



## Branchial Anomalies (Congenital fistulas, sinuses, and cysts of the neck)

*Patient and family information, brought to you by the Education Committee of APSA*

### Overview - “What is it?”

Branchial anomalies occur when there is a problem in the development of the face and neck tissues as a baby is being formed within the womb of the mother.

The formation of the delicate face and neck structures is complicated in the developing baby. Skin, muscles, bones, and cartilage need to form around holes for the eyes, ears, and mouth. If problems happen as the face and neck are forming, several things can result:

- Fistulas are abnormal connections from the inside part of the face and neck onto the skin. The inside opening may be to the ear canal or throat. It usually looks like a hole on the skin of the face and neck where fluid comes out.
- Sinuses are abnormal holes on the skin that end blindly into the skin or muscle.
- Cysts are balls of tissue that are buried underneath the skin.
- Pieces of cartilage can also be found underneath the skin.

### Signs and Symptoms - “What symptoms will my child have?”

**Fistulas** can present in several locations. The most common by far is in the right or left side of the neck halfway down from the jaw to the collar bone. They can also be found in front of the ear or the front part of the neck. Saliva or mucus may drain from the opening. Openings in front of the ear can connect to the ear canal. Openings through the front of the neck can connect to the throat.

**Sinuses** are also openings in the skin. Since there is no connection to the inside, there is usually no drainage.

**Cysts** are bumps that can be felt under the skin. They may be painless or cause pain when swallowing. They can get larger with time. Rarely, cysts may present as a bump or inflammation of the thyroid with neck tenderness.

**Fistulas, sinuses, and cysts** may get infected. Less common symptoms include pain when swallowing or ear pain.

## Diagnosis - “What tests are done to find out what my child has?”

A correct diagnosis will lead to proper management. Complete history and physical exam are usually all that is necessary for diagnosis. The classic fistula/sinus opening in the usual location, with mucous drainage, is specific for a branchial anomaly.

**Ultrasound** is not routinely needed but will sometimes be requested by your surgeon to get additional information.

**CT or MRI** may be required in specific situations if there is more information needed or if the diagnosis is not definite.

Depending on how sure the doctors are of the diagnosis, other studies might be ordered.

### Conditions that mimic this condition:

*Dermoid cysts:* Growth from skin elements

*Thyroid nodules:* Growth in the thyroid gland

*Lymph nodes:* Small nodules in the neck that enlarge in response to infection.

*Skin infections* such as boils or abscesses

## Treatment - “What will be done to make my child better?”

**Medicine:** No medications are usually needed. If the cyst, sinus or fistula is infected, medicines (antibiotics) are given to control infection.

**Surgery:** Removal of the cyst, fistula or sinus is the treatment of choice.

- If the structure is infected, the infection must be treated first with antibiotics. Sometimes, control of the infection requires draining the pus from underneath the skin.
- Abnormalities on the face may connect to the ear canal. Therefore, children with these lesions on the face are usually referred to pediatric ear/nose and throat surgeons.
- Abnormalities of the neck are studied to see the entire structure along with internal openings. The sinus/ fistula or cyst is completely removed. Sometimes, a second small incision made higher in the neck is needed for complete removal. Usually, the wound is closed with dissolving sutures, so there are no sutures to remove.

**Preoperative preparation:** Patients are usually asked to shower or bathe on the night before surgery. Patients are asked to stop eating or drinking for up to 8 hours before surgery.

**Informed consent:** A consent form is a legal document that states the tests, treatments, or procedures that your child may need and the doctor or practitioner that will perform them. Before surgery, your doctor should tell you what the operation is, the goal of the surgery and other possible treatment options that are available. Your doctor should explain the risks and benefits of the surgery. You give your permission when you sign the consent form. You can have someone sign this form for you if you are not able to sign it. You have the right to understand your child's medical care in words you know. Before you sign the consent form, make sure all of your questions are answered. It is important to know that during surgery, there are things that can happen that your doctor may have not predicted before going in. He or she will explain these to you after the surgery.

**Emotional support:** Stay with your child for comfort and support as often as possible while they are in the hospital. Bring items from home that will comfort your child, such as a favorite blanket or toy.

**Postoperative care:** Depending on the extent of the surgery, the patient goes home on the same day of the operation or stays in the hospital overnight.

**Risks/Benefits:**

- **Risks of surgery:** Bleeding, damage to nerves or neck structures, post-operative scar, risk of anesthesia, rare swelling around the airway that may interfere with breathing. The patient may be observed in hospital overnight if this is a concern.
- **Benefits of surgery:** Confirm the diagnosis, prevent infection, decrease the risk that the lesion could become a cancer.

## Home Care - "What do I need to do once my child goes home?"

**Diet:** Your child may eat a normal diet after surgery.

**Activity:** Your child should avoid strenuous activity for the first 1-2 days.

**Wound care:** Surgical incisions should be kept clean and dry for a few days after surgery. Most of the time, stitches used in children are absorbable and do not require removal. Your surgeon will give you specific guidance regarding wound care, including when your child can shower or bathe.

**Medicines:** Medicines for pain such as acetaminophen (Tylenol) or ibuprofen (Motrin or Advil) or something stronger like a narcotic may be needed to relieve pain for a few days after surgery. Stool softeners and laxatives are needed to help regular stooling after surgery, especially if narcotics are still needed for pain.

**What to call the doctor for:** Neck swelling, or shortness of breath are serious signs that there is bleeding or swelling that is affecting breathing. The patient should go to the emergency room.

Fever, redness of the incision or fluid draining from the wound can be signs of post-operative infection.

**Follow-up care:** Follow-up visit with the surgeon a few weeks after operation.

### **Long Term Outcomes - “Are there future conditions to worry about?”**

No long-term concerns if the anomaly is completely excised. There is a small incidence of recurrence, particularly, if there is a history of infection. The recurrence rate is about 3%.

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