

A Practical Approach To:

PEDIATRIC OTOLARYNGOLOGY

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A Practical Approach to Pediatric Otolaryngology

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PREFACE

Diseases of the ear, nose, and throat comprise a large percentage of the conditions treated by pediatricians. The ability to recognize head and neck pathology is paramount in the daily practice of pediatrics. Formulation of appropriate therapeutic regimens is a logical outgrowth of disease recognition. With this in mind, we have written a text that deals with the clinical management of otolaryngologic problems encountered by those involved in the primary care of children.

In order to identify a problem, a thorough and systematic investigation of the suspected sites of pathology must be performed. The introductory chapters in this book provide a foundation for the clinician to embark upon a knowledgeable evaluation of head and neck structures. The ability to perform a competent examination requires both patience and diligence. Only then can pathologic conditions be recognized as entities distinct from variants of normal.

The remainder of the book is directed toward a categorization of common complaints encountered in daily practice. A differential diagnosis is developed for each specific entity and appropriate therapeutic options are provided. Discussion of surgical technique is purposefully limited. A list of suggested readings is supplied with each chapter for those who wish to broaden their data base.

We hope that this book will become a working reference for the primary care provider that will enable him to determine which pathologic conditions he is capable of, and comfortable with, managing and which ones demand referral to a specialist.

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Evaluation of the Head and Neck

An organized approach to the head and neck examination is important for all clinicians. With several different areas to examine, consistency by the examiner is important to ensure a thorough evaluation of each patient. The history and physical examination should always be directed by the patient's primary complaint, but the examiner should maintain a certain degree of flexibility in his approach in order to facilitate communication and the effective transmission of information.

EAR

The diagnosis of ear disease in children is facilitated by careful physical examination. Assessment of the eardrum (Fig 1-1) should include an evaluation of the tympanic membrane's position, color, translucency, and mobility. In acute otitis media, the eardrum is often "full" or bulging. It is usually red but can be pink, white, or yellow. In most cases it is opaque and moves poorly when either positive or negative pressure is applied. When a middle ear effusion is present, the eardrum is usually full but may be retracted when there is excessive negative middle ear pressure. The eardrum is characteristically white and opaque but can be yellow or blue and transparent. In some situations, a fluid level or air bubbles can be seen. When a middle ear effusion is present, the eardrum usually moves poorly to both positive and negative pressure. When there

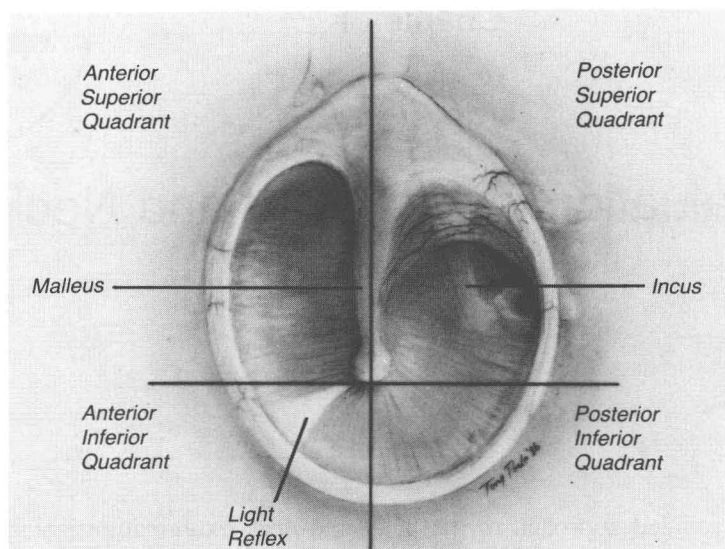


FIG 1-1.
Schematic representation of a normal tympanic membrane.

is high negative middle ear pressure, the eardrum often will move with negative pressure but not with positive pressure.

Inflammatory otic disease is the primary reason children seek medical care. With this in mind, patients frequently will be seen who describe a period of otalgia accompanied by nonspecific findings such as fever, nausea, and lethargy. The physical examination typically reveals an inflamed, bulging tympanic membrane. There may be purulent drainage in the ear canal if there is an associated myringitis or if there has been a tympanic membrane perforation. An ear that is excessively tender to touch is indicative of severe inflammation of the external auditory canal (“external otitis”) and is usually not seen with acute otitis media. In addition, it is unusual to see cervical lymphadenopathy with otitis media, but it is quite common in association with external otitis.

Even though acute inflammatory otic disease is certainly the most common otolaryngology problem dealt with by pediatricians, the clinician must maintain an open attitude in order to discover more subtle pathologic conditions that may affect the ear (Fig 1-2).

It is always important to inquire about children’s ability to hear when examining patients with otologic complaints. Even though preschoolers

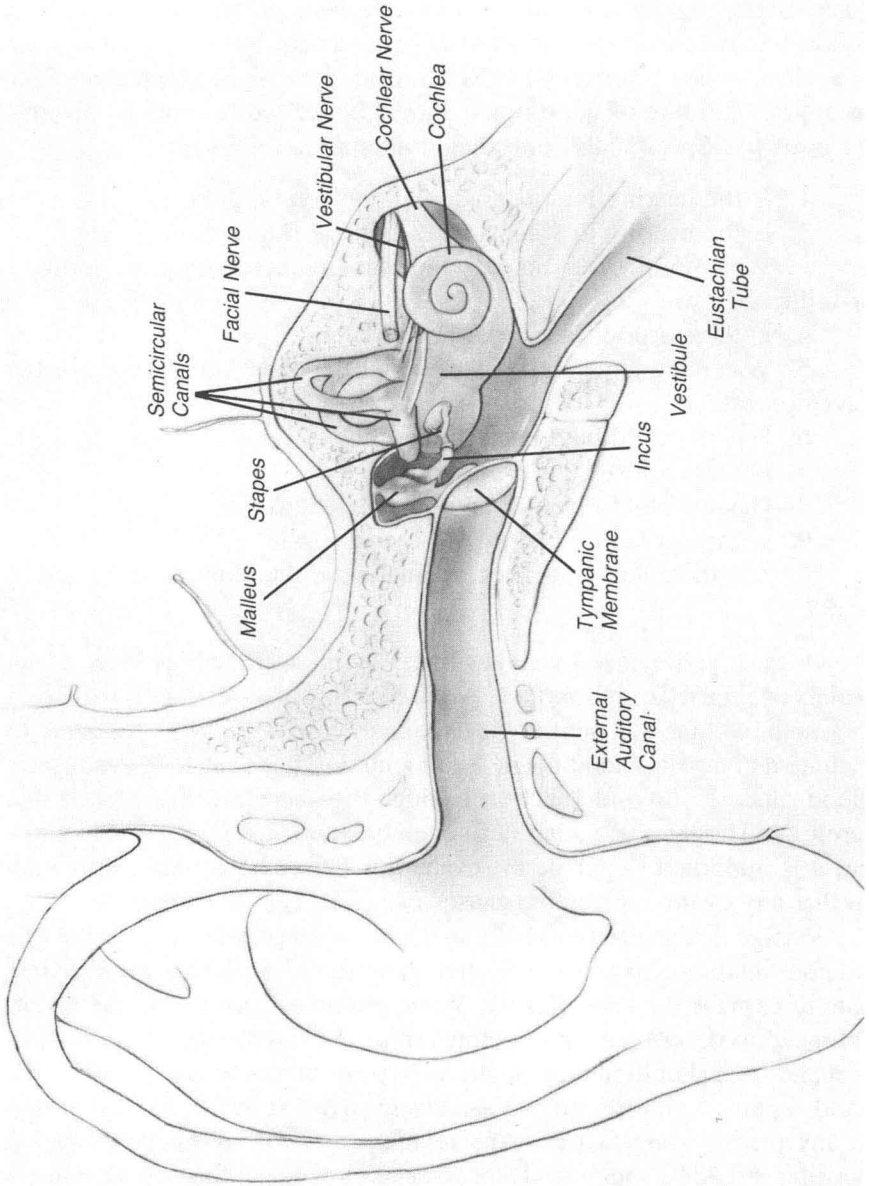


FIG 1-2. Coronal section demonstrating the relationships of the external, middle, and inner ears.

may lack certain communication skills necessary to inform the examiner of hearing loss, clues that should be looked for include talking in a loud voice or playing the television too loudly. Though most hearing loss in children is secondary to otitis media, one cannot ignore the possibility of a sensorineural hearing loss (SNHL). Once a SNHL has been identified, an appropriate line of questioning should be started in order to identify the etiology. Specifically, one should attempt to ascertain:

1. Is the hearing loss of gradual or sudden onset?
2. Is the hearing loss constant or is there fluctuation?
3. What are the associated symptoms (including tinnitus, vertigo, or fullness)?
4. Is there a prior history of head trauma?
5. Was there anything unusual about the child's birth or perinatal development?
6. Has the child had repeated episodes of ear infections?
7. Is there a history of meningitis?
8. Has the child received any ototoxic drugs?
9. Is there a family history of hearing loss?
10. Are there any associated anomalies of the pinna or head and neck?

Once a SNHL has been identified or is suspected, referral to an otolaryngologist is appropriate. A baseline evaluation should include a thorough otologic and neurologic examination with appropriate testing to include a complete blood count, sedimentation rate, electrolytes, fasting blood glucose, thyroid function testing, triglycerides, cholesterol, and serology. Though the testing is frequently inconclusive and nondiagnostic, it is important to pursue the evaluation before beginning habilitation so that any of the correctable causes of SNHL can be treated.

Vertigo is not seen frequently in the pediatric population. It is unclear whether the problem exists less often in children or whether they are less able to express their complaints. When possible, patients should be encouraged to describe their symptoms in as much detail as possible. Specifically, one should inquire about the type of motion experienced by the child, its duration, its frequency, and its severity, as well as its relationship to any predisposing factors. Any relationship to head position or body position should be sought and any association with hearing loss or fullness should be identified. The patient's overall medical condition and history

should be investigated carefully because the audiovestibular system is only one of many factors that needs to be evaluated in the patient with vertigo. An otoneurologic evaluation as described previously for patients with SNHL should be performed in patients with vertigo. In addition, special tests of vestibular function can be carried out to objectively quantify nystagmus. Whenever an etiology can not be established easily by the general pediatrician, an otolaryngology referral is appropriate.

NOSE

Nasal obstruction is a frequent complaint among pediatric patients. In evaluating patients with this problem, it is important to ascertain whether the obstruction is unilateral or bilateral and whether it is constant or intermittent. Questioning along these lines can help establish whether the problem appears to be related to anatomical irregularities or secondary to mucosal edema from inflammatory changes of the nasal mucosa (Fig 1–3). Pain is uncommon with nasal obstruction unless there is severe inflammation, a foreign body, or a neoplasm.

The most frequent cause of nasal obstruction is a viral upper respiratory infection (“cold”). In some patients, there may be a superimposed

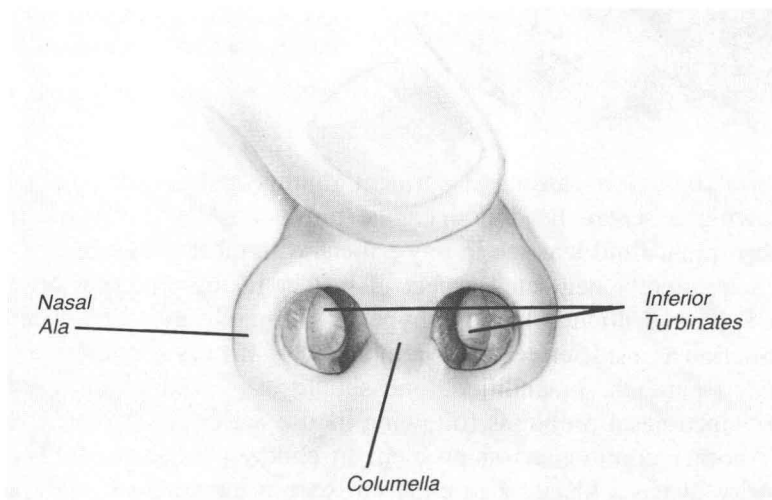


FIG 1–3.

A finger can be used to evert the tip of the nose in order to examine its interior.

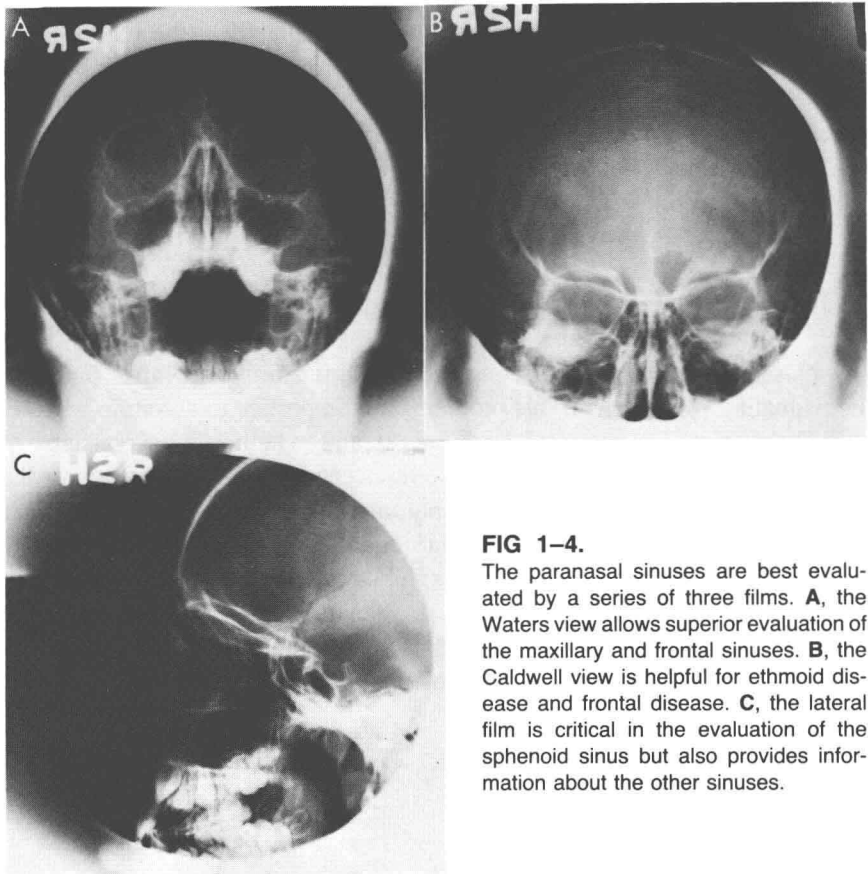


FIG 1-4.

The paranasal sinuses are best evaluated by a series of three films. **A**, the Waters view allows superior evaluation of the maxillary and frontal sinuses. **B**, the Caldwell view is helpful for ethmoid disease and frontal disease. **C**, the lateral film is critical in the evaluation of the sphenoid sinus but also provides information about the other sinuses.

bacterial infection causing a purulent rhinitis and sinusitis (Fig 1-4). Following a severe head injury, one must consider the possibility of cerebrospinal fluid leakage in any patient with clear rhinorrhea.

A frequently neglected aspect of history-taking concerns drug use, both legal and illicit. Many antihypertensive medications produce nasal obstruction as a side effect and a complete drug history should be obtained from all patients. In addition, one should ask about possible cocaine abuse since nasal problems following its use are common.

Another common nasal problem in children is epistaxis. The vast majority of nasal bleeding in children is from the anterior aspect of the septum and is self-limited. Though it may be spontaneous, the majority of cases probably result from trauma, especially digital. Patients should

be questioned regarding the duration and intensity of their bleeding episodes as well as any associated medical problems that might predispose them to hemorrhage (drug history, hypertension, renal disease).

Any patient with repeated episodes of epistaxis should be referred for evaluation. Thorough anterior and posterior rhinoscopy should be performed in both the natural and decongested state in an effort to identify an etiology for bleeding. A hand-held otoscope with a nasal attachment can be used in most situations if a nasal speculum is not available. The flexible nasopharyngoscope allows excellent visualization of the nasopharynx and is helpful in selected circumstances. Radiographic studies may also prove helpful in evaluating some patients, especially adolescent males in whom a juvenile nasopharyngeal angiofibroma is suspected.

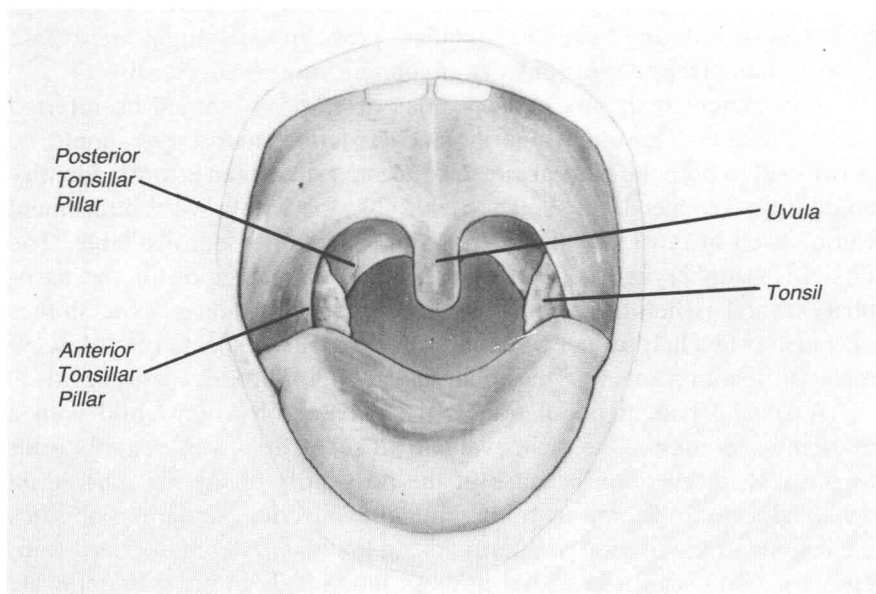
A special patient population is the neonate or young child with a midline nasal mass. One must evaluate all such patients thoroughly prior to surgical intervention because of the possibility of the mass being an encephalocele or glioma with intracranial connection. Other possibilities for lesions in this region are dermoids or lipomas. A computerized tomographic (CT) scan is essential in these individuals in order to delineate the specific location of the mass.

ORAL CAVITY

Examination of the oral cavity all too frequently consists of a brief look in the mouth with a flashlight and a tongue blade. While this may be satisfactory to evaluate the dorsal aspect of the tongue and the palate, it is usually inadequate to fully assess the contents of the oral cavity and oropharynx. If possible, one should use a headlight so that both hands are free to manipulate the tongue and lips. When this is done in an orderly fashion, a complete examination of the oral structures is possible (Fig 1–5).

Examination of the oral cavity should focus on identification of both inflammatory and mass lesions. In addition, alterations in occlusion can be identified and effectively treated. Though complaints of alteration in taste may manifest themselves during the examination of the oral cavity, this sensory deficit is frequently indicative of a systemic problem; a complete head and neck evaluation is essential.

The presence of ulcerated lesions in the oral cavity may reflect several diverse etiologies. Because of this, a broad history should be obtained,

**FIG 1-5.**

Normal oropharyngeal structures.

including any history of immunosuppressive drugs, venereal disease, or oral sexual habits. The ulcerations should be evaluated in terms of their size, location, periodicity, painfulness, and their pattern of growth or spread. The examiner should inquire about associated constitutional symptoms as well as the presence of similar ulcerations on other cutaneous or mucosal surfaces.

Essentially all intraoral mass lesions should be evaluated by an otolaryngologist for possible biopsy. The growths should be categorized according to their pain, location, duration, and growth characteristics. Patients should be questioned specifically regarding trismus, odynophagia, and dysphagia.

Identification of occlusal abnormalities is important for all physicians performing intraoral examinations so that appropriate dental referral can be made. It should be remembered that malocclusion can be an occult cause of facial pain, headache, or earache. Malocclusion can often be identified simply by having a patient smile and then open and close his mouth repeatedly while observing for any deviations in jaw movement.

THROAT

Assessment of the throat involves an evaluation of the patient's ability to swallow, breathe, and phonate. Any symptom of dysphagia, odynophagia, airway obstruction, or hoarseness mandates an appropriate examination of the larynx, pharynx, and hypopharynx. The primary care physician is relatively limited in his ability to examine these areas. Whenever there is a persistent problem in this locale, referral for appropriate radiographic and endoscopic studies is indicated.

If a patient presents with either pain or difficulty in swallowing, one should attempt to elicit the location of the pain, its duration, and its periodicity. It is important to identify the relationship of symptoms to ingestion of solids or liquids and whether there is any associated hoarseness, dysphagia, or stridor.

Patients who present with stridor demand an organized but aggressive approach to the problem. During the history-taking, one should identify the duration of the respiratory problem and attempt to establish whether the stridor is inspiratory, expiratory, or both. Patients should be questioned regarding the relationship of various activities to the onset of airway obstruction, including sleep, feeding, exercise, cervical trauma, thoracic or cervical surgery, or body position. Other specific details that should be obtained from the history include the presence of pain or hoarseness and any current medications.

Following the history, anteroposterior and lateral neck radiographs (high kV) and posteroanterior and lateral chest radiographs should be obtained (Fig 1–6). Either indirect laryngoscopy or flexible laryngoscopy (and possibly bronchoscopy) should be performed (Fig 1–7). If this is normal, the patient can be observed unless there is a progression of symptoms marked by increasing stridor, weight loss, or feeding difficulties. Should this occur, or should the initial endoscopic exam be abnormal, the patient may benefit from one or more of the following diagnostic measures: barium swallow, fluoroscopy, microlaryngoscopy and bronchoscopy, echocardiography, electrocardiography, and arterial blood gas measurement (Fig 1–8). At that point, a definitive course of action can be outlined based on the work-up which has been completed.

Children who present with hoarseness for a period longer than two weeks should be referred for either indirect laryngoscopy or flexible laryngoscopy. Neoplastic lesions are unusual in children but acute and chronic laryngitis, laryngeal papillomatosis, vocal cord polyps, vocal cord nodules, and vocal cord paralysis are not uncommon. Prior to endoscopic