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TONSILLECTOMY AND/OR ADENOIDECTOMY (03/10)

The tonsils and adenoid play an important role during childhood as a major defense system against infections in the upper respiratory tract. The tonsils are lymphoid tissues located in the back and on each side of the throat. The adenoid tonsil is also made up of lymphoid tissue and is located in the upper back part of the throat behind the nose. They work together to “catch” and trap incoming infections. Unfortunately, the tonsil and adenoid may become the source of infection itself like a plugged filter.

Each upper respiratory infection stimulates the tonsils and adenoid to enlarge to fight the next infection. Children now socialize at such a young age (daycare, preschool, etc), they develop more infections when the immune systems are still immature and their airways are still small. This all contributes to the increased incidence of tonsils and adenoid enlargement at younger ages relative to their throat size than in the past. Usually tonsils and adenoids only begin to gradually shrink in size after 12 years of age. By this age near complete facial and dental growth has occurred.

Tonsillectomy and adenoidectomy is the most commonly performed major surgical procedures in children. It is recommended for children with any of the following signs and symptoms:

- Adenoid and/or tonsil enlargement (hypertrophy)
- Upper airway obstruction (snoring, nasal congestion, chronic mouth breathing, restless sleeping, daytime tiredness or sleep apnea)
- Chronic or recurrent throat infections requiring antibiotics (not necessarily strept throat)
- Dental and facial growth abnormalities from chronic mouth breathing (crossbite, open bite, high arched palate, facial elongation)
- Peritonsillar abscess

Adenoidectomy alone is often recommended for children with:

- Recurrent or chronic sinusitis
- Recurrent middle ear infections
- Chronic middle ear fluid with hearing loss
- Adenoid enlargement (hypertrophy) in very young children when tonsillectomy is not an option yet

Numerous medical studies have definitively proven that removal of the tonsils and adenoids is helpful for the above problems without resulting in any negative impact on the immune system. Fortunately, there is ample other lymphoid tissue still remaining in the throat to perform its immune function (i.e., lingual tonsils on the back of the tongue, accessory tonsils on the back wall of the throat, Gerlach tonsils near the Eustachian tube opening, etc).

RISKS OF SURGERY

The throat heals very well after surgery because of its excellent blood supply. Unfortunately, this is the major reason that the most common major complication after tonsil and adenoid removal is hemorrhage, or excessive bleeding. This occurs in 3-4% of patients with tonsil and adenoid removal and less than 1% of patients with adenoidectomy alone. It most commonly occurs *six* to *twelve* days following surgery. It is extremely important to notify your doctor before surgery if your child or anyone in the family has a tendency to bleed or has hemophilia. This includes frequent nosebleeds, easy bruising, excessive bleeding with previous tonsil, dental or other surgery, abnormally heavy menstrual periods, prolonged bleeding after cuts or scrapes, and previous blood transfusions.

The following complications have been known to rarely occur:

- Bleeding or hemorrhage (4%)
- Dehydration requiring hospitalization (most common in children < 3 years old)
- Infection of the ear or throat
- Lip, tongue or tooth injury
- Anesthesia problems
- Airway swelling

- Excessive throat scarring
- Permanent speech problems (nasal speech)
- Death

PREOPERATIVE INFORMATION
The most common location to perform this procedure is in an outpatient ambulatory surgery center. Blood tests are not routinely performed prior to surgery. In special circumstances your doctor may order a blood test. Please notify your doctor if there is a family history of bleeding tendencies or if the child tends to bruise easily. We prefer to have the preoperative lab tests done in your own physician's office along with a physical examination recorded on the surgical center's preoperative admission form. Please have the results faxed to our office (815-725-1248 fax) and to the surgery center and hand-carry a copy of the physical exam and lab results and give them to the surgery center staff on the day of the procedure.

Please call our office if your child develops a cold, flu, fever, or any contagious illnesses within 10 days of surgery. Your child must be in good health in order to have surgery. If for any reason the surgery is canceled, call our office to reschedule the surgery as soon as possible.

You will need to call the surgery center the day before surgery after 12:30 p.m. This center will give you the information you need: what time the surgery is approximately scheduled, what time you will need to arrive at the surgery center, and what time your child must stop eating and drinking before surgery. It is very important that you follow these directions very carefully so that nothing will interfere with your child's surgery.

Information from the surgery center the day before surgery supersedes all previously given information, specifically in regard to the scheduled time of surgery. There are many factors beyond our control, which many result in a change in the originally scheduled surgery time (urgent procedures, surgical equipment, surgical nursing, and operating room availability, etc). Unfortunately, this is very common and should almost be expected. Some families bring a disposable camera to chronicle this day for future memories.

RECOVERY
Most children undergoing this procedure are discharged from the surgery center within hours after surgery. Occasionally, your physician will recognize a special circumstance that requires observation overnight in the hospital. This will be arranged in advance at the discretion of the surgeon and dependent on each patient's condition. Patients that are undergoing an adenoidectomy alone are almost always discharged home on the day of surgery.

SURGERY
The night before surgery, your child should be fed a light dinner—no fried or greasy foods. The patient may have absolutely nothing to *eat* after midnight. The surgery center nurse will give specific instructions to you the day before surgery. Any variation from these recommendations may cause postponement or cancellation of the procedure. Please carefully follow these instructions as the safety of the anesthesia will depend on your child having an empty stomach. Shortly before the procedure the anesthesiologist may choose to administer a mild sedative to your child. You may stay with your child until they are brought to the operating room.

Surgery is done under general anesthesia. Your child will be completely asleep during the surgery. The anesthesiologists will discuss with you the way in which your child will be put to sleep. After the operation, your child will be taken to the recovery room where he/she will usually stay for 10-45 minutes before going back to the second stage recovery area where you will join your child. He/she will be brought to a room with an intravenous (IV) line in place in order to give fluids and other medications to your child immediately after surgery. This will be taken out before discharge.

POSTOPERATIVE CARE
Bleeding
Bleeding can initially happen in the first few hours after surgery. Slight bleeding is expected. A very small amount of bloodstained mucus in the mouth and throat is normal for the first couple days.

It is also common after surgery to vomit some blood/bloody mucus, which has been swallowed during and after surgery. Harsh coughing and clearing of the throat should be avoided. Bleeding may occur at any time within the first *three weeks* after surgery. This most common time for bleeding is *six* to *twelve* days after surgery when the scabs in the tonsil beds begin to slough off. It is for this reason that your child needs to be supervised by a responsible adult after surgery. *If any bleeding occurs, immediately have them gargle ice water to temporarily stop the bleeding* (swallow ice water if unable to gargle). The cold temperature promotes clotting and minimizes blood loss. *Always notify our office (815-725-1191) immediately for further instructions or proceed to the nearest emergency room.* After hours a physician can always be reached through our answering service (815-929-2262).

Pain

Children who have undergone tonsillectomy usually have more pain for a longer period then those who have undergone an adenoidectomy alone. The complaint of pain will be different with each child, but may last up to 2-3 weeks. After the first couple days, the sore throat after surgery actually worsens significantly before it starts to improve. It is common for the *fifth or sixth day* after surgery to be the most painful time since it takes this long for the normal bacteria in the throat to cause maximal inflammation to the wounds. Thereafter, the wound starts to heal and the soreness slowly subsides day by day.

Children who have undergone tonsillectomy and adenoidectomy often complain of severe pain and difficulty swallowing. Commonly, they will complain of *neck aches and stiffness, headaches in the back of the head,* and *ear pain.* The neck symptoms and headache are due to inflammation and spasm of the paraspinal muscles in the back of the neck attached to the region where the adenoid tonsil was removed. Excessive pain in this region usually is a sign of inadequate pain medication since the narcotic pain medication (codeine, etc.) helps both pain and muscle relaxation. . The ear pain is usually "referred" from the throat and is not due to an ear infection.

Sometimes, the tongue and throat may be sore from the tongue blade and the breathing tube used during the operation. This discomfort will usually disappear over a few days. In addition to the prescribed pain medication, an ice collar or cold compress to the neck the first several days is soothing. Thereafter, warm liquids might be more soothing. Often, ear, neck and throat pain will continue for 2-3 weeks until complete healing in the throat. This is normal and you should give your child the prescribed pain medication until this subsides.

Medication

Your doctor will usually prescribe pain medication such as acetaminophen (*Tyleno*l) with a narcotic pain medicine (codeine, hydrocodone, etc). This medication may cause constipation or nausea. It is best to give medication with food and not on an empty stomach. For the first *few days* after surgery you should consider giving your child the prescribed pain medication at least every 4-6 hours unless they are drowsy. Acetaminophen (*Tylenol*) suppositories are also helpful and can be purchased over the counter at your local pharmacy if refusing to take the stronger oral pain medication. Do not to give plain acetaminophen (*Tylenol*) at the same time as the acetaminophen with codeine due to the risk of overdose. The use of ibuprofen, is permitted simultaneously for additional pain relief. If Roxicodone is prescribed, take a dose of regular strength acetaminophen with each dose every 4 to 6 hours.

The prescribed pain medication should also be given one half hour before bedtime to help your child to have a more restful sleep. It is common for a sore throat to worsen by morning because of drying of the throat from mouth breathing during the night. It is also helpful to awaken the child during the night to give them fluids and, if necessary, more pain medication. Do not over medicate your child.

Your doctor may also prescribe an antibiotic in order to decrease the amount of inflammation and pain after surgery. This should be taken as directed. If a rash or diarrhea develop, you should discontinue the antibiotic and notify your doctor. *Benadryl* will often help the rash.

Diet

For the first 24 hours after surgery, clear liquids (water, ice chips, non-citrus juices, Kool-Aid, Gatorade, Popsicle, and freezer pops) are recommended. Cold liquids seem more soothing than warm liquids the first few days. As the sore throat worsens thereafter, your child may find warms fluids (hot chocolate, soups, broth, etc) more soothing to the throat. It is important that your child drink plenty of liquids to keep from getting dehydrated. At home, if your child urinates less then usual, then increase the amount of his/her fluids. Your child *must* continue to drink fluids. If your child will only drink from a straw, then use a straw to give them fluids. Some children to not want to drink because of pain. Please call our office nurse if you are worried that your child is not drinking enough or if there are signs of dehydration (dark urine, urination less than 2-3 times per day, crying without tears, nausea long after recovery from anesthesia). Some children require intravenous fluid replacement.

Weight of the patient	**Minimum Fluid Intake in 24 Hours**
Over 20 lbs	34 ounces
Over 30 lbs	42 ounces
Over 40 lbs	50 ounces
Over 50 lbs	58 ounces
Over 60 lbs	68 ounces

After the initial 24 hours following the procedure, nausea from anesthesia usually subsides. At this point the diet may be gradually advanced to soft foods as tolerated, i.e., mashed potatoes, soft cereals (oatmeal, cream of wheat, Farina), soft-boiled/scrambled eggs,

yogurt, pudding, custard, baby food, apple sauce, Jell-O, ice cream, soups, and pasta. Avoid hard and crunchy foods (i.e., cookies, crisp bacon, toast, crackers, pizza, popcorn, nuts, corn chips, potato chips, pretzels, etc.) to minimize painful tongue and throat movements from chewing until better tolerated.

Please realize that the above dietary suggestions are just guidelines that have been helpful to most of our patients. In general, there are no food restrictions after surgery. The soft diet just tends to be more comfortable for children until regular food is tolerated. Once again, fluid intake is more important than food. You do not need to push solid foods as long as your child is drinking. It is common for children to temporarily lose some weight after surgery, which is gained back when a normal diet is resumed.

If an adenoidectomy was performed without a tonsillectomy, a regular diet for age can be started when tolerated.

Fever
It is normal to expect your child to run at least 1-2° F above his/her normal temperature after surgery. A high or prolonged fever may indicate infection, but is most commonly one of the first signs of dehydration, or lack of fluid intake. It is very important to make sure that your child is drinking enough fluids despite his/her sore throat and discomfort with swallowing. Persistent fever over 102° F when your child is drinking well should be reported to your doctor.

Nausea and Vomiting
It is not uncommon for your child to vomit 2-3 times after the anesthesia. This is not unusual and may last up to 24-36 hours after surgery. If it becomes severe or persistent, your doctor may order a prescription suppository to suppress this nausea. If it seems to occur only after administering the pain medication, then notify our office so we can consider an alternative. If nausea starts to become a problem several days after surgery, this may be a sign of dehydration that requires attention.

Healing and Bad Breath
After a tonsillectomy a white or yellow coating forms in the back of the throat as healing occurs. This is normal and does not indicate infection. This scab forms on the raw surface and usually has a very bad odor. This odor will resolve once the scabs fall off. Your child may gently brush his/her teeth after surgery.

Humidifier
The use of a humidifier in the postoperative period is advised.

Speech
It is common for your child's voice to sound a little hoarse and/or nasal after the surgery. This may last for a few days up to few weeks before his/her speech returns to normal. A combination of pain, swelling, and lots of new space for breathing cause the voice change. After the throat heals, it is common to have a higher pitch to the voice. This is especially noted in children who had muffled speech from the enlarged tonsils or adenoid. This seldom seems to persist beyond a few months.

Physical Activity and School
Your child should stay home and rest the day he/she is released from the hospital and be allowed adequate opportunity to rest for the next several days to weeks. Bed rest is not required. Strenuous activity, physical education class, sports, and recess are not allowed for *three weeks* after surgery due to the risk of bleeding. Your child may return to school at your discretion once pain medication is no longer required and you feel your child can tolerate normal non-strenuous school activity. A responsible adult should supervise children at all times until completely healed and use appropriate judgment. You usually receive a doctor's note at the time of surgery to excuse your child from school or gym class. You will need to write in the date your child returns to school since this is variable and is at your discretion

Follow-up
You will receive a postoperative phone call by our nursing staff approximately *three weeks* after surgery to check on your child's progress. You will be instructed on the day of surgery if your doctor recommends a postoperative office appointment. If there are problems or questions during the recovery, please call our office nurse (815-725-1191) between 9:00 a.m. and 4:30 p.m. Monday through Friday. We will try to assist by making suggestions over the telephone or advise that your child be evaluated in the office.

Questions
Please confine any questions that do not deal with bleeding or difficulty breathing to regular office hours. We are always available for emergency problems, but non-emergency calls during nights and weekends can be exhausting and keep us from being at our best during regular working hours. Thank you for your understanding.