

**The American Academy of Otolaryngology—
Head and Neck Surgery Foundation
(AAO-HNSF) Presents. . .**



Chapter 17: Pediatric Otolaryngology

Daiichi Pharmaceutical Corporation, marketers and distributors of FLOXIN® Otic (ofloxacin otic) solution 0.3%, provided an educational grant for this book to be updated and distributed. The authors and editor had sole responsibility for the subject matter and editorial content.

Copyright Notice - All materials in this eBook are copyrighted by The American Academy of Otolaryngology—Head and Neck Surgery Foundation, One Prince Street, Alexandria, VA 22314-3357, and are strictly prohibited to be used for any purpose without prior express written authorization from The American Academy of Otolaryngology—Head and Neck Surgery Foundation. All Rights Reserved.

Print: First Edition 2001, Second Edition 2004

eBook Format: Second Edition, 2005

ISBN 978-1-56772-093-8



American Academy of Otolaryngology—Head and Neck Surgery Foundation
Working for the Best Ear, Nose, and Throat Care
One Prince Street | Alexandria, VA 22314-3357 | 1-703-836-4444 | Fax: 1-703-684-4288

© 2005 AAO-HNS

Chapter 17: Pediatric Otolaryngology

Editor: Mark K. Wax, MD. Authors: J. Gregory Staffel, MD; James C. Denneny III, MD; David E. Eibling, MD; Jonas T. Johnson, MD; Margaret A. Kenna, MD; Karen T. Pitman, MD; Clark A. Rosen, MD; Scott W. Thompson, MD; and Members of the Core Otolaryngology Education Faculty of the American Academy of Otolaryngology—Head and Neck Surgery Foundation

Dr. Gregory Staffel first authored this short introduction to otolaryngology for medical students at the University of Texas School for the Health Sciences in San Antonio in 1996. Written in conversational style, peppered with hints for learning (such as "read an hour a day"), and short enough to digest in one or two evenings, the book was a "hit" with medical students.

Dr. Staffel graciously donated his book to the American Academy of Otolaryngology—Head and Neck Surgery Foundation to be used as a basis for this primer. It has been revised, edited and is now in the second printing. This edition has undergone an extensive review, revision and updating. We believe that you, the reader, will find this book enjoyable and informative. We anticipate that it will whet your appetite for further learning in the discipline that we love and have found most intriguing. It should start your journey into otolaryngology, the field of Head and Neck Surgery.

Enjoy!

Mark K. Wax, MD

Editor: Primary Care Otolaryngology and Chair: AAO-HNSF Core Otolaryngology Education Faculty



Chapter Number 17: Pediatric Otolaryngology

A high percentage of illnesses affecting children involve the ears, nose, and throat. Nearly all otolaryngologists treat children in their practices, and some treat only children. This chapter will be useful to you in your pediatric rotation as well as any ENT exposure you might have. An excellent library reference on pediatric otolaryngology is the two-volume text by Bluestone and Stool. You should refer to it often during your pediatric rotation.

The most common pediatric disorder seen by the otolaryngologist and pediatrician is **otitis media**, so it's important to understand the spectrum of this disease. This is presented in this book in chapter 5, "Otitis Media."

Tonsillectomy:

In the past, the indication for (reason to perform) a **tonsillectomy** was the presence of tonsils. In the pre-antibiotic era, it was the only treatment available. Now, otolaryngologists have refined patient selection and, for the most part, we do tonsillectomies on patients with recurrent or chronic tonsillitis, obstructive sleep apnea, asymmetric tonsils, and peritonsillar abscess.

Recurrent Tonsillitis:

Some children have several bouts of tonsillitis per year that require evaluation by a physician. In treating **recurrent tonsillitis**, you should obtain culture documentation of *Group A, β hemolytic strep*, if possible. Published AAO-HNS 2000



Chapter Number 17: Pediatric Otolaryngology

Clinical Indicators Compendium suggest that tonsillectomy is indicated if children present with 3 or more infections per year despite adequate medical therapy. Some physicians feel that if a child misses 2 weeks of school in a year because of tonsillitis, the tonsils should come out. However, each patient is different, and the final decision should be an agreement between the patient or parents and doctor.

Chronic Tonsillitis:

Chronic low-grade infection of the tonsils can occur in older children, adolescents, and adults. Interestingly, there is an increasing

**Figure 17.1.**

Massive tonsil hypertrophy. Indications for tonsillectomy include recurrent episodes of tonsillitis or chronic upper airway obstruction resulting in sleep apnea. Enlargement without symptoms is not an indication for removal.

awareness that hyperactivity may be associated with sleep apnea. These patients often have large **crypts** or spaces within the tonsils that collect food and **debris** and are difficult to sterilize with antibiotics. The lymph nodes in the neck are usually inflamed from constant tonsillar infection. Sometimes,



Chapter Number 17: Pediatric Otolaryngology

the retained food and debris lead to chronic halitosis (bad breath). The typical history from these patients is that their sore throat gets better on antibiotics, but then comes back as soon as they stop taking their medication.

Obstructive Sleep Disorders:

Some patients may have **enlarged tonsils** as well as an increased amount of soft tissue in their pharynx and hypopharynx. This leads to **chronic upper airway obstruction** due to enlarged tonsils and adenoids, and can result in **obstructive sleep apnea** in some children. **Daytime lethargy, obstructive symptoms, and nocturnal enuresis** are often associated with the condition. Interestingly, there is an increasing awareness that hyperactivity may be associated with sleep apnea. In severe—although rare—cases, cor pulmonale can result. Diagnosis is usually straightforward, based on history and physical, although a recorded sleep tape is frequently used as collaborative evidence. In some instances, a formal sleep study may be required. If the diagnosis of obstruction is correct, tonsillectomy and adenoidectomy (T and A) is often curative.

A particularly severe form of sleep apnea occurs in children with **Down syndrome**. Surgery on these children carries increased risk and requires specialized anesthetic



Chapter Number 17: Pediatric Otolaryngology

care.

Asymmetric Tonsils:

Asymmetric tonsils are usually due to **recurrent scarring from infections**, but they may harbor tumors (such as lymphoma) and should be removed for **pathologic examination**. Remember that asymmetry of the tonsils also may be apparent—that is, not real—because of asymmetry of the soft palate and anterior pillars.

Peritonsillar Abscess:

An abscess that collects in the potential **space between the pharyngeal constrictor and the tonsil** itself is termed a **peritonsillar abscess** or "quinsy." These patients present with a history of having had a sore throat for a few days, which has now become significantly worse on one side. The classic signs of a peritonsillar abscess are **fullness of the anterior tonsillar pillar, deviated uvula**, "hot-potato voice," and severe **dysphagia**. Most of these patients also have **trismus (inability to open the jaw)** to some extent. Treatment is either aspiration with a large needle or incision and drainage done under local anesthesia. A 1-inch incision is made in the superior part of the anterior tonsillar pillar. A hemostat is used to open up the incision into the peritonsillar abscess, and the abscess is drained. Usually, the patient is given high-dose intravenous penicillin and sent home on oral antibiotics.



Chapter Number 17: Pediatric Otolaryngology

Some patients will suffer only 1 episode in their lives, but if a patient has 2 or more episodes, a tonsillectomy is usually recommended. In a child, general anesthesia may be necessary to drain the abscess. If so, you should consider performing a tonsillectomy at the same time, especially if there is a history of recurrent or chronic infections or airway obstructions. Many surgeons routinely prefer urgent tonsillectomy because they feel this most effectively drains the abscess as well as prevents recurrence.

Adenoidectomy:

The **adenoids** are **lymphoid tissue** that hang off the posterior pharyngeal wall and roof of the nasopharynx, just behind the **soft palate** and bilaterally adjacent to the **torus tubarius**. When the adenoids are enlarged, nasal obstruction and chronic mouth-breathing ensue. **Adenoiditis** can be an underlying cause of otitis media as a result of secondary eustachian tube dysfunction and the proximity of a bacteria reservoir. In children, it can also be associated with chronic sinusitis. Adenoidectomy is often performed in children older than 2 years who have recurrent acute otitis media or otitis media with effusion, especially if effusion has returned after tube insertion. Tonsillectomy is also performed for children who snore loudly or have apnea with nasal obstruction. Adenoids usually atrophy with puberty, although they can be enlarged in teenagers and adults.



Chapter Number 17: Pediatric Otolaryngology**Foreign Bodies in the Ear and Nose:**

Let's face it: Children seem to have a propensity for putting things into just about any orifice possible. Thus, they'll often place things such as pebbles, erasers, small toys, etc., into their external auditory canal. Treating this is usually a fairly benign process that can be dealt with in a non-emergent manner, but the exception to the rule is if there is a strong possibility of damage to the middle or inner ear. If this has occurred, the child may have lost sensorineural hearing, and may also be dizzy. Another exception is if the foreign body is alive! It is important to kill insects in the ear canal (usually by drowning in drops of olive oil is a good choice) before removal. These children should be referred immediately to an otolaryngologist. Most commonly, the foreign body remains in the lateral part of the external auditory canal. Remember that these young patients often become uncooperative and may require general anesthesia for the simple removal of the object, especially if prior attempts have been made to remove it. Therefore, unless certain, easy, nontraumatic, removal of the foreign body is completely assured, referral to an otolaryngologist is recommended.

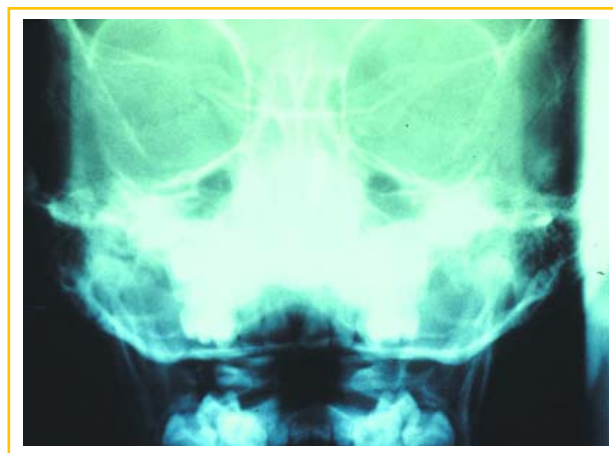
Children also like to put foreign bodies in their nose. This invariably results in **unilateral, foul-smelling, purulent rhinorrhea**. Parents will often report that their child "smells bad." The key here is that the rhinorrhea is on only one



Chapter Number 17: Pediatric Otolaryngology

side. (If it were due to a cold or a sinus infection, it should be bilateral.) Occasionally, removal will require general anesthesia, but topical anesthesia and vasoconstrictive nose drops may shrink the swelling sufficiently to aid in removal. You must be aware of the potential problems caused

by button batteries. These objects can cause severe burns and should be



removed emergently to prevent

Figure 17.2.

Radiograph demonstrating a button battery in the nasal cavity of a child with profuse unilateral rhinorrhea. Button batteries can leak caustic fluid and result in serious burns.

or minimize long-term complications. If lodged in the esophagus, they can cause fatal perforation with **mediastinitis**.

Stridor:

Children are also commonly referred to the otolaryngologist for **stridor**, high-pitched, noisy respiration that is a



Chapter Number 17: Pediatric Otolaryngology

sign of respiratory obstruction. Stridor can be caused by a number of conditions, and among the most life-threatening conditions associated with it are **acute epiglottitis**, **croup**, or **foreign body aspiration**.

Acute Epiglottitis:

This is an infection of the supraglottic structures that causes such severe swelling of the epiglottis that it blocks the airway. It is fulminant and usually caused by *Haemophilus influenzae* type B organisms. This fatal disease was common 20 years ago, but the incidence has decreased dramatically with widespread use of the *H. influenzae* vaccine. The typical affected child is 3-6 years old and septic. Often, the child was breathing normally just hours earlier. You'll notice that the child is stridorous, as well as leaning forward and drooling because it hurts to swallow. If you suspect acute epiglottitis, call ENT, anesthesia, and pediatrics at once. Remember: If the child obstructs acutely, the airway can almost always be maintained with a bag and mask. Do not attempt to examine the child or force the child to lie back, because the agitation associated with the examination can precipitate sudden, complete obstruction. These cases are difficult and try the most skillful of anesthesiologists. Every effort must be made to expedite rapid transport to the operating room with as little manipulation as possible. If there is a reasonable amount of doubt as to the diagnosis, then an



Chapter Number 17: Pediatric Otolaryngology

alternative is to have doctors from all 3 services accompany the patient to the radiology suite for a lateral soft tissue view of the neck. This is rarely done. Instead, doctors from all 3 services should accompany him or her to the operating room, where he or she can be masked down with an inhalation agent and intubated. An IV can then be started and blood cultures obtained.

Appropriate antibiotic therapy includes coverage for *H. influenzae* type B as well as for the much more rare *Staphylococcus aureus* organisms until final confirmation of the cause by blood cultures. Appropriate double-drug therapy would be ceftriaxone and oxacillin. Appropriate single-drug therapy would be cefuroxime, which can be continued by mouth later. The patient is usually extubated within 48-72 hours after confirmation of resolution by laryngoscopy.

Croup:

Croup should be **distin-
guished** from acute epiglottitis. Croup is the common

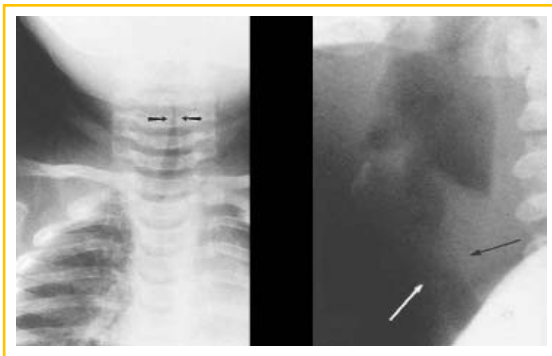


Figure 17.3. This radiograph demonstrates steeplechase narrowing of the trachea in a young child with croup. See arrow.



Chapter Number 17: Pediatric Otolaryngology

name for **laryngotracheobronchitis**, a **viral infection of the upper airway** causing swelling in the subglottic area and stridor. It usually occurs in children 6 months - 3 years old who have had a prodromal URI usually for about a week. Patients are not septic but may have a low-grade fever. The stridor is high pitched and associated with a "barking" cough—often sounding like a seal. It doesn't hurt to swallow, so the patient isn't drooling; the epiglottis isn't swollen, so the patient isn't always leaning forward. The classic radiographic finding is the "steeple sign" showing subglottic narrowing on a chest or neck **x-ray**.

The treatment for croup is **humidity, oxygen, and if necessary, racemic epinephrine treatments, or steroids, or both**. Antibiotic therapy may be used if bacterial infection is suspected. If croup is severe, the child should be admitted to the hospital for observation. Intubation is rarely required. Rarely, children with subglottic stenosis will present with "recurrent croup". In these children evaluation by an otolaryngologist including direct laryngoscopy is required.

Foreign Bodies:

Foreign bodies can be another cause of stridor in children. Most commonly, it's caused by a foreign body that has been aspirated into the tracheobronchial tree—anything from coins to peanuts to Christmas tree light bulbs.



Chapter Number 17: Pediatric Otolaryngology

(It's always important that small children aren't allowed access to such things as small toy parts, peanuts, raw carrot pieces, and other things of similar size.) Foreign bodies in the airway often prompt paroxysmal coughing and stridor that resolves, followed by wheezing, so it's critical that your diagnosis not be confused with asthma. Occasionally, there can be a symptom-free period after initial aspiration.

Small objects swallowed by children can also lodge in the hypopharynx or esophagus. Occasionally, the child will refuse to drink anything and may present with drooling. Sometimes, the patient will not eat, but will drink. In these cases, an x-ray is usually obtained and, under general anesthesia, a **rigid esophagoscope** is used to remove the foreign body from the esophagus. If the foreign body has been aspirated, then bronchoscopy is required. A problem with the aspiration of peanuts (which seems to be quite common) is that the oil and salt produce a chemical inflammation that causes the bronchial mucosa to swell, making removal difficult. Don't forget that a child may present with recurrent bouts of pneumonia, and this can be due to an aspirated foreign body that wasn't detected at the time of aspiration. Occasionally, bronchial ball valve obstruction will result in hyperinflation of one lung, which is visible on chest x-ray.



Chapter Number 17: Pediatric Otolaryngology

Subglottic Stenosis:

With the advent of modern neonatal intensive care, **subglottic stenosis** has become an increasingly common cause of stridor. It is most commonly caused by scarring from long-term placement of an endotracheal tube. Neonates seem to tolerate extended endotracheal intubation better than adults; however, after weeks and months of intubation, some of these patients may develop scarring in the subglottic area that causes a narrowing of the airway. This can occur acutely or over the course of several months. These patients present with stridor, which may be **biphasic** because it's due to a fixed obstruction in the larynx. (Children with subglottic stenosis are sometimes erroneously diagnosed as having asthma.)

If the subglottic stenosis is severe, there are several treatment options. The first option is to place a tracheostomy to bypass the obstruction. There are many problems associated with tracheostomy in infants, including delays in speech development, chronic mucous plugging, and even risk of death due to an obstructed tube. A better solution is to surgically enlarge the airway with a **cricoid split**. This can include simply making a cut in the cricoid ring and allowing it to expand while an endotracheal tube remains in the airway for a week to 10 days. If this is inadequate and the child still has some stenosis, or if the stenosis is so severe that a cricoid split might not be



Chapter Number 17: Pediatric Otolaryngology

enough, a **laryngotracheal reconstruction** can be performed, in which pieces of rib cartilage are grafted into the front of the cricoid cartilage and upper tracheal rings and sometimes the back of the cricoid cartilage. These can be held in place with a stent for varying lengths of time. The chances of this working are good, especially if the stenosis wasn't extremely severe to begin with. Another way of treating mild stenosis involves using a laser to incise or excise the involved area. This has not met with good success, except in cases where the affected area was quite small and only minimal lasering was necessary.

Subglottic Hemangioma:

Another cause of stridor in children can be a **subglottic hemangioma**. Classically, 50% of these patients will have other associated head and neck hemangiomas, which will be visible on the skin. In some situations, these hemangiomas can be treated with a

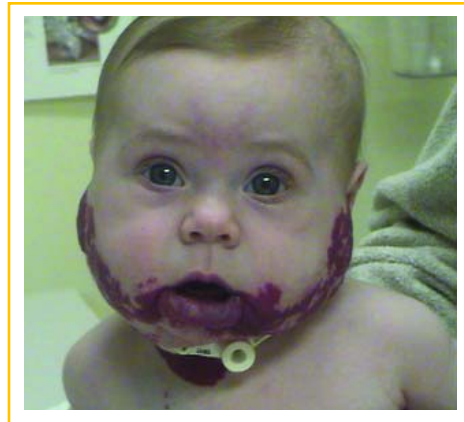


Figure 17.4.

This young child has a large hemangioma with cosmetic as well as functional symptoms.



Chapter Number 17: Pediatric Otolaryngology

laser. Systemic steroids and interferon may play a role as well. Some pediatric otolaryngologists will do laser therapy without performing a tracheostomy, others prefer to have a tracheostomy. Obviously, this also depends on the size of the lesion and the size of the airway; occasional spontaneous involution can occur.

Vascular Rings:

Yet another cause of stridor in children is **vascular rings**, which may also be accompanied by periods of apnea. These cause compression of the trachea by either the innominate artery or any of the various persisting vascular rings that can occur embryologically. For example, a double-arched aorta may compress both the esophagus and the trachea. This diagnosis is generally made by visualizing an anterior compression of the trachea on bronchoscopy. A barium swallow will occasionally show an indentation behind the esophagus if there is a complete vascular ring present that encircles the esophagus and the trachea. The definitive diagnosis is made with either a CT scan or an MRI of the chest. If the symptoms are severe enough, treatment can include ligation of the offending vessel or rerouting. These conditions are fairly rare.

Laryngomalacia:

Perhaps the most common cause of persistent stridor in



Chapter Number 17: Pediatric Otolaryngology

infants is **laryngomalacia**. Classically, this is associated with a floppy, omega-shaped epiglottis and is thought to be due to high-speed airflow through the narrow, redundant tissue of the supraglottic area. This is a diagnosis of exclusion, and more life-threatening causes of stridor must be ruled out first. If there are no apneic spells and the patient is otherwise asymptomatic, treatment is simply observation because these children will usually grow out of the condition. If the patient has apneic episodes or desaturates, then the supraglottic tissues can be trimmed or a tracheostomy can be performed. Other indications for surgical intervention include poor weight gain or failure to thrive. Interestingly, recent reports would indicate an association between GERD and laryngomalacia. This usually alleviates the stridor.

Neck Mass:

Another common reason for otolaryngologists to see children is the presence of a **neck mass**. Neck masses in children are most likely to be benign, compared with adults, in whom these masses are more likely to be malignant. They can be divided into **congenital, infectious, and neoplastic** categories.

Congenital Neck Masses:

One of the common congenital neck masses is a **cystic hygroma**, which is also known as a **lymphangioma** and



Chapter Number 17: Pediatric Otolaryngology

occurs commonly in the neck region. It can be massive and extend up into the floor of the mouth or into the airway. These patients can need immediate intubation or a surgical airway at birth, if the neck mass is large enough to cause obstruction. Otherwise, the hygroma can usually be removed by elective surgery.

Another common cause of a neck mass in children is a

branchial cleft cyst.

These are found along the anterior border of the sternocleidomastoid muscle. This can occasionally become infected and swell, only to respond



Figure 17.5.

Neck masses arising in children are usually benign (as opposed to adults, in whom they are usually malignant). This is a cystic hygroma, a congenital malformation of lymphatic vessels.



Chapter Number 17: Pediatric Otolaryngology

to antibiotic therapy, shrink, and then return later. Often these children are slightly older when they present for excision. In addition, a **thyroglossal duct cyst** can cause neck masses in children. These occur in the midline, usually over the thyrohyoid membrane. They are attached to the hyoid bone and move with swallowing. Treatment is by surgical excision with a **Sistrunk operation**, where the mid-portion of the hyoid bone is removed along with the cyst's stalk to the base of the tongue.

Infectious Neck Masses:

Infectious causes of neck masses in children are more common than congenital causes. Perhaps the most common reason for enlarged lymph nodes in a child is tonsillitis or pharyngitis. Occasionally, the lymph nodes themselves can become infected, usually with *Staphylococcus* or *Streptococcus* species (**cervical adenitis**). Patients are usually febrile, and the nodes are very tender to palpation. Occasionally, these lymph nodes may suppurate and require surgical drainage.

You should always consider cat-scratch disease when children present with **suppurative adenitis**. The patient's history of being scratched by a cat is the key to making this diagnosis. However, sometimes the child is unaware of the incident. These children are also afebrile, and the nodes are usually not tender, but there is redness and



Chapter Number 17: Pediatric Otolaryngology

swelling.

Another condition that must always be considered in a child with swollen lymph nodes is **tuberculosis**. Classically, this occurs in multiple lymph nodes. The old word for tuberculosis lymph nodes in the neck was "scrofula." Workup includes a chest x-ray, a purified protein derivative (PPD) test, and a fine needle aspirate. In this case, the nodes are not treated with excision but, rather, with standard anti-tuberculosis medications.

Atypical tuberculosis is occasionally a cause of swollen lymph nodes in children. Generally, this is confined to 1 or 2 areas of the neck. The nodes are not usually painful, and the patient is not toxic. In atypical TB, the lymph nodes follow a somewhat predictable course wherein the skin overlying the lymph node becomes red and the lymph node appears to "stick to the skin." This may eventually lead to spontaneous drainage. However, excision of the lymph nodes is indicated if they do not respond to medical therapy.

Retropharyngeal cellulitis or abscess is an important infection in children. This is essentially a cervical adenitis that occurs in the space behind the pharynx. These patients may have an obvious amount of inflammation on the anterior spinal ligament, as well as up around the base of the skull, and can therefore present with a stiff



Chapter Number 17: Pediatric Otolaryngology

neck (**meningismus**) and fever. It may be difficult to discriminate between this disease and meningitis. A lateral neck x-ray will usually show an increased thickness of the soft tissue just anterior to the spine. A CT scan is useful to image the exact location of the abscess or infected lymph node, which is then treated with intravenous antibiotics. Cellulitis will respond to antibiotics, but abscesses will require surgical incision and drainage, through either the mouth or neck. Sometimes, a patient's response to antibiotics will be so dramatic as to suggest that no true abscess was ever present, but simply a severe cervical adenitis that responded to appropriate therapy. Antibiotic coverage should include coverage for *S. aureus* organisms, anaerobes, and *H. influenzae* infection. Often there is such concern over the possibility of meningitis that a drug that penetrates the cerebrospinal fluid should be used. Adequate choices include cefuroxime or ticarcillin and clavulanate. Vancomycin should be considered if resistant organisms such as penicillin-resistant *Streptococcus pneumoniae* are suspected.

Malignant Neck Masses:

Malignant neck masses in children are rare, and include salivary gland malignancy, which is treated surgically. Tumors of the thyroid gland also occur, and may be accompanied by metastatic disease in the lymph nodes.

Lymphoma, especially Hodgkin's, can present as cervical



Chapter Number 17: Pediatric Otolaryngology

adenopathy.

Congenital Nasal Mass:

Very rarely, a child may be born with a congenital mass between the eyes and over the bridge of the nose (**nasion**). This can be either a **dermoid cyst** or a **congenital herniation of the intracranial tissues (encephalocele or meningoencephalocele)**.

Heterotopic brain tissue, called glioma, is also possible and may not have a connection to the central nervous system (CNS). In making your diagnosis, you should obtain a CT scan to see if there is a **bony defect**. An MRI scan may also be quite helpful to determine whether there is simply a residual cord of tissue or whether there is a defect that allows either the meninges alone or the meninges and brain to protrude through the defect. These patients should be referred for surgical excision.

Tongue Tie:

Not uncommonly, children will have a very short lingual frenulum that prevents them from sticking out their tongue. This makes it especially hard to make certain sounds like “L” (and to eat an ice cream cone), but is easily corrected by incising the frenulum. It may present as difficulty in breast feeding in a neonate.



Chapter Number 17: Pediatric Otolaryngology

Rhinosinusitis:

All children (and adults) suffer from an occasional bout of rhinosinusitis. Most of these are viral and of short duration, and require no therapy. Parents, however, can be upset over the nasal drainage (often green, yellow, or gray), and especially upset that they can't leave their sick child in daycare because of the illness. It is important to reassure parents that these colds are normal, and to resist the temptation to treat mucus with antibiotics. Some children, however, will have persistent illness that lasts for weeks or months and is associated with fever. These patients may benefit from antibiotics directed toward common pathogens. Also, some children will benefit from adenoidectomy, and occasionally sinus aspiration or even surgery may be required.

Rarely, sinus infection can lead to orbital infection. If an abscess develops with visual change, **proptosis**, or loss of normal eye movement, urgent surgical drainage is required to prevent loss of vision. A diagnostic CT scan is required in suspected cases. These abscesses can often be drained successfully through an endoscopic approach, but an external incision (just medial to the medial canthus) may be required.



Chapter Number 17: Pediatric Otolaryngology

Questions, Section #17

1. Four indications for performing tonsillectomy are _____
, _____
, _____
, _____
and _____
2. A 2-year-old child presents to your office with otitis media with effusion. The fluid has been present in his ears for 3 months despite treatment with a 3-week course of trimethoprim and sulfamethoxazole. His mother says that he's having trouble hearing. He has had 1 set of PE tubes in the past. You plan to place another set of PE tubes, and at this time you think that the child may benefit from an _____

3. Unilateral, foul-smelling rhinorrhea in a child is most commonly due to a _____
4. A 4-year-old child presents at the St. Elsewhere Emergency Room with inspiratory stridor and a fever of 103OF, and she is drooling and leaning forward. Her mother states that the child was well 4 hours ago, and she thinks that the child swallowed a stick because her throat hurts now and she was playing with small sticks in the yard outside. Your first concern is that this child may have _____
5. You then call the anesthesiologist and pediatrician, but while waiting for them to arrive you notice that the child is starting to tire out. In fact, she becomes so tired from trying to breathe that she simply faints and ceases all



Chapter Number 17: Pediatric Otolaryngology

- attempts at respiration. The first thing you do for this child is _____
6. Your next patient in the emergency room is a 1-year-old who presents with a chief complaint of stridor. He had a cold during this past week. On examination, he isn't sitting up and leaning forward and he isn't drooling. He does have inspiratory stridor, however. He does not have a fever, but he has a barking cough. The most likely diagnosis in this case is _____
 7. You therefore obtain soft tissue x-ray of the neck and a chest x-ray to look for the classic steeple sign. You are surprised when you find the child has actually aspirated a small metal object that appears to be the tip of a pen. Removal is with a rigid _____
 8. A multiloculated cystic neck mass in a newborn child that transilluminates is most probably a _____
 9. A midline neck mass in a child that moves when the child sticks out his tongue, but is otherwise not tender and is found in the area of the hyoid bone is most probably a _____
 10. A 2-year-old child presents to you with a high fever and large, painful, and inflamed left posterior triangle lymph nodes. The most likely diagnosis is _____
 11. Another 2-year-old child presents without fever and with no pain, but with large, firm lymph nodes in the posterior triangle of the neck. There are no lesions in the scalp seen



Chapter Number 17: Pediatric Otolaryngology

on examination. In fact, the child seems to be almost oblivious to these nodes. The child does not have a cat, and hasn't been recently scratched by a cat or a dog. The most common cause of this type of neck mass in a child is _____

12. A 2-year-old child presents to you with a fever of 103°F. His mother says he hasn't eaten anything all day and has vomited once. His neck is very stiff, and he won't move his head. He has had a cold over the last 3-4 days. You do an exam and find that his ears aren't infected and he won't open his mouth at all, and he still won't move his head. You obtain cerebrospinal fluid with a lumbar puncture (after noting the absence of papilledema on physical exam), and you send this to the lab. It returns with normal glucose and protein concentrations and no white blood cells. The opening and closing pressures are normal, and the fluid is quite clear. Every time you try to look in the patient's throat, he turns away, gags, and screams. You're thinking he may have cervical adenitis, so you order a _____
-
13. The lateral neck x-ray shows increased soft tissue thickness in the prevertebral area, but the child's head is bent down, and it's somewhat difficult to diagnose a retropharyngeal abscess. The next diagnostic study you need is _____
-
14. The CT scan shows a large retropharyngeal node that is ring enhancing and has a central lucency. Appropriate antibiotic coverage for this child would include covering _____



Chapter Number 17: Pediatric Otolaryngology

the following organisms: _____
, _____

, _____
, _____
and _____

15. A 2-year-old child is brought by her mother for treatment of sinusitis. She has been ill for 2 days and has a low-grade fever. Thick gray mucus is streaming from both nostrils, and her ears are clear. You should _____

Answers

1. Recurrent Tosillitis, Chronic Tosillitis, Obstructive Sleep Apnea, Asymmetric Tonsils
2. Adenoidectomy
3. Foreign Body
4. Acute Epiglottitis
5. Bag and Mask Ventilation
6. Croup
7. Bronchoscope
8. Cystic Hygroma
9. Thyroglossal Duct Cyst
10. Cervical Adenitis
11. Atypical Tuberculosis
12. Laternal Neck X-Ray
13. A CT Scan
14. S. Pneumoniae, H. Influenzae, S. Aureus, Anaerobe
15. Reassurance, Antibiotics



More educational opportunities from the AAO-HNSF

The American Academy of Otolaryngology—Head and Neck Surgery Foundation offers many programs designed to keep you up-to-date without leaving your practice. Most activities offer Category 1 AMA/PRA credits. The Academy/Foundation also serves as a primary resource for otolaryngology/head and neck surgery activities and events, and serves as an online clearinghouse for patient education and specialty information.

Visit the Academy's website, <http://www.entnet.org> to learn more about these programs.

