neck. Many patients are able to manage this discomfort WITHOUT narcotic pain medications.

- You will be able to eat, drink and talk immediately
- Driving is allowed as soon as patients have stopped narcotic pain medications, and feels able to turn their necks for safe driving (usually 4-5 days)
- Most patients are fully recovered and back to work within 1 week
- Strenuous activity and heavy lifting are restricted for 1-2 weeks
- Some patients may require additional recovery time, especially if a more extensive surgery is required, such as for thyroid cancer

### What are the complications of thyroid surgery?

Thyroid surgery, like all surgery, carries the standard risks of anesthesia, a small risk of bleeding or infection, and the risk of other complications related to a patient's underlying health problems. However, thyroid surgery is typically considered safe and complications rates are low when performed by an experienced surgeon.

There are several additional complications that are specific to thyroid/neck surgery:

- The most common complication after thyroid surgery is low calcium, caused by disruption of the parathyroid (calcium) glands that sit behind the thyroid. This is usually temporary and you may require extra calcium and/or a special form of vitamin D in the days or weeks after surgery. Depending on the extent of surgery and your anatomy, parathyroid glands may even be moved or auto transplanted to another location, usually to the muscle on the side of the neck, and may take additional time to recover.



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### **What are the complications of thyroid surgery? *continued***

- Voice changes can occur for many reasons after thyroid surgery but are rarely problematic or permanent. Swelling and inflammation in the throat, at the vocal cords, around the vocal cord nerves and in the neck muscles can lead to temporary hoarseness or voice tiring. Singers often notice subtle changes in their pitch and/or vibrato immediately after surgery that resolves over time. Permanent voice weakness due to injury of a vocal cord nerve (recurrent laryngeal nerve) is rare, typically less than 1% for experienced surgeons. Additional procedures can be performed to strengthen a weak voice but are rarely required. Injury or loss of both nerves requiring placement of a breathing tube or tracheostomy is exceedingly rare. Many surgeons including those on staff at Rose Medical Center use special monitoring tubes to keep track of a patient's recurrent nerves and vocal cord function during surgery.

### **If I have half of my thyroid removed, will I have to take thyroid hormone pills?**

Most people can maintain adequate thyroid hormone levels with only half of the thyroid gland. If you have underlying thyroid problems such as Hashimoto's disease or underactive thyroid, you may need to take a hormone pill after surgery. Your doctor will be watching your hormone levels before and after surgery to determine your body's need for supplemental hormone pills.

### **What is robotic thyroid surgery and is it right for me?**

Robotic techniques are available to allow surgeons to perform thyroid surgery from hidden incisions in the armpit or behind the ears. This approach moves the incision so it is not visible on the front of the neck. Recovery has been similar to traditional thyroid surgery.

**However**, because robotic surgery has additional risks, takes longer than traditional open surgery, and is lacking adequate safety and outcomes research, the FDA suspended its approval of robotic thyroid surgery in October 2011. The FDA is re-investigating robotic thyroid surgery and may re-approve it in the future. Without the approval of the FDA and the support of the manufacturer, Rose Medical Center cannot offer or promote robotics at this time.



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### **I have thyroid cancer. What additional treatment can I expect?**

Most patients with thyroid cancer will be recommended to have their entire thyroid gland removed along with a sampling of lymph nodes from around the thyroid, referred to as a central neck dissection, in order to evaluate for spread and guide therapy. More extensive removal of lymph nodes may be required if the spread of the cancer to the lymph nodes is identified prior to surgery diagnosed by ultrasound or physical examination. The need for additional treatment, such as radioactive iodine, is determined by the surgical findings and final pathology. Your care will be individualized based on the type and extent of cancer and will also take into account other medical conditions.

### **I just found out I have thyroid cancer but I'm pregnant. Is it okay to delay surgery?**

Generally, thyroid cancer is a slow-growing tumor and takes many years to grow and spread. Most experts will recommend waiting until after delivery to proceed with treatment for thyroid cancer as the risks of delaying treatment are thought to be minimal, and surgery and possible side effects may pose additional problems for the pregnancy. Early induction of labor also is not typically recommended and many physicians will also allow new mothers time to recover from childbirth and breastfeed prior to proceeding with treatment.

### **What is life like after thyroid surgery?**

Normal activities can be resumed once you are home. In general, most surgeons allow a patient to resume showing 24 hours after surgery and prefer that you participate in no strenuous activities for 10-14 days. Please follow your surgeon's discharge instructions and particular restrictions carefully and keep any requested follow up appointments.

Once fully recovered from surgery, you should be able to live life without any restrictions. Depending on your surgery, you may need to take thyroid hormones to replace the thyroid function you lost. This is particularly true if you underwent a subtotal or total thyroidectomy. If you will need radioactive iodine after the surgery (see our educational piece *Radioactive Iodine Treatment Thyroid Cancer pdf*), you will likely not start thyroid replacement until after you have completed this treatment.