

Pituitary Gland Surgery

What to expect

This handout explains the pituitary gland and how surgery is done to treat tumors in the gland.

What is the pituitary gland?

The pituitary gland is at the base of the brain, behind the nose and sinuses, and below the hypothalamus gland. The pituitary makes hormones that control growth, sexual function, fluid balance, thyroid function, and more.

What is a pituitary tumor?

A pituitary tumor is a growth in the pituitary gland. These tumors are called *adenomas*. They grow very slowly. Most times, they are *benign*. This means they are not cancer and will not spread to other body tissues.

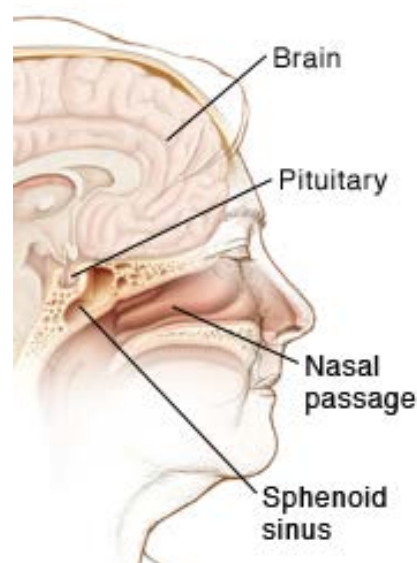
There are 2 kinds of pituitary tumors:

- *Secretory*, which give off hormones. These tumors release excess hormones into your bloodstream and cause problems in your *endocrine* (hormonal) system.
- *Non-secretory*, which do not give off hormones. These tumors can cause vision problems when they grow very large and press on your *optic* (vision) nerves. This can cause headaches and a loss of *peripheral* (side) vision.

What causes pituitary tumors?

We do not know exactly what causes a pituitary tumor. They can occur at any age, but they are more common in older people.

Women have them more often than men, and more often during their childbearing years.



The pituitary gland sits at the base of the brain, behind the nose and sinuses.

How are pituitary tumors treated?

Surgery is often done to remove pituitary tumors. A secretory tumor (*prolactinoma*) can sometimes be treated with medicines instead of surgery.

Most times, the surgery can be done through the *sphenoid sinus*, one of the air spaces behind the nose. This type of surgery is called *endoscopic transnasal transsphenoidal surgery* (ETSS). ETSS is used to treat tumors in the brain that cannot be reached by other methods. It can be used for both kinds of pituitary tumors.

What are the benefits of ETSS?

ETSS is a *minimally invasive procedure*. This means you will **not** have:

- Incisions in your scalp, inside your nose, or under your lip
- Scars or stitches that you can see

With ETSS:

- The surgeon does not need to do a *craniotomy* (short-term removal of a part of the skull).
- Your doctor will use an *endoscope* (a thin tube with a light and a camera on one end) to find the tumor.
- You will lose very little blood.
- Tumors as large as 5 cm can be removed.
- Most times, the tumor is removed without affecting the pituitary gland.
- Most patients can leave the hospital the day after surgery.

What risks are involved with ETSS?

Hypopituitarism

The most common risk is damage to the pituitary gland. *Hypopituitarism* (decreased hormone secretion) can be short-term or permanent. About 5% to 10% of patients (5 to 10 out of 100) who have tumors larger than 1 cm have hypopituitarism after their surgery. If this occurs, hormone replacement therapy is needed.

Diabetes Insipidus

Damage to the back of the pituitary gland can cause *diabetes insipidus* (DI). This condition causes great thirst and the need to urinate often. Most times, this problem goes away on its own within 3 to 5 days.

About 1% to 2% of patients (1 to 2 out of 100 patients) who have pituitary surgery have permanent DI. If this occurs, you will need to take a pill or use a nasal spray to control your symptoms.

Other Risks

These risks can happen with any surgery on the pituitary gland:

- Infection
- Bleeding or scarring in the nose
- Vision changes
- Loss of sense of smell or taste
- Injury to blood vessels

More severe problems are very rare after ETSS. They include:

- Damage to the *carotid arteries* (blood vessels in the neck), leading to stroke or brain *hemorrhage* (bleeding)
- Loss of vision due to bleeding or damage to the optic nerves
- Leaking of the fluid that surrounds the brain and spinal cord (*cerebrospinal fluid*), which can cause *meningitis* (an infection of the membranes that cover the brain and spinal cord)

About the Surgery

You will lie on the operating table. You will receive *general anesthesia* (medicine to make you sleep). After you are asleep, your nose will be cleaned with an antibiotic and antiseptic solution.

Most times, ETSS is a team effort between a neurosurgeon and an Ear, Nose, and Throat (ENT) surgeon.

- The surgeon will insert the endoscope through one of your nostrils and move it into the nasal cavity. Your surgeons will be able to see video from the camera on a monitor. This helps them do very precise work.
- The surgeon will then make small openings in 3 bony areas: the nasal *septum*, *sphenoid sinus*, and *sella*. These openings are needed to reach the pituitary gland.
- The neurosurgeon will then find and remove the tumor.
 - If your doctor cannot remove the whole tumor, the rest may need to be removed during a later surgery. Or, your doctor may suggest that you follow up with imaging tests or radiation treatment, depending on what they found during the surgery.
 - If a large tumor is removed, your doctor may fill the area with a small piece of fat taken from your abdomen.
- Some of the tumor tissue will be sent to the lab. This is called a *biopsy*. A *pathologist* (a doctor who helps diagnose disease) will study the tissue under a microscope. This doctor will create a *pathology report* and send it to your surgical team.

- At the end of surgery, your surgeon will remove the endoscope and close the opening with surgical packing, bone fragments, and surgical glue. Or, a fat graft from your abdomen may be used. These materials will dissolve over time.
- A spongy material (*packing*) or splints may then be placed in your nostril. These will absorb fluid and help with healing. If you have splints, we will remove them at your follow-up visit 2 weeks after your surgery.
- The surgery takes about 3 hours.

Recovering in the Hospital

After surgery, you will be in a recovery room until you wake up. You will have a dressing taped to your nose. Your nurse will give you pain medicine. Tell your nurse if your pain is not controlled.

You will be moved to a hospital room to stay for 1 night. During your stay:

- You will have a stuffy nose and a headache for the first few days.
- If needed, you may be given a *steroid* medicine. (This is **not** the type of steroids used by some athletes.) The steroid will help balance your hormone levels while your body adjusts to the surgery. You will slowly taper off the steroids.
- We will closely monitor the amount of urine you produce. We do this to check for diabetes insipidus (see page 2).
- If your recovery goes well, we will check your hormone levels the morning after your surgery.
- You will be able to go home when:
 - Your hormone levels are within normal range
 - Your pain is under control
 - You can eat well
 - You can move around
 - A responsible adult is present who will take you home

Recovery at Home

- **For 2 days:** You will need someone to help care for you. Plan to have someone stay with you during this time.
- **For 2 to 5 days:** You will have bloody discharge from your nose or the back of your throat. This is caused by irritation from the endoscope.
- **For 1 to 2 weeks:** Some bloody or bony material may come out of your nose. The bony material is from the holes that were made in the nasal septum, sphenoid sinus, and sella.

- We may ask you to check your sodium levels **5 days after your surgery**, based upon your lab results.

Self-care

Follow all of your doctor's instructions during your recovery:

- You may shower 24 hours after surgery. Use regular or baby shampoo.
- If you are congested in the first week, apply normal saline nasal spray to each nostril every hour, as needed.
- Starting 1 week after surgery, if you do not have any problems with bleeding, you may use ibuprofen (Advil, Motrin) or naproxen (Aleve, Naprosyn) as needed for pain.
- It is OK to drink from a straw.
- **For 1 week:** Do **not** take a bath, sit in a hot tub, or go swimming if you had a *lumbar drain* or a *fat graft*. Ask your surgeon if you do not know if these steps were part of your procedure.
- **For 2 weeks:**
 - Keep your head above your heart level **at all times**.
 - Do **not** blow your nose. Open your mouth when you cough or sneeze.
 - Do **not** lift, pull, or push anything that weighs more than 5 pounds. (A 2-liter bottle of soda weighs more than 4 pounds.)
 - Do **not** strain when having a bowel movement.
- **For 4 weeks:** Do **not** lift, pull, or push anything that weighs more than 20 pounds.

Your 2-week Follow-up Visit

At your 2-week follow-up visit, your ENT will teach you to do *saline irrigations*. You will do these 2 times a day. Each time, you will dissolve a salt packet in sterile water or water that has been boiled and cooled.

After this visit, you may begin gently blowing your nose, unless the ENT tells you otherwise.

When to Call

Call one of the numbers listed under “Who to Call” on page 6 if you have:

- Severe or unusual headache
- Vision changes that get worse after you leave the hospital
- Nausea and vomiting
- Fever higher than 101.5°F (38.6°C)
- Problems with balance and dizziness

- Pus coming from your nose or abdomen (if you had a fat graft)
- Lightheadedness or fainting
- Ongoing, clear nasal discharge or a salty taste in the back of your throat (like a dripping faucet)
- Constant thirst that is not eased by drinking
- Passing urine more often than before surgery
- Confusion, memory problems, or personality changes
- Stroke-like symptoms such as facial droop, weakness, or numbness
- Loss of bowel and bladder control
- Seizures

Call 911 right away if you have:

- Chest pain
- Trouble breathing
- Pain or swelling in your legs

Who to Call

- Weekdays from 8 a.m. to 4:30 p.m., call the clinic at **206.598.5637**.
- After hours and on weekends and holidays, call **206.744.2500**.

Follow-up Visits

Follow up visits are scheduled at 2 weeks and 6 weeks after surgery.

2-week Follow-up

- Your surgical team will assess your progress and talk about your pathology report.
- If you have splints, they are usually removed at this visit.

6-week Follow-up

- You will have a *magnetic resonance imaging* (MRI) scan.
- You will also have blood tests to check your hormone levels. These tests make sure that the tumor has not come back.

Long-term Follow-up

- You will have more imaging tests over time.
- Some hormone levels may not return to normal after surgery. If so, your doctor may prescribe medicines to control or supplement those hormones. You will most likely need to have your hormone levels checked often for the rest of your life.

Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

Pituitary Program/
Neurosurgery Clinic:
206.598.5637