NORTH COUNTY EAR, NOSE AND THROAT –
HEAD AND NECK SURGERY
Pediatric and Adult
2023 West Vista Way, Suite J
Vista, California 92083
(760) 726-2440 Fax (760) 726-0644

Parathyroid Surgery

It is recommended that you undergo a parathyroid surgery called a:

_____ removal of right / left parathyroid gland adenoma (with possible removal of additional gland(s)
_____ multiple gland parathyroid exploration, bilateral

What is a parathyroid gland?

Parathyroid glands are small, pea-sized glands located in the front of the neck by the wind-pipe. Most patients have four parathyroid glands, two behind each side of the thyroid gland (see below). Sometimes a parathyroid gland is located inside of the thyroid gland. 15% of patients have five or more parathyroid glands and rarely someone will only have three. The location can vary, for example 2% of patients will have one of the parathyroid glands located down in the chest. Parathyroid glands produce parathyroid hormone, which is critical in the endocrine regulation of calcium and phosphate levels throughout the body.

What is the thyroid gland?

The thyroid is a butterfly-shaped gland located in the front of the neck just below the voice box (Adam's apple). It is a small, soft gland that wraps around the front of the trachea (windpipe). The gland uses iodine to produce thyroid hormone, which has a key role in regulating such functions as energy level, heart rate, rate of metabolism, mental alertness, menstrual periods, and body temperature.

When is parathyroid surgery needed?

Surgery of one or more parathyroid glands is usually indicated for a benign tumor of one of the glands called a parathyroid adenoma. Adenomas produce too much parathyroid hormone which leaches calcium from the bones causing osteoporosis and an increased risk for fractured bones. Circulating blood levels of calcium are increased ("hypercalcemia") which can lead to kidney stones, stomach aches, mental/thought changes, headaches, heart arrhythmias and generalized muscle aches. Rarely the tumor can be malignant (cancerous).

Surgery may also be indicated if one or more glands are "hyperplastic" or overactive, without necessarily having an adenoma. This frequently happens in two or more glands at a time so might be called "multiple gland hyperplasia." This is most common in kidney failure/dialysis patients.

How is parathyroid surgery usually performed?

Parathyroid surgeries are performed in the Tri-City Medical Center operating room under a general anesthetic. The surgery may take anywhere from 1.5 hours to 4 hours.

An incision is made in the front of the neck along the collar line. The underlying muscles are opened to expose the thyroid gland. The thyroid gland is folded over to expose the parathyroid glands while taking great care not to injure nearby blood vessels or nerves. Occasionally, a parathyroid gland may be

imbedded in part of the thyroid gland such that a portion of the thyroid gland itself needs to be removed. If an adenoma is suspected, surgery can usually be performed on just one side. If multiple gland hyperplasia is suspected, surgery usually involves both sides (still only one neck incision). A parathyroid gland may be "transplanted" into a nearby muscle within the same incision with the intention that it may recruit new blood supply from that muscle and function again in the near future. Every attempt is made to leave at least one complete parathyroid gland in the body. The muscles are closed over and the skin incision is closed with sutures that will be removed soon after your operation.

What is meant by "vocal cord paralysis"?

A "recurrent laryngeal nerve" is located very close to the back side of the thyroid gland, one on either side. They run right by the parathyroid glands. Each nerve is in charge of the vocal cord movement on that side of the voice box. A nerve may be temporarily stretched or bruised, resulting in temporary hoarseness. This could last several months after surgery. A nerve may be more severely damaged or cut, resulting in permanent hoarseness. There are procedures to help with the voice.

During a parathyroid gland surgery involving both sides, both nerves are at risk of simultaneous injury. When both nerves are paralyzed (whether temporary or permanent), the vocal cords will close together and block the airway. This is life-threatening and may require a temporary tracheotomy to bypass the area of blockage in order to save your life (see *Risks* below).

These are very rare complications but receive alot of attention because they are so serious.

I carefully identify and protect the course of the nerve(s) during surgery. However, mild bruising and stretching of the nerve may occur as I am gently pushing it aside to protect it.

As mentioned below, the breathing tube used for the general anesthetic commonly causes temporary hoarseness. If I have a concern immediately after the surgery for notable hoarseness, I will pass a thin flexible camera through the nose to look at the voice box from above. This will determine whether the hoarseness is from vocal cord palsy or the breathing tube.

Do I need blood work or other tests before surgery?

All patients will have a blood clotting tests and a complete blood count. Females may have a pregnancy test. According to your age, other medical conditions, and the type of surgery planned, you may need to have additional blood work, an EKG, a chest x-ray, and/or see another specialist for "medical clearance" before the surgery. Usually thyroid and parathyroid blood testing has already been done.

What happens at the time of surgery?

This is considered a major surgical procedure. On the day of surgery, the anesthesiologist (or nurse anesthetist), operating room nurse, and myself will see you at the pre-operation holding area. An I.V. may be placed and sedation may be given. You are then taken to the operating room.

Once under anesthesia a breathing tube is placed. The surgery is detailed above. Following the surgery, we go to the recovery room and I will go talk to your family, whom you will see once you are more fully awake.

I often get asked if I use lasers or endoscopes ("minimally invasive surgery") during parathyroid operations. Although I use lasers and endoscopes for other types of head and neck surgery, I do not use

them for parathyroid surgery. I do not feel the safety or efficacy has been fully proven for parathyroid surgery.

In the recovery room you may be awake enough to notice EKG (heart monitor) wires, an oxygen probe on the fingertip, a blood pressure cuff, a mask on your face blowing humidified oxygen, a lot of nurses, technicians, beeping, and buzzing. All of this is normal! It is not uncommon for you to be very nauseous and vomit. We give the best medicines to prevent this but it is still common. The I.V. remains in place until you are discharged.

Do I need to stay the night?

All patients stay the night in the hospital. Depending on other medical conditions you may even be admitted to the ICU to monitor breathing and vital signs. Most patients go home the day after surgery but if the calcium level is too low, you may require another one or two night's stay.

I will check your calcium levels the afternoon or evening of surgery and again the next morning. Additional checks may be necessary.

All patients will have a "drain" (a long, narrow, plastic tube coming out from the incision and connected to a suction bulb) to continuously evacuate blood and serous tissue fluid. Most patients will go home with the drain (with instructions for caring for it) and have it removed in the office 2 to 4 days after surgery.

What should I expect after surgery?

Energy will be fairly low and it may be difficult to drink and talk. However, drinking is essential and fluid intake must be high enough to generate urine output at least several times a day. Vomiting is also common during the first 24 hours after surgery and is due to general anesthesia. You may have a very sore throat or be hoarse because of the breathing tube. This can last 1 to 5 days.

Sleeping semi-upright is encouraged to minimize swelling within the skin and deep in the neck. Many patients sleep in a recliner chair for 3 to 4 days after they go home.

Pain is manageable with the pain medication prescribed. However, it may linger for over 2 weeks. Expect headaches, neck aches, and fatigue for about 1 month after surgery. You should not be afraid to move your head as you wish starting the day of surgery. In fact, gently flexing, rotating, and stretching your neck muscles will minimize the stiffness. This will also help with the feeling of throat and neck "fullness" experienced by most patients which can last up to 2 months after surgery.

You are limited to rest and quiet activity for 10 days since vigorous activity can cause bleeding. Then gradually increase activities.

Do <u>not</u> take aspirin, ibuprofen, Motrin, or Aleve-type medicines for 10 days before or after surgery because they can cause bleeding. They must be avoided. Regular Tylenol is OK, but not within four hours of the prescribed pain medication since it, too, contains Tylenol (acetaminophen).

You should call the doctor for a sustained temperature over 101 (after 36 hours from surgery), persistent vomiting, bleeding as described below, or an inability to drink or eat for a 24 hour period.

A visit to my office will be arranged after the surgery. The exact timing will depend upon the status of your drain and the extent of surgery.

You may drive when you feel comfortable turning your head and are no longer taking narcotic pain medication.

What about my incision?

Most incisions are 3 to 4 inches long and heal quickly. I perform "plastic surgery" closures which will heal quite nicely. You will gently cleanse the incision and drain site three times a day with saline on a q-tip followed by an antibiotic ointment for 10 days after surgery. If needed, you should gently dissolve and "tease away" large blood crusts with a 50%/50% diluted hydrogen peroxide/saline mixture on a q-tip.

I will use as short an incision as possible, and, as such, I may need to stretch the skin significantly during the surgery. The stretched skin edges may initially darken and crust and be alarming in appearance. However, these areas heal beautifully and most patients prefer this than to have a longer incision.

There is swelling and firmness under the incision for several months. This is very pronounced above the incision and may worsen for 2 to 3 weeks before it starts to subside. The top edge may appear to bulge over the incision until the swelling subsides. Numbness along the incision improves over several months in most patients. Some patients have a limited area of permanent numbness.

Incisions are watertight after about 24 hours and you may shower at that time, even if you have a drain in place. Allow the soapy shower water to contact the incision but do not rub the incision for 10 days. Gently pat the area dry.

Incisions get redder and more noticeable for several months and then start to fade. However, the healing skin is sensitive to UV radiation and you should use Factor 50 sunscreen over the incision for one year after surgery to minimize darkening.

You are encouraged to start a Vitamin E-containing ointment or moisturizer starting 10 days after surgery and to start deep massage of the incision starting 2 weeks after surgery.

When can I return to school/work/sports?

This is at your discretion. Generally, you should plan on taking 2 weeks off. If your job requires a lot of physical activity or continual talking, you may consider taking 3 weeks. You may return earlier if doing well.

You may resume normal physical activity/sports after 2 weeks. However, some vigorous physical activity in certain sports may not be tolerated until 4 to 5 weeks after surgery.

What should I eat and drink?

Most patients have some difficulty swallowing food for 2 or more weeks after surgery. This is because I push on the esophagus (swallowing passage) during surgery. Therefore, you should stock up on liquids and soft foods. Rarely, a patient may have more prolonged difficulty swallowing (see *Risks* below).

Drinking is more important than eating. *Dehydration is common and can lead to more pain and even bleeding.* You should have at least 1 1/2 quarts of fluid a day.

What medications will I take at home?

A prescription narcotic pain medication will be given and you should purchase a triple antibiotic ointment. (You will have received strong I.V. antibiotics while an inpatient and do not need to be sent home on additional antibiotics). Pills may be crushed and slurried if needed. Caplets may be opened and slurried.

What are the risks of surgery?

1) Bleeding - There is a 1% chance of severe enough bleeding to require a return trip to the operating room and an additional 1% chance of bleeding that is managed without returning to surgery. There is less than a 1 in 1500 chance of requiring a transfusion.

The drain (discussed above) is in place to evacuate the blood that commonly weeps into the wound. Very rarely the drain can stop working. This may cause a hematoma (blood collection under the skin) which may require a procedure for evacuation. This is included in the above risk percent.

For one week you should be careful with any other activity that may increase blood pressure such as bending over to tie shoes or straining with a bowel movement.

2) Infection - There is a less than 0.5% chance of a wound infection. I.V. antibiotics are given before and after surgery in the hospital to minimize this chance.

3) Pain - Discussed above.

4) Difficulty swallowing - This to be expected and subsides as swelling subsides. There is a 1% chance of difficulty swallowing that lasts longer than 6 months after surgery.

5) Scar - A keloid may form in the incision. This is an overgrowth of scar tissue that may be raised and irregularly shaped. There is treatment to improvement the scar appearance. Keloids are more common in patients with a personal or family history of keloiding and in African Americans.

6) Need for post-operative calcium supplementation (temporary or permanent) - If your calcium falls too low after the operation, you will be given calcium supplements either by IV or by mouth. Less than 5% of patients require permanent calcium supplementation and 25% of patients require temporary supplementation (weeks to months). See details above.

The early signs of low calcium include numbness, tightness, or tingling around the lips or within the face or hands. There may also be actual muscle spasms. You should tell your nurse (while an inpatient) or go the emergency room or call the office (if already discharged) if these symptoms arise. You would have your calcium level checked, a few other electrolytes checked, possibly have an EKG, and possibly be started on calcium supplementation.

7) Hoarseness - There is a 1% chance of permanent paralysis of a vocal cord. There is a 2% chance of temporary vocal cord paralysis. There is a 1 in 1500 chance of paralysis to both vocal cords. If one vocal cord is paralyzed your voice will be breathy. If both vocal cords are paralyzed, your voice box will close off after the breathing tube is removed and you may need an emergency airway through your neck into your windpipe (tracheostomy). There is a 3% chance of paralysis to the superior laryngeal nerve, resulting in temporary or permanent (mild) deepening of the voice. This may be socially significant if you are a singer or public speaker. See details above.

8) Failure of surgery to improve symptoms or to adequately decrease the parathyroid hormone and calcium levels.

What are the alternatives to surgery?

The alternatives are not to have surgery and, instead, to continue to tolerate the side effects of the elevated calcium level.

Please let me know if you have any questions.

Julie A. Berry, M.D.