# CHAPTER 2 – EARS, NOSE, THROAT AND MOUTH

First Nations and Inuit Health Branch (FNIHB) Clinical Practice Guidelines for Nurses in Primary Care.
The content of this chapter was revised August 2011.

## Table of Contents

ASSESSMENT OF THE EARS, NOSE, THROAT (ENT) AND MOUTH .............. 2–1  
History of Present Illness and Review of Systems ........................................ 2–1  
Physical Examination .................................................................................. 2–2  
COMMON PROBLEMS OF THE EARS AND NOSE .................................. 2–3  
  Anterior Epistaxis .................................................................................... 2–3  
  Ceruminosis (Impacted Cerumen) .............................................................. 2–4  
  Labyrinthitis ............................................................................................ 2–5  
  Menière’s Disease (Endolymphatic Hydrops) ............................................ 2–6  
  Otitis Externa ......................................................................................... 2–7  
  Otitis Media, Acute .................................................................................. 2–9  
  Otitis Media, Chronic Suppurative .......................................................... 2–10  
  Otitis Media, Serous (Otitis Media with Effusion) ..................................... 2–11  
  Rhinitis .................................................................................................... 2–13  
  Rhinosinusitis, Acute ............................................................................... 2–15  
  Rhinosinusitis, Chronic ......................................................................... 2–16  
COMMON PROBLEMS OF THE THROAT ...................................................... 2–18  
  Laryngitis ............................................................................................... 2–18  
  Pharyngitis (Sore Throat) ........................................................................ 2–19  
COMMON PROBLEMS OF THE MOUTH ....................................................... 2–21  
  Angular Cheilitis ................................................................................... 2–21  
  Aphthous Stomatitis ............................................................................... 2–21  
  Dental Abscess ....................................................................................... 2–23  
  Dental Decay ........................................................................................... 2–24  
  Discoloured (non-vital) Permanent Tooth ............................................. 2–27  
  Gingivitis ................................................................................................ 2–27  
  Migratory Glossitis (Geographic Tongue) ............................................ 2–27  
  Pericoronitis ......................................................................................... 2–27  
  Periodontitis .......................................................................................... 2–28
Toothache ................................................................. 2-28
Xerostomia (Dry Mouth) ........................................ 2-29

EMERGENCY PROBLEMS OF THE NOSE, THROAT AND MOUTH .......... 2-30
  Avulsed Tooth ............................................................. 2-30
  Fractured Tooth .......................................................... 2-30
  Mastoiditis ........................................................................ 2-30
  Oral Trauma ...................................................................... 2-31
  Peritonsillar Abscess ..................................................... 2-31
  Posterior Epistaxis .......................................................... 2-32

SOURCES ............................................................................. 2-33
ASSESSMENT OF THE EARS, NOSE, THROAT (ENT) AND MOUTH

HISTORY OF PRESENT ILLNESS AND REVIEW OF SYSTEMS

The following characteristics of each symptom should be elicited and explored:
- Onset (sudden or gradual)
- Chronology
- Current situation (improving or deteriorating)
- Location
- Radiation
- Quality
- Timing (frequency, duration)
- Severity
- Precipitating and aggravating factors
- Relieving factors
- Associated symptoms
- Effects on daily activities
- Previous diagnosis of similar episodes
- Previous treatments
- Efficacy of previous treatments

CARDINAL SYMPTOMS

Characteristics of specific symptoms should be elicited, as follows.

**Ears**
- Recent changes in hearing
- Compliance with and effectiveness of hearing aid
- Itching
- Earache
- Discharge
- Tinnitus
- Vertigo
- Ear trauma, including Q-tip use

**Nose**
- Nasal discharge or postnasal drip
- Epistaxis
- Obstruction of airflow
- Sinus pain, pressure
- Itching
- Anosmia
- Nasal trauma

**Mouth and Throat**
- Dental status
- Oral lesions
- Bleeding gums
- Sore throat
- Dysphagia (difficulty swallowing)
- Hoarseness or recent voice change

**Neck**
- Pain
- Swelling
- Enlarged glands

**Other Associated Symptoms**
- Fever
- Malaise
- Nausea or vomiting

PAST MEDICAL HISTORY (SPECIFIC TO ENT)
- Frequent ear or throat infections
- Rhinosinusitis
- Trauma to head or ENT area
- ENT surgery
- Audiometric screening results indicating hearing loss
- Allergies
- Smoking
- Prescription or over-the-counter medications used regularly

FAMILY HISTORY (SPECIFIC TO ENT)
- Others at home with similar symptoms
- Seasonal allergies
- Asthma
- Hearing loss
- Menière’s disease
- ENT cancer
PERSONAL AND SOCIAL HISTORY
(SPECIFIC TO ENT)
– Frequent exposure to water (swimmer’s ear)
– Use of foreign object to clean ear
– Crowded living conditions
– Dental hygiene habits
– Exposure to smoke or other respiratory toxins
– Recent air travel
– Occupational exposure to toxins or loud noises

REVIEW OF SYSTEMS
Obtain a history about other relevant systems for the presenting concern. This may include information about the eyes, central nervous system, gastrointestinal system and/or respiratory system.

PHYSICAL EXAMINATION

GENERAL APPEARANCE
– Apparent state of health
– Degree of comfort or distress
– Colour (flushed or pale)
– Nutritional status (obese or emaciated)
– Match between appearance and stated age
– Difficulty with gait or balance

EARS

Inspection
– Pinna: lesions, abnormal appearance or position
– Canal: discharge, swelling, redness, wax, foreign bodies
– Ear drum: colour, light reflex, landmarks, bulging or retraction, perforation, scarring, air bubbles, fluid level
– Assess mobility of ear drum using pneumatic otoscope (if available)

Palpation
– Tenderness over tragus or mastoid process
– Tenderness on manipulation of the pinna

Estimate hearing with a watch or whisper test; perform screening audiometry or tympanography (if equipment available). Perform Weber and Rinne tests.
LYMPH NODES OF THE HEAD AND NECK

**Palpation**
- Tenderness, enlargement, mobility, contour and consistency of nodes
- Pre- or post-auricular nodes
- Anterior and posterior cervical nodes
- Tonsillar
- Submaxillary
- Submandibular
- Occipital

COMMON PROBLEMS OF THE EARS AND NOSE

**ANTERIOR EPISTAXIS**
Localized bleeding from the anterior portion of the nasal septum.

**CAUSES**
- Trauma and irritation
- Drying of nasal mucosa due to lack of humidity in environment
- Foreign-body irritation
- Nasal tumour (rare)

**Predisposing Factors**
- Allergic rhinitis
- Deviated nasal septum
- Infection of the upper respiratory tract
- Local vascular lesions
- Nasal polyps
- Cocaine use
- Nasal spray use
- Systemic coagulopathies
- Drugs (warfarin, NSAIDs)
- Hematological malignancies
- Hypertension
- Liver failure
- Uremia
- Blood dyscrasias (hemophilia, von Willebrand’s disease)

**HISTORY**
- Exposure to one or more of the predisposing factors
- Usually unilateral
- Profuse bleeding or blood-streaked nasal discharge
- Determine duration, amount and frequency of bleeding
- Use of anticoagulants, ASA products or other medications such as topical nasal steroid sprays
- History of easy bruising or bleeding elsewhere (for example, melena, heavy menstrual periods)
- Family history of bleeding disorders (von Willebrand’s disease)

**PHYSICAL FINDINGS**
- Examine client sitting up and leaning forward so that the blood will flow forward
- Blood pressure normal unless bleeding is severe enough to cause loss of volume
- Heart rate may be elevated because of fear or if bleeding is severe enough to cause loss of volume
- Obvious deformity or displacement may be present
- Bleeding from anterior portion of septum may be present
- Inspect throat for posterior bleeding
- Sinuses may feel tender
- Septum may be deviated

**DIFFERENTIAL DIAGNOSIS**
- Infection of nasal mucosa
- Dryness and irritation of nasal mucosa
- Nasal fracture
- Foreign body
- Tumor
- Tuberculosis
- Blood dyscrasias

**DIAGNOSTIC TESTS**
None.

**MANAGEMENT**

**Goals of Treatment**
- Stop loss of blood
- Prevent further episodes
**Appropriate Consultation**

Usually not necessary unless complications arise or serious underlying pathology is a concern.

**Nonpharmacologic Interventions**

Most bleeding will be stopped by application of pressure to both sides of the nose, with firm pressure against the nasal septum for 15–20 minutes.

**Client Education**

- Recommend increasing room humidity (client should keep a pot of water on the stove at all times, especially in winter)
- Counsel client about appropriate use of medications (dosage and side effects; avoidance of overuse)
- Recommend avoidance of known irritants and local trauma (nose-picking, forceful nose-blowing)
- Instruct client about first-aid control of recurrent epistaxis (sitting up and leaning forward; applying firm, direct pressure to soft part of nose)
- Recommend liberal use of lubricants such as petroleum jelly (for example, Vaseline) in the nares to promote hydration of the nasal mucosa
- Advise client to trim fingernails to avoid trauma from nose-picking

**Pharmacologic Interventions**

If direct pressure alone is insufficient to stop the bleeding, try a topical vasoconstrictor:

- xylometazoline 0.1% drops (Otrivin)

Soak a cotton ball with the solution. Place the medicated cotton ball in the anterior portion of the nose. Press firmly against the bleeding nasal septum for 10–20 minutes.

If there is failure to control bleeding with this measure, nasal packing should be performed.

Anesthesia and vasoconstriction:

- Soak cotton ball in a mix of 1% lidocaine with epinephrine (1:1000)
- Put 1–2 cotton balls into the bleeding nostril. (If bleeding is not clearly unilateral, put cotton balls into both nostrils.)
- Put a dry cotton ball at the external nares to prevent leakage and dripping
- Leave cotton balls in place for 10 minutes

- Pack the anterior nasal cavity with one-half inch ribbon gauze soaked in Vaseline layered anterior to as far posterior as possible, starting at the nasal floor and going toward the nasal roof. Leave in place for 2–3 days
- Nasal tampons or Gelfoam, if available, are alternatives to ribbon gauze

**Monitoring and Follow-Up**

Follow up to remove packing in 2–3 days.

**Referral**

Refer to a physician to rule out other pathologies if the problem is recurrent or if the client is older. If there has been trauma (for example, a fist fight), it is important to rule out septal hematoma. Management of hematoma of the nasal septum is surgical, and medevac is necessary.

---

**CERUMINOSIS (IMPACTED CERUMEN)**

Obstruction of the ear canal by cerumen (ear wax).

**CAUSES**

Cerumen is produced naturally by the ear canal and is normally cleared by the body’s own mechanisms. Occasionally, cerumen is produced in excessive amounts and partially or totally occludes the ear canal.

**HISTORY**

- Ear pain
- Sensation of fullness
- Itching
- Conductive hearing loss

**PHYSICAL FINDINGS**

- Wax blocks canal
- Canal may be reddened and swollen
- Abnormal Weber and Rinne test results (evidence of conductive loss) may be present

**DIFFERENTIAL DIAGNOSIS**

- Foreign-body irritation
- Otitis media
- Otitis externa

**COMPLICATIONS**

- Hearing loss
- Otitis externa
DIAGNOSTIC TESTS
None.

MANAGEMENT

Goals of Treatment
– Remove wax
– Treat any underlying irritation of the canal

Appropriate Consultation
Consulting a physician is usually not necessary.

Nonpharmacologic Interventions
Sometimes it is helpful to soften the wax with a few drops of slightly warmed mineral oil or baby oil before attempting to irrigate the ear. Inject lukewarm water upward within ear canal with an ear syringe until wax is cleared (only do this if tympanic membrane is visible and intact).

To prevent ceruminosis, anyone who produces large amounts of cerumen can periodically (once or twice weekly) instill 3 drops of a 1:1 solution of hydrogen peroxide and water into each ear to decrease the likelihood of impaction. One or two drops of baby oil once or twice weekly will help to keep wax soft. Only instill a solution if the tympanic membrane is intact.

Monitoring and Follow-Up
Advise client to return as necessary if symptoms recur.

LABYRINTHITIS
Disorder involving inflammation of the vestibular labyrinth in the inner ear. Most commonly presents as a self-limiting condition following a viral upper respiratory illness (URI). This section also includes benign positional vertigo.

CAUSES
– Viral infection – influenza, parainfluenza, adenovirus, RSV, coxsackie, CMV, varicella zoster
– Bacterial infections (S. pneumoniae, H. influenzae, M. catarrhalis, P. aeruginosa, P. mirabilis): If found in nearby structures such as middle ear, such infections may cause the following:
  – Fluid to collect in the labyrinth (serous labyrinthitis)
  – Fluid to directly invade the labyrinth, causing pus-producing (suppurative) labyrinthitis
  – Trauma or injury to head or ear
– Allergies
– Certain medications taken in high doses (for example, furosemide\(^2\), ASA, some IV antibiotics, or phenytoin at toxic levels\(^5\))
– Benign tumor of the middle ear
– Benign positional vertigo, where small stones or calcified particles break off within the vestibule and bounce around. The particles trigger nerve impulses that the brain interprets as movement
  – Neuronitis
  – Vasculitis
– Rarely, more serious causes of vertigo can mimic labyrinthitis, such as:
  – Tumors at the base of the brain
  – Strokes or insufficient blood supply to the brainstem or the nerves surrounding the labyrinth

HISTORY
– Vertigo (most prominent symptom)
– Dizziness
– Nausea and vomiting
– Fluctuating hearing loss
– Tinnitus
– Malaise
– Perspiration

PHYSICAL FINDINGS
– Diaphoresis
– Increased salivation
– Nystagmus

DIFFERENTIAL DIAGNOSIS
– Menière’s disease
– Chronic bacterial mastoiditis
– Drug-induced damage to the vestibular labyrinth
– Acoustic neuroma
– Multiple sclerosis
– Temporal-lobe epilepsy

COMPLICATIONS
– Permanent hearing loss
– Falls potentially leading to injury
– Meningitis (if bacterial cause)

DIAGNOSTIC TESTS
None.
MANAGEMENT

Goals of Treatment
– Identify and treat underlying disorder if anything other than viral labyrinthitis is suspected
– Supportive treatment of symptoms only

Appropriate Consultation
Consult a physician if the client’s symptoms persist for more than 1 week with therapy or if anything other than a simple viral illness is suspected.

Nonpharmacologic Interventions
Advise client to rest in a darkened room with eyes closed during acute attacks (otherwise, activity as tolerated).
Advise client to drink fluids in sufficient quantity to maintain hydration status.
If benign paroxysmal positional vertigo is suspected, instruct the patient to do the modified Epley exercise TID until free from vertigo for 24 hours. These modified Epley instructions are for the left side. Each side should be done once with every set of exercises:
– Start sitting in the middle of a bed, with a pillow behind, so if laying down it will be under your shoulders
– Turn head 45 degrees to left side (looking over shoulder)
– Lie back quickly with shoulders on pillow and head reclined onto the bed. Hold for 30 seconds
– Turn head only 90 degrees to the right (without raising it) and hold for 30 seconds
– Turn body and head another 90 degrees to the right and hold for 30 seconds
– Sit up on right side, with legs hanging down over side of bed

Pharmacologic Interventions
Treat nausea and vomiting:
  dimenhydrinate (Gravol), 50 mg PO or rectal suppository q6h prn

Monitoring and Follow-Up
Follow up in 1 or 2 days to monitor symptom control. Ensure that the client remains hydrated if nausea or vomiting is significant.

Referral
Refer to a physician if anything other than viral labyrinthitis is suspected, especially if attacks are severe or recurrent. A neurology consult may be necessary to identify and treat underlying disorder.

MENIÈRE’S DISEASE (ENDOLYMPHATIC HYDROPS)
A disorder in which there is inadequate absorption of endolymph fluid in the inner ear so it accumulates and distorts the membranous labyrinth resulting in recurrent attacks of a cluster of symptoms.

CAUSES
Unknown, but the best theory suggests that it is an inner ear response to an injury (for example, reduced inner ear pressure, allergy, endocrine disease, lipid disorder, vascular disorder, viral infection).

Risk Factors
– Caucasian heritage
– Stress
– Allergy
– High salt intake
– Exposure to noise

HISTORY
– Occurs as episodic attacks lasting several hours with intervening periods of remission
– Fluctuating loss of low-frequency hearing
– Tinnitus
– Vertigo (spontaneous attacks lasting from 20 minutes to several hours)
– Sensation of fullness in the ear
– Nausea, vomiting
– Ataxia; falls may occur
– Prostration (inability to stand up because motion increases symptoms)

PHYSICAL FINDINGS
– Pallor
– Sweating
– Distress, prostration
– May be some measure of dehydration if vomiting is severe
– Audiometry testing with pure tones may show low-frequency sensorineural nerve loss and impaired speech distinction
– Tuning fork tests (Weber and Rinne) confirm validity of the audiometry results

DIFFERENTIAL DIAGNOSIS
– Viral labyrinthitis
– Benign positional vertigo
– Acoustic neuroma
– Syphilis
– Multiple sclerosis
– Vertebrobasilar disease

COMPLICATIONS
– Hearing loss
– Injury from falls during attacks
– Inability to work
– Failure to diagnose acoustic neuroma

DIAGNOSTIC TESTS
None.

MANAGEMENT
Goals of Treatment
– Control symptoms
– Ascertain underlying cause

Appropriate Consultation
Consult physician for help with diagnosis (not urgent so long as client is stable and symptoms are controlled with treatment).

Nonpharmacologic Interventions
Client Education
Counsel client about prevention of attacks:
– stress-reduction strategies
– avoidance of excessive salt intake
– smoking cessation
– reduction of alcohol intake
– avoidance of ototoxic medications such as acetylsalicylic acid (ASA)

Bed rest as necessary until vertigo settles.

Pharmacologic Interventions
For acute attack, control nausea and vomiting:
– dimenhydrinate (Gravol), 50 mg PO or rectal suppository q6h pm

Monitoring and Follow-Up
Assess hearing at least annually in clients with stable symptoms.

Referral
Refer to a physician if symptoms are not controlled or if hearing loss is evident. A neurology consult may be necessary to identify and treat underlying disorder.

OTITIS EXTERNA
Infection or inflammation of the ear canal, which presents in two forms:
– A benign painful infection of the outer canal
– Malignant (necrotizing) otitis externa is a potentially lethal form that usually occurs in elderly, immunocompromised or diabetic patients. Involves bacterial spread to the cartilage of the external ear with pain and edema. It may be accompanied by a fever and systemic manifestations of infection

CAUSES
– Gram-negative rods: Proteus, Pseudomonas
– Gram-positive cocci (less common):
  – Staphylococcus, Streptococcus
– Fungal infection (for example, candidiasis)

Predisposing Factors
– Hearing aids
– Narrow ear canal
– Use of cotton-tipped applicators
– Use of ear plugs
– Swimming

Risk Factors
– Immunocompromised status, for example:
  – Patients with diabetes
  – Patients on immunosuppressant medication
  – Post-transplant surgery
  – Chronic systemic steroid use
HISTORY
- Ear pain (otalgia)
- Pruritus or irritation
- Purulent discharge from canal (cheesy white, greenish blue or gray)
- Recent exposure to water or mechanical trauma
- Reduced hearing or feelings of fullness in ear may be present
- Unilateral headache may be present

PHYSICAL FINDINGS
- Temperature may be elevated
- Redness and edema of ear canal
- Purulent exudate or debris in canal
- Tympanic membrane usually normal (may be slightly reddened)
- If edema and debris are severe, it may be impossible to visualize the tympanic membrane
- Manipulation of pinna or pressure on tragus causes pain
- Peri-auricular and anterior cervical nodes may be enlarged and tender

DIFFERENTIAL DIAGNOSIS
- Acute otitis media with perforation
- Skin condition involving the ear (for example, eczema)
- Mastoiditis
- Furuncle in canal
- Foreign-body irritation

COMPLICATIONS
- Severe otitis externa with closure of canal
- Cellulitis of the external ear and face

DIAGNOSTIC TESTS
None. Swab for culture and sensitivity is not routinely indicated.

MANAGEMENT
Goals of Treatment
- Relieve pain
- Prevent recurrence
- Eradicate infection

Appropriate Consultation
Consultation usually not needed, unless complicated by cellulitis of the external ear or face, the problem is recurrent, the therapy failed, systemic symptoms are present (for example, fever), the client is immunocompromised (for example, diabetic) or malignant otitis externa is suspected.

Nonpharmacologic Interventions
Debriding the canal is critical, and the importance of this step cannot be overemphasized. Clean the outer ear and the canal with normal saline and gently debride the area of debris and exudate with a gauze wick.

If there is significant drainage or if there is threat of further narrowing, an ear wick (1 inch [2.5 cm] of cotton or gauze) threaded gently into the canal and left there will help keep the canal open and ensure that medicated drops reach the distal part of the canal. The wick will eventually fall out as edema subsides or can be removed after 2–3 days.

Client Education
- Counsel about appropriate use of medications (if possible, have another family member instill drops and clean the ear)
- Counsel about proper ear hygiene before instilling medications
- Advise client about preventing recurrent irritation (for example, client should not use cotton-tipped applicators in the ears)
- Recommend proper drying of ears after swimming or use of ear plugs while swimming, bathing or showering
- Counsel client about proper hygiene of hearing aids and ear plugs

For recurrent episodes, start the client on prophylactic measures:
- Burrow’s solution (Buro-Sol otic solution), 2 or 3 drops after swimming or showers
- or
- solution of half vinegar and half sterile water, 2 or 3 drops after swimming or showers

Pharmacologic Interventions
Manage pain with simple analgesics:
- acetaminophen (Tylenol) 325 mg, 1–2 tabs PO q4-6h prn
As otitis externa can be very painful, stronger analgesia may be necessary if acetaminophen does not control pain.

Otitis Externa (Acute Uncomplicated):

If there is no danger of perforated tympanic membrane, start:

- gramicidin/polymyxin (Optimyxin) eye/ear solution
  4 drops qid for 7 days

If the tympanic membrane cannot be visualized or is perforated:

- ciprofloxacin/dexamethasone (Ciprodex)
  otic solution, 4 drops bid for 7 days

Malignant (Necrotizing) Otitis Externa:

Contact physician as treatment requires parenteral antibiotics with coverage for *Pseudomonas* species (for example, ciprofloxacin) in addition to hospital care.

Fungal Otitis Externa (Otomycosis):

Fungal organisms can cause otitis externa, especially in immunocompromised patients. In mild to moderate cases of otitis externa due to fungi, treat with antifungal agents:

- clotrimazole 1% cream (Canesten), apply bid for 7 days
  or
  Locacorten Vioform otic drops, 2 drops bid for 7 days (can be obtained from a retail pharmacy)

**Monitoring and Follow-Up**

Follow up 7 days after course of therapy is complete. Instruct client to return sooner if pain increases or if fever develops despite therapy.

**Referral**

Immediately refer cases of malignant (necrotizing) otitis externa to a hospital after consultation with a physician, especially clients with comorbid conditions (such as an immunocompromised status or diabetes). They require admission to hospital for intravenous (IV) antibiotic therapy.

---

**OTITIS MEDIA, ACUTE**

Infection of the middle ear.

**CAUSES**

- Viral in 25% of cases
- Bacterial forms due to *Streptococcus pneumoniae* (primarily), *Haemophilus influenzae*, *Moraxella catarrhalis*

Active or passive smoking is a major predisposing factor.

**HISTORY**

- General malaise and fever
- Ear pain (throbbing)
- Sensation of fullness
- Hearing decreased
- Tinnitus or roaring in ear, vertigo
- Purulent discharge if drum perforated
- Infection of the upper respiratory tract may be present concurrently or may precede the otitis media

**PHYSICAL FINDINGS**

- Temperature may be elevated
- Client may be mildly or moderately ill
- Tympanic membrane red, dull, bulging
- Bony landmarks obscured or absent
- Possible perforation and purulent discharge in canal
- Decreased mobility of tympanic membrane (as noted with pneumatic otoscope if available)
- Bullae seen on tympanic membrane (but only in cases of mycoplasma infection)
- Peri-auricular and anterior cervical nodes enlarged and tender

**DIFFERENTIAL DIAGNOSIS**

- Acute otitis externa
- Transient middle-ear effusion (not an infection)
- Mastoiditis
- Trauma or foreign-body irritation
- Referred ear pain from dental abscess or temporomandibular joint dysfunction
COMPLICATIONS
- Reduced hearing
- Serous otitis media
- Mastoiditis
- Chronic otitis media
- Meningitis
- Epidural abscess
- Cholesteatoma

DIAGNOSTIC TESTS
None. Swab for culture and sensitivity if there is discharge.

MANAGEMENT

Goals of Treatment
- Eradicate infection
- Relieve pain
- Prevent complications

Appropriate Consultation
Usually not necessary if condition is uncomplicated.

Nonpharmacologic Interventions
Client Education
- Recommend increased rest in the acute febrile phase
- Counsel client about appropriate use of medications (dosage, compliance, follow-up)
- Explain disease course and expected outcome (serous otitis media may persist for several weeks)
- Recommend avoidance of flying until symptoms have resolved

Pharmacologic Interventions
To relieve pain and fever:
- acetaminophen (Tylenol), 325 mg, 1–2 tabs PO q4-6h prn

Antibiotic therapy:
- amoxicillin (Amoxil), 500 mg PO tid for 7 days
  or
- azithromycin (Zithromax) 500 mg PO on first day then 250 mg PO od for 4 days

Monitoring and Follow-Up
- Instruct client to return in 3 days if symptoms do not improve or if symptoms progress despite therapy
  - Follow up in 7 days: look for development of serous otitis media
  - Assess hearing 1 month after treatment if any symptoms persist

Referral
Not necessary if condition is uncomplicated.

OTITIS MEDIA, CHRONIC SUPPURATIVE
Nonresolving or recurrent low-grade infection of the middle ear associated with perforation of the tympanic membrane.

It can become a dangerous clinical problem if it spreads from being a simple mucosal disease to causing in-growth of stratified epithelium into the middle ear (a cholesteatoma), although such conditions are rare.

CAUSES
- Generally develops as a consequence of recurrent acute otitis media and tympanic membrane rupture
  - *Proteus, Pseudomonas* or *Staphylococcus* (usually polymicrobial)

HISTORY
- Hearing decreased
- Continuous foul-smelling discharge from the ear
- Tinnitus
- Usually no pain, occasional dull ache
- No fever

PHYSICAL FINDINGS
- Client appears generally well
- Foul-smelling purulent drainage from ear canal
- Perforation of tympanic membrane
- Conductive hearing loss

DIFFERENTIAL DIAGNOSIS
- Chronic otitis externa
- Sub-acute otitis media

COMPLICATIONS
- Permanent, severe hearing loss
- Mastoiditis
- Cholesteatoma
**DIAGNOSTIC TESTS**
None. Swab any drainage for culture.

**MANAGEMENT**

**Goals of Treatment**
- Prevent complications
- Avoid unnecessary use of antibiotics

**Appropriate Consultation**
Consult a physician immediately if a cholesteatoma is suspected.

**Nonpharmacologic Interventions**

**Client Education**
- Explain disease process and expected course
- Counsel client about appropriate use of medications (including compliance)
- Aural irrigation is an effective therapy prior to instillation of drops. If possible a solution of 50% peroxide and 50% sterile water can be used. Thirty to 40 mL of this solution can be irrigated through the external auditory canal, using a small syringe or bulb-type aspirator. The irrigant solution can be allowed to drain out for 5–10 minutes prior to instilling the ototopical antimicrobial
- Recommend against using Q-tips for cleaning
- Recommend proper drying of ears after swimming, bathing or showering; use of ear plugs while swimming
- Counsel client about proper hygiene of hearing aids and ear plugs

To prevent recurrence, recommend that ear canal be cleaned with:
- Burrow’s solution (Buro-Sol otic solution)
- solution of half vinegar and half sterile water, 4–6 drops in the ear after exposure to water

**Pharmacologic Interventions**

Mild chronic suppurative otitis media:
Topical antibiotic ear drop alone is sufficient:
- ciprofloxacin/dexamethasone (Ciprodex) otic drops, 4 drops bid for 7 days

Moderate chronic suppurative otitis media:
If there is significant soft-tissue involvement, systemic antibiotics may be indicated in addition to topical therapy with ear drops. Consult a physician for advice about choice of systemic antibiotics. One option is:
- ciprofloxacin/dexamethasone (Ciprodex) otic drops, 4 drops bid for 7 days
- and
- levofloxacin 500 mg once daily

**Monitoring and Follow-Up**
Follow up in 7 days.

**Referral**
Referral to ear, nose and throat (ENT) specialist may be necessary if treatment fails or complications develop. Surgical intervention is sometimes required. In some cases, referral is done by the nurse, but usually it is done by a consulting physician.

**OTITIS MEDIA, SEROUS (OTITIS MEDIA WITH EFFUSION)**
Presence of non-infective fluid in the middle ear for longer than 3 months without symptoms or signs of acute infection. Tympanic membrane is intact.

**CAUSES**
- Dysfunction of eustachian tube
- Nasal obstruction, nasal polyps

**Predisposing Factors**
- Viral infection of the upper respiratory tract
- Allergies
- Barotrauma
- Enlargement of adenoids
- Recent acute otitis media

**HISTORY**
- Exposure to one of the predisposing factors
- Reduced hearing in affected ear
- Sensation of fullness in ear
- Nose and ears may be itchy
- Pain mild or absent
- Fever absent
PHYSICAL FINDINGS
- Tympanic membrane intact, dull, retracted or hypomobile
- Presence of clear fluid, air bubbles or air-fluid level behind the tympanic membrane
- Bony landmarks usually accentuated because of retraction of the tympanic membrane
- Audiometric screening may show a decrease in hearing
- Abnormal Weber and Rinne test results (evidence of conductive loss) may be present

DIFFERENTIAL DIAGNOSIS
Nasopharyngeal tumour (if problem longstanding).

COMPLICATIONS
- Secondary infection (purulent acute otitis media)
- Chronic serous otitis media
- Hearing loss

DIAGNOSTIC TESTS
None.

MANAGEMENT
Goals of Treatment
- Identify underlying cause
- Relieve symptoms
- Prevent hearing loss

Appropriate Consultation
Consult a physician if the client has effusion with significant hearing loss (more than 20 dB), if effusion is bilateral with hearing loss or if effusion persists for more than 2–3 months.

Nonpharmacologic Interventions
Client Education
- Explain disease process and expected outcomes
- Offer support and reassurance, as symptoms can last a long time (2–3 months)
- Counsel client about appropriate use of medications (dosage and compliance)
- Recommend against flying until signs and symptoms have resolved, if possible
- If client must fly, recommend the use of topical nasal decongestant (for example, xylometazoline [Otrivin]) 1 hour prior to flight in addition to appropriate doses of systemic oral decongestants (for example, pseudoephedrine [Sudafed])
- Discuss signs and symptoms of purulent otitis media; advise client to return to clinic if they occur
- Instruct client to gently try to equalize pressure between middle ear and throat, using a simple maneuver such as yawning or chewing gum

Pharmacologic Interventions
Most studies indicate that antihistamines and decongestants are ineffective, but some clients may derive symptomatic relief.

Oral decongestant can be obtained from a retail pharmacy:

pseudoephedrine (Sudafed), 30–60 mg PO tid or qid for 4–7 days (Maximum dose: 240 mg/day)

Note: this frequency is for regular-release pseudoephedrine; long-acting preparations must be dosed accordingly.

Start with the smaller dose and lower frequency. Instruct client to increase dose slowly to minimize any side effects (such as restlessness, insomnia, irritability, tremor).

Do not prescribe decongestants for elderly clients, for people with hypertension, heart disease, peripheral vascular disease, diabetes, hyperthyroidism, previous acute angle-closure glaucoma, previous urinary retention or prostatic hypertrophy, or for anyone taking monoamine oxidase inhibitors or tricyclic antidepressants.

Oral antibiotics may be prescribed for those with persistent bilateral effusions causing significant hearing loss. Consultation with a physician is recommended in these situations.

Monitoring and Follow-Up
Monitor the response to therapy in 2–4 weeks. In particular, note any improvement in hearing or decrease in tinnitus.

Reassess hearing, preferably with screening audiometry (if available).

Referral
Refer to an ENT physician if effusion persists after 3 months.
RHINITIS

Inflammation of the mucosal lining of the nasal cavity leading to nasal congestion and rhinorrhea (runny nose). The 3 most common types of rhinitis to consider in the differential diagnosis of rhinitis are:

- **Allergic rhinitis**: Reactive inflammation of the nasal mucosa
- **Vasomotor rhinitis**: Perennial inflammation of the nasal mucosa, which represents a hyperreactive state of the nasal mucosa (nonallergic)
- **Viral rhinitis (infection of upper respiratory tract)**: Viral infection confined to the upper respiratory tract. Usually mild and self-limiting

**CAUSES**

**Allergic Rhinitis**

- Sensitivity to inhaled allergens (pollens, grasses, ragweed, dust, molds, animal dander, smoke)

**Vasomotor Rhinitis**

- Unknown; symptoms do not correlate with exposure to specific allergens
- Atrophic mucosa (in the elderly)
- Attacks may be triggered by abrupt changes in temperature or barometric pressure, odours, emotional stress or exercise

**Viral Rhinitis (Infection of Upper Respiratory Tract)**

- Numerous viral agents

**HISTORY**

**Allergic Rhinitis**

- Seasonal or perennial symptoms
- History of familial allergies (for example, ASA)
- Asthma or eczema may be present
- Paroxysmal sneezing
- Itchy nose
- Nasal congestion
- Excessive, continuous, clear, watery nasal discharge
- Eyes may be itchy or watery
- Ears may be itchy
- General malaise and headache may be present
- Symptoms worst in the morning and least during the day, worsening again during the night
- Postnasal drip
- Breathing through the mouth
- Snoring and dry cough at night may be present

**Vasomotor Rhinitis**

- Sudden onset of nasal congestion
- Perennial symptoms
- Persistent postnasal drip
- Intermittent throat irritation
- No response to environmental controls and medications
- Sensation of constantly needing to clear throat
- Changes in acuity of hearing or smell
- Snoring at night
- Fatigue

**Viral Rhinitis (Infection of Upper Respiratory Tract)**

- Nonproductive cough or cough that produces clear sputum
- Low-grade fever
- Nasal congestion with clear nasal discharge
- Sneezing
- Postnasal drip
- Scratchy throat
- Mild headache and general malaise
- Pressure in ears

**PHYSICAL FINDINGS**

**Allergic Rhinitis**

- Injected conjunctiva may be present
- Eyes may tear
- Edema of the eyelids and periorbital area may be present
- Pale, edematous nasal mucosa is pink, with clear thin secretions
- Nasal polyps may be present
- Skin around nose may be irritated
- “Allergic salute” may be present
- Sinuses may feel tender if symptoms are severe
- Mouth breathing

**Vasomotor Rhinitis**

- Vital signs usually normal
- Nasal mucosa red and swollen
- Nasal turbinates enlarged
- Throat may be slightly reddened because of irritation from postnasal drip
- Tonsils and adenoids may be enlarged
- Sinuses may feel tender if symptoms are severe
**Viral Rhinitis (Infection of Upper Respiratory Tract)**

- Temperature may be slightly elevated
- Client appears mildly ill
- Clear nasal discharge
- Skin around nares slightly irritated
- Ears may have transient, middle-ear sterile effusion
- Throat may have mild erythema, but otherwise is normal
- Sinuses may feel tender if symptoms are severe

**Differential Diagnosis** (All Types of Rhinitis)

- Acute or chronic sinusitis
- Abuse of nose drops
- Abuse of drugs or solvents (for example, cocaine, gas, glue)
- Foreign body in nares
- Nasal polyps
- Deviated septum
- Hypothyroidism as a cause of the nasal congestion
- Nasal congestion induced by pregnancy or use of oral contraceptives

**Complications** (All Types of Rhinitis)

- Otitis media
- Nasal polyps
- Epistaxis
- Enlargement of tonsils and adenoids
- Sinusitis

**Diagnostic Tests** (All Types of Rhinitis)

Consider skin testing for allergies.

**Management** (All Types of Rhinitis)

**Goals of Treatment**

- Relieve and suppress symptoms
- Identify the underlying allergen(s)
- Prevent complications

**Appropriate Consultation**

Consultation with a physician is not usually required.

**Nonpharmacologic Interventions**

Environmental control is important. Eliminate or reduce known allergen(s) in the environment wherever possible, or avoid them altogether.

**Client Education**

- Recommend increasing fluid intake to improve hydration
- Counsel client about appropriate use of medications (dose, frequency, side effects, avoidance of overuse)
- Recommend avoidance of caffeine
- Recommend avoidance of known allergens (client should keep living area clear of dust, avoid going outside when pollen count is high and use synthetic fibres in bedding and clothing) and removal of pets (to eliminate animal dander)
- Counsel client about preventing spread of viral rhinitis to other household members
- Recommend frequent hand-washing, appropriate disposal of used facial tissues and covering of mouth and nose when coughing or sneezing

**Pharmacologic Interventions**

Allergic and Vasomotor Rhinitis:

Saline nasal drops/salinex nasal spray, prn, to wash out mucus and any inhaled allergen.

Oral antihistamines to treat acute symptoms of runny nose, sneezing, itch and conjunctival symptoms (but these will not help nasal congestion):

- cetirizine (Reactine), 10 mg PO daily to be taken as long as the patient is in contact with the allergen

Topical nasal steroids are the mainstay of therapy for chronic allergic rhinitis and chronic vasomotor rhinitis and for maintenance and prophylactic treatment of these conditions. They can be used alone or in combination with the antihistamine and decongestant regimen.

Consult a physician about the use of inhaled nasal steroids/parasympathetic blockers if oral antihistamines and decongestants (see “viral rhinitis”) are not effective. For example:

- fluticasone (Flonase/generics), 50 µg/spray, 2 sprays/nasal daily
- or
- triamcinolone (Nasocort AQ), 55 µg/spray, 2 sprays/nasal daily
Viral Rhinitis:

Oral antihistamines and decongestants, which can be obtained from a retail pharmacy, can be tried for a maximum 4–7 days, to avoid rebound effect:

- pseudoephedrine (Sudafed), 30–60 mg PO tid or qid for 4–7 days (Maximum dose: 240 mg/day)

Note: this frequency is for regular-release pseudoephedrine; long-acting preparations must be dosed accordingly.

Antihistamines have little proven benefit in the treatment of the common cold, including viral rhinitis.

Do not prescribe decongestants for elderly clients, for people with hypertension, heart disease, peripheral vascular disease, diabetes, hyperthyroidism, previous acute angle-closure glaucoma, previous urinary retention or prostatic hypertrophy, or for anyone taking monoamine oxidase inhibitors or tricyclic antidepressants.

Manage fever:

- acetaminophen (Tylenol), 325 mg, 1–2 tabs PO q4-6h prn

**Monitoring and Follow-Up**

Instruct client to return for further assessment if fever develops or if symptoms have not resolved within 14 days.

**Referral**

Refer to a physician if symptoms of rhinitis are not controlled with initial treatment. Allergy testing, sinus radiography or other medications may be required.

**RHINOSINUSITIS, ACUTE**

Infection of mucosal lining of the paranasal sinuses (symptoms present less than 4 weeks and with less than 3 episodes per year).

Maxillary sinuses most commonly affected.

**CAUSES**

- Common: *Haemophilus influenzae, Moraxella catarrhalis, Streptococcus pneumonia*
- Less common: *Chlamydia pneumoniae, Streptococcus pyogenes, viruses, fungi*

**Predisposing Factors**

- Common cold
- Allergies
- Deviated nasal septum
- Smoking
- Adenoidal hypertrophy
- Dental abscess
- Nasal polyps
- Trauma
- Foreign body
- Diving or swimming
- Neoplasms
- Cystic fibrosis

**HISTORY**

- Exposure to one or more of the predisposing factors
- Headache
- Facial pain
- Nasal congestion
- Pressure over involved sinuses increases when bending forward
- Purulent nasal discharge, which may be tinged with blood, can be present
- Dental pain, especially of upper incisor and canine teeth
- General malaise may be present
- Fever may be present
- Postnasal drainage
- Hyposmia/anosmia
- Ear pressure/fullness

**PHYSICAL FINDINGS**

- Temperature may be mildly elevated
- Client appears mildly to moderately ill
- Irritation of skin around nares
- Swollen nasal mucosa may be pale or dull red
- Nasal polyp may be present
- Dental abscess may be present
- Tenderness over involved sinuses
- Poor transillumination of sinuses
- Tenderness over a tooth
- Anterior cervical nodes may be enlarged and tender
- Cough may be present
DIFFERENTIAL DIAGNOSIS
– Dental abscess
– Nasal polyp(s)
– Tumour
– Presence of foreign bodies
– Periorbital cellulitis
– Infection of upper respiratory tract
– Allergic rhinitis
– Vasomotor rhinitis
– Cluster headache
– Migraine headache

COMPPLICATIONS
– Contiguous spread of infection to intraorbital or intracranial structures
– Chronic sinusitis
– Periorbital cellulitis

DIAGNOSTIC TESTS
None.

MANAGEMENT
Goals of Treatment
– Make the correct diagnosis
– Identify predisposing factors and treat the conditions
– Treat the infection as indicated
– Identify any underlying dental abscess
– Relieve symptoms

Appropriate Consultation
Usually not necessary unless does not resolve with treatment, symptoms progress within 2–3 days or complications arise.

Nonpharmacologic Interventions
Apply moist heat (such as with steam inhalation or warm compresses) to sinuses to help relieve pressure by loosening and liquefying thickened secretions. Saline nose drops also help to do this.

Client Education
– Recommend increased rest during acute phase
– Recommend increasing hydration (6–8 glasses of fluid per day)
– Counsel client about appropriate use of medications (dose, frequency, side effects)

– Recommend avoidance of irritants (for example, smoke)
– Recommend avoidance of swimming, diving or flying during acute phase

Pharmacologic Interventions
Saline nasal drops/salinex nasal spray, prn may be helpful.

Nasal decongestant sprays or drops may be used for the first 24–48 hours if congestion is marked. Topical decongestants are more effective than oral ones. Client should not use antihistamines because these dry and thicken the secretions:

xylometazoline (Otrivin), 0.1% nasal drops, 1–3 drops q8-12h pm for a maximum of 4 days

It is very important to limit the use of a topical nasal decongestant to a period of 3 or 4 days to prevent development of “rebound” nasal congestion when the nasal spray is withdrawn (a complication called rhinitis medicamentosa).

Manage pain and fever with simple analgesics:

acetaminophen (Tylenol), 325 mg, 1–2 tabs PO q4h pm

or

ibuprofen (Motrin), 200 mg, 1–2 tabs PO q4h pm

Approximately 70% of cases of acute sinusitis will resolve without antibiotic treatment. However, if symptoms continue for longer than 10 days or worsen after 5 days, consider antibiotic therapy.

Oral antibiotics:

amoxicillin (Amoxil), 500 mg PO tid for 10 days

or if allergy to penicillin:

doxycycline 200 mg po once, then 100 mg po bid for 10 days

Monitoring and Follow-Up
Follow up in 3–4 days or sooner if symptoms progress despite therapy or if symptoms fail to respond to therapy.

RHINOSINUSITIS, CHRONIC

Inflammation of the mucosal lining of the the paranasal sinuses lasting 12 weeks or more.

CAUSES
– Infection (bacterial anaerobes, Staphylococcus aureus, viruses)
– Structural abnormalities
HISTORY
- Prolonged nasal congestion (more than 12 weeks)
- Nasal discharge, intermittently purulent
- Postnasal drip may be present
- Early morning hoarseness may be present
- Sinus pain or pressure across the middle of the face
- Headache may be present
- Popping of ears
- Eye pain
- Halitosis
- Chronic cough
- Fatigue
- No fever
- Decreased sense of smell
- History of underlying risk factors such as allergic rhinitis, GERD, cystic fibrosis, immunodeficiency, structural abnormalities, eosinophilic nonallergic rhinitis

PHYSICAL FINDINGS
- Client appears well
- Nasal mucous membranes may appear pale and “boggy”
- Tenderness may be present over sinuses

DIFFERENTIAL DIAGNOSIS
- Allergic rhinitis
- Vasomotor rhinitis
- Nasal polyp
- Infection of upper respiratory tract
- Tumour
- Migraine headache
- Cluster headache
- Dental abscess

COMPLICATIONS
- Recurrent acute sinusitis
- Spread of infection to the intraorbital or intracranial structures

DIAGNOSTIC TESTS
None initially. Consider diagnostic tests such as sinus x-ray or computed tomography (CT) scan of sinuses if initial therapy fails; discuss these diagnostic tests with a physician.

MANAGEMENT

Goals of Treatment
- Relieve symptoms
- Identify predisposing or underlying factors
- Prevent spread of infection to other structures

Appropriate Consultation
A physician should be consulted for these patients. Specialist consult may also be necessary if anatomical abnormalities are suspected or it is not resolving.

Chronic rhinosinusitis is a complex condition which often requires a combination of topical or oral glucocorticoids, antibiotics and nasal irrigation.

Nonpharmacologic Interventions
Client Education
- Recommend increasing hydration (6–8 glasses of fluid per day)
- Recommend inhalation of steam or use of warm compresses to relieve pressure on sinuses
- Counsel client about appropriate use of medications (dosage and side effects)
- Recommend avoidance of irritants (for example, smoke) and allergens
- Recommend avoidance of diving, swimming or flying if symptoms are acute

Pharmacologic Interventions
Manage current symptoms with oral antibiotics; a longer course of therapy than for acute sinusitis is usually needed (that is, 3 weeks). Repeated courses of antibiotics are not recommended:
- amoxicillin/clavulanate (Clavulin), 875 mg PO bid for 21 days
  or
- clindamycin (Dalacin C), 300 mg PO qid for 21 days

Monitoring and Follow-Up
Follow up in 2 weeks.

Referral
Refer to a physician if symptoms do not improve after 4 weeks of continuous antibiotic therapy to rule out underlying pathology (for example, nasal polyps, deviated nasal septum, chronic allergies). Refer to a dentist if underlying dental disease is suspected.
COMMON PROBLEMS OF THE THROAT

LARYNGITIS
Laryngitis is an inflammation of the voice box (larynx) due to overuse, irritation or infection.

CAUSES
– Viral infection (common cold)
– Bacterial infection (Streptococcus)
– Chronic mouth breathing
– Overuse of voice
– Chronic sinusitis
– Excessive smoking (or exposure to second-hand smoke)
– Aspiration of caustic chemical
– Gastroesophageal reflux
– Changes due to aging (for example, muscle atrophy, bowing of cords)
– Alcohol abuse
– Long-term exposure to dust or other irritants

HISTORY
– Presence of risk factors (see “Causes”)
– Concurrent infection of the upper respiratory tract may be present
– Hoarseness or loss of voice, abnormal-sounding voice
– Throat pain, tickle or rawness
– Aphonia (no sound is emanated from vocal folds)
– Dysphonia (a general alteration in voice quality)
– Cough
– Fever
– Malaise

PHYSICAL FINDINGS
– Temperature may be elevated
– Client appears mildly ill
– Throat may be mildly to moderately injected
– No exudate
– Lymph nodes may be enlarged

DIFFERENTIAL DIAGNOSIS
– Cancer of the throat or larynx (if condition prolonged or recurrent)
– Polyps of vocal cords
– Gastroesophageal reflux disease (GERD)

DIAGNOSTIC TESTS
None.

MANAGEMENT

Goals of Treatment
– Relieve symptoms
– Identify and remove contributing factors (for example, smoking)

Appropriate Consultation
Consult a physician immediately if client has stridor and shortness of breath.

Nonpharmacologic Interventions
– Voice rest is the mainstay of treatment (including, throat clearing)\(^2\)
– Removal of contributing factors (for example, smoking and alcohol) is also important
– Increase humidity of room air
– Increase fluid intake if febrile
– Increase rest until any fever settles

Client Education
– Explain disease course and expected outcomes
– Counsel client about appropriate use of medications (dosage and side effects)
– Stress importance of follow-up if not resolved in 1 week

Pharmacologic Interventions
Usually none.

Monitoring and Follow-Up
Follow up in 7 days if not resolved, (sooner if symptoms worsen).

Referral
Refer to a physician if symptoms persist for longer than 2 weeks.
PHARYNGITIS (SORE THROAT)
Inflammation or infection of mucous membranes of pharynx (may also affect the palatine tonsils).

CAUSES
Infectious
- Viruses (for example, rhinovirus, adenovirus, parainfluenza, coxsackievirus, Epstein-Barr virus, herpes virus)
- Bacteria (for example, group A β-hemolytic Streptococcus [most common], Chlamydia, Corynebacterium diphtheriae, Haemophilus influenzae, Neisseria gonorrhoeae
- Fungi (for example, Candida); rare except in immunocompromised people (for example, those with HIV or AIDS)

Noninfectious
- Allergic rhinitis
- Sinusitis with postnasal drip
- Mouth breathing
- Trauma
- Gastroesophageal reflux disease
- Risk factors: contact with a person with group A streptococcal infection, crowded living quarters, immunosuppression (for example, HIV/AIDS), fatigue, smoking, excess consumption of alcohol, oral sex, diabetes mellitus or use of steroids (oral or inhaled)

HISTORY
Bacterial
- Abrupt onset of sore throat
- Pain on swallowing
- Absence of cough
- Fever or chills
- Malaise
- Skin rash may be present
- Headache
- Anorexia

Viral
- Slow, progressive onset of sore throat
- Mild malaise
- Cough
- Nasal congestion

Noninfectious
- Slow, progressive onset of sore throat
- Mild malaise
- Cough
- Persistent, recurrent
- Pain on swallowing

PHYSICAL FINDINGS
Bacterial
- Temperature elevated
- Pulse elevated
- Client appears acutely ill
- Posterior pharynx red and swollen
- Tonsils enlarged, may be asymmetric
- Purulent exudate may be present
- Tonsillar and anterior cervical nodes enlarged and tender
- Rash (scarlatiniform in group A streptococcal infection)

Viral
- Temperature may be elevated
- Posterior pharynx red and swollen
- Purulent exudate may be present
- Tonsillar and cervical nodes may be enlarged and tender
- Petechiae on palate (in mononucleosis)
- Vesicles (in herpes)

Noninfectious
- Posterior pharynx red and swollen
- Tonsillar and anterior cervical nodes may be enlarged and tender
- Exudate may be present

It is often impossible to distinguish clinically between bacterial and viral pharyngitis. See the clinical tool “The Sore Throat Score” to help decide whether a patient has a group A streptococcal throat infection and needs antibiotics.

THE SORE THROAT SCORE
In adults, 85–90% of sore throats are caused by viral infections. In an effort to assess the probability of diagnosing Group A streptococcal pharyngitis in a patient presenting with a sore throat, a number of tools have been developed. In a primary care setting, the Sore Throat Score provides an evidenced-based clinical decision rule for all age groups.
Step 1
Determine the client’s total sore throat score by assigning points using the following criteria.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of fever or measured temperature &gt; 38°C</td>
<td>1</td>
</tr>
<tr>
<td>Absence of cough</td>
<td>1</td>
</tr>
<tr>
<td>Tender anterior cervical adenopathy</td>
<td>1</td>
</tr>
<tr>
<td>Tonsillar swelling or exudate</td>
<td>1</td>
</tr>
<tr>
<td>Patient’s age</td>
<td></td>
</tr>
<tr>
<td>Age &lt; 15 years</td>
<td>1</td>
</tr>
<tr>
<td>Age 15–44</td>
<td>0</td>
</tr>
<tr>
<td>Age ≥ 45</td>
<td>-1</td>
</tr>
</tbody>
</table>

Step 2
Choose the appropriate management according to the total score.

<table>
<thead>
<tr>
<th>Total Score</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1 to 0</td>
<td>No culture or antibiotics</td>
</tr>
<tr>
<td>1 to 3</td>
<td>If Rapid Strep test is available:</td>
</tr>
<tr>
<td></td>
<td>• If result is negative: culture throat and await results</td>
</tr>
<tr>
<td></td>
<td>• If result is positive: treat with antibiotics</td>
</tr>
<tr>
<td></td>
<td>If no Rapid Strep test is available: perform culture; no antibiotics unless culture returns positive</td>
</tr>
<tr>
<td>4 to 5</td>
<td>Culture and consider empiric antibiotic therapy on clinical grounds until culture result available</td>
</tr>
</tbody>
</table>

The score is invalid:
- in any community in which an outbreak or epidemic of group A streptococcal pharyngitis is occurring and should not be applied in this type of situation,
- in populations where rheumatic fever remains a problem,
- in clients with a history of rheumatic fever or valvular heart disease or who are immunosuppressed

Differential Diagnosis
- Distinguish bacterial from viral infection
- Infectious mononucleosis
- Sexually transmitted infection (for chronic pharyngitis, investigate sexual practices)
- Vincent’s angina (necrotic tonsillar ulcers)
- Distinguish reactive inflammation from an underlying disorder (see “Cause”)

Complications
- Rheumatic fever (group A Streptococcus only)
- Glomerulonephritis (group A Streptococcus only)
- Peritonsillar abscess

Diagnostic Tests
- Rapid Strep test if available (see “The Score Throat Score” for indications to swab)
- Swab the throat for culture and sensitivity when indicated (see “The Score Throat Score”)

Management

Goals of Treatment
- Eradicate infection
- Prevent complications
- Prevent spread of group A Streptococcus to contacts

Appropriate Consultation
Consult a physician if the client has significant dysphagia or dyspnea (signaling obstruction of the upper airways) or if there is concern about an underlying pathology such as HIV.

Nonpharmacologic Interventions
- Bed rest during febrile phase
- Adequate oral intake of fluids (6–8 glasses of fluid per day)
- Avoidance of irritants (for example, smoke)
- Gargling with warm saline qid

Pharmacologic Interventions

For pain and fever:
- acetaminophen (Tylenol), 325 mg, 1–2 tabs PO q4h prn
- ibuprofen (Motrin), 200 mg, 1–2 tabs q4h prn

Treat with antibiotics if streptococcal disease is suspected according to “The Sore Throat Score” (see “The Score Throat Score”) and/or it has been confirmed by culture or Rapid Strep testing:
- penicillin V potassium (Penicillin V), 300 mg PO tid or 600 mg PO bid for 10 days

For clients with penicillin allergy:
- erythromycin 250 mg PO qid or 500 mg PO bid for 10 days

Do not use ampicillin or amoxicillin, because these drugs may cause a generalized red “drug rash” if infectious mononucleosis is present.
**Monitoring and Follow-Up**

Instruct client to return to clinic for reassessment if symptoms do not improve in 48–72 hours.

**Referral**

Referral may be necessary if condition is recurrent or persistent or an undiagnosed underlying pathology is suspected.

## COMMON PROBLEMS OF THE MOUTH

### ANGULAR CHEILITIS

Cracks or lines at the corners of the mouth.

**CAUSES**
- Bacteria: *Staphylococcus aureus*
- Fungus: *Candida*

**Predisposing Factors**
- Increased moisture at corners of mouth
- Sagging face and loss of teeth (particularly back teeth) in older adults
- Fungal infection

**PHYSICAL EXAMINATION**
- Erythema, maceration at corners of mouth
- White coating

**DIAGNOSTIC TESTS**
- Swab for culture
- KOH test for candidiasis

**MANAGEMENT**

The key to treating angular cheilitis is to identify and treat the cause.

### APHTHOUS STOMATITIS

Ulcers and inflammation of the tissues of the mouth, including the lips, buccal mucosa, tongue, gingiva and posterior pharyngeal wall that are recurrent and painful. After mucosal breakdown, lesions become secondarily infected by mouth flora. It is less prevalent in men and chronic smokers. It is the most common cause of oral ulcers, occurring in up to 30% of otherwise healthy individuals.

**CAUSES**
- Herpes simplex virus
- Coxsackievirus
- Oral candida

**Predisposing Factors**
- Immunocompromised status
- Autoimmune disease (for example, Crohn’s disease)

**Contributing Factors**
- Allergies (coffee, chocolate, potatoes, cheese, figs, nuts, citrus fruits and gluten)
- Stress
- Exposure to sunlight
- Generalized physical debility
- Trauma
- Nutritional deficiencies (Vitamin B12, folate, iron)
- Hormones
- Medications (antihypertensives, antineoplastics, gold salts, nonsteroidal anti-inflammatories)

**HISTORY**
- Onset and duration of symptoms
- Previous history of the same and treatment
- Fever
- Burning or tingling before ulceration
- Pain
- Drooling
- Difficulty swallowing
- Decreased nutritional intake
- Associated respiratory or gastrointestinal symptoms
- Associated skin rash
- Nutritional deficiencies, stressors, allergies, recent mouth trauma, infections, risk factors for STIs
- Medications
- Weight loss (if severe ulcers)
- Systemic diseases
- Recent dental treatment
- Smoking or alcohol use
PHYSICAL FINDINGS

- Temperature may be increased in infectious types
- Check weight, record as baseline
- Hydration status
- Assess for lymphadenopathy
- Assess for lesions on body
- Auscultate chest
- Complete physical if systemic disease is suspected

Examine outside of lips first. Next, gently retract the lips with a tongue depressor to examine the anterior buccal mucosa and gingiva. Then gently depress the tongue. Note location, number and distribution of lesions. Also note colour(s), borders (distinct or diffuse), texture (firm or fluctuant), discharge and size of lesions.

Look for the following features:
- Erythema (herpangina)
- Vesicles (early stages of all infectious types)
- Ulcers: check distribution (confluent ulcers may appear as large, irregular white areas)
- Submandibular lymph nodes (most prominent in herpes)

*See Table 1, “Features of Common Forms of Stomatitis”.*

Table 1 – Features of Common Forms of Stomatitis

<table>
<thead>
<tr>
<th>Disease</th>
<th>Cause</th>
<th>Type of Lesions</th>
<th>Site</th>
<th>Diameter</th>
<th>Other Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herpangina or hand-foot-and-mouth disease</td>
<td>Coxsackievirus, echovirus, enterovirus 71</td>
<td>Vesicles and ulcers with erythema</td>
<td>Anterior pillars, posterior palate, pharynx and buccal mucosa</td>
<td>1–3 mm</td>
<td>Dysphagia, vesicles on palms of hands and soles of feet and in mouth</td>
</tr>
<tr>
<td>Herpes stomatitis</td>
<td>Herpes simplex virus</td>
<td>Vesicles and shallow ulcers (round or oval), which may be confluent</td>
<td>Gingiva, buccal mucosa, tongue, lips</td>
<td>&gt; 5 mm</td>
<td>Drooling, coalescence of lesions</td>
</tr>
<tr>
<td>Aphthous stomatitis (minor or major)</td>
<td>Unknown</td>
<td>Ulcers with exudate</td>
<td>Buccal mucosa, lateral tongue</td>
<td>Minor &lt; 10 mm Major &gt; 10 mm</td>
<td>Pain, no fever Usually only one or two lesions</td>
</tr>
</tbody>
</table>

DIFFERENTIAL DIAGNOSIS

- Immunologic: gingival hyperplasia
- Systemic lupus erythematosus
- Erythema multiforme
- Oral cancer (suspect if lesions present more than 3–6 weeks and are unresponsive to treatment)
- Oral candidiasis
- Lichen planus
- Leukoplakia (chronic irritation)
- Hand-foot-and-mouth disease
- Herpes simplex virus
- Herpangina
- Primary HIV/AIDS infection
- Syphilis
- Vincent’s stomatitis
- Trauma
- Pemphigus
- Denture stomatitis (red palate under denture)
- Mucus retention cyst (a normal-coloured, fluid-filled cyst on the inner portion of the lip). It will resolve normally by itself
- Adverse drug reaction

COMPLICATIONS

- Dehydration
- Secondary infection (for example, gangrenous stomatitis)
- Ludwig’s angina

DIAGNOSTIC TESTS

- Usually none
- Vitamin B12, folate and iron if nutritional deficiencies are suspected
- CBC to rule out anemias
- Tzanck smear (for herpetic stomatitis)
- Biopsy (for oral cancer)
MANAGEMENT

There are as yet no specific treatments for any of these conditions. Herpes stomatitis usually lasts 10 days. Herpangina lasts for only a few days and has few complications. Aphthous stomatitis requires no treatment.

Goals of Treatment
- Relieve symptoms
- Prevent complications

Appropriate Consultation
The disease is self-limiting, so consultation is usually unnecessary, unless there are complications.

Nonpharmacologic Interventions
Maintenance of hydration is important. Increase oral intake of fluids (that is, maintenance requirements + fluid deficits caused by fever).

Client Education
- Counsel clients about the expected duration of this illness and the signs and symptoms of dehydration
- Recommend dietary adjustments: bland, non-acidic fluids (such as milk and water); popsicles, ice cream and similar food items; avoid citrus foods such as orange juice
- Recommend local mouthwashes (1:1 hydrogen peroxide and water), especially after eating
- Warm saline rinse 4 times daily for traumatic or viral ulcers
- To prevent spread of infection, recommend avoidance of direct contact with infected individuals (for example, kissing, sharing glasses and utensils, hand contact)
- Educate clients that the herpes virus can spread even when sores are not present

Pharmacologic Interventions
Antipyretic and analgesic for fever and pain:
acetaminophen (Tylenol), 325–650 mg PO or PR q4-6h prn
A topical anesthetic containing benzocaine (for example, Anbesol) can be obtained from a retail pharmacy.

Herpetic lesions on the lips
If the lesions are herpetic, consult a physician who may suggest oral antiviral therapy depending on severity/recurrence. Topical antivirals such as acyclovir (for example, Zovirax) are sometimes used but must be started before lesions appear.22

Oral Candidiasis
Antifungal:
nystatin oral suspension 500,000 units (5 mL) swish and swallow qid
If large (> 1 cm), persistent and painful lesions interfere with nutrition where there is no possibility of infection, consult a physician who may suggest a brief course of prednisone: 60 mg PO tapered by 5 mg/day over two weeks.23

Monitoring and Follow-Up
- If lesions are severe, follow up in 2–3 days
- For lesions of unknown origin, follow up in 7 days
- Have client return if lesions persist after 3 weeks despite treatment, if they are unable to eat or if they are losing weight

Referral
Refer to a physician, for lesions that are not resolving after 3 weeks.

DENTAL ABSCESS

Infection of the soft tissue surrounding tooth or gums due to infection of a tooth or the structures supporting the tooth.

Causes
- Progressive dental decay causing pulpitis from gram-positive anaerobes and Bacteroides
- Foreign body impaction around the tooth
- Predisposing factors: deep caries, poor dental hygiene, dental trauma

History
- Localized tooth pain
- Constant, deep, throbbing pain
- Pain worsens with mastication or exposure to extreme temperatures
- Tooth may be mobile
- Gingival or facial swelling (or both) may be present
PHYSICAL FINDINGS
- Fever may or may not be present
- Facial swelling may be present
- Carious tooth
- Gingival edema and erythema
- Tooth may be loose
- Localized tenderness over affected area of jaw
- Anterior cervical nodes enlarged and tender
- Localized tooth pain

DIFFERENTIAL DIAGNOSIS
- Disease of the salivary gland (for example, mumps)
- Sinusitis
- Cellulitis

COMPLICATIONS
- Cellulitis
- Recurrent abscess formation

DIAGNOSTIC TESTS
None.

MANAGEMENT
Goals of Treatment
- Relieve symptoms
- Prevent spread of infection

Appropriate Consultation
Consult a physician if a large fluctuant abscess is present, if client is acutely ill, if the infection has spread to the soft tissues of the neck or if there is no response to initial treatment in 48–72 hours.

Nonpharmacologic Interventions
Warm saline oral rinses qid.

Client Education
- Counsel client about appropriate use of medications (dosage and side effects)
- Recommend dietary modifications (liquids or soft diet)
- Recommend improvements to dental hygiene

Pharmacologic Interventions
Oral antibiotics (only if lymph node involvement):
- amoxicillin 500 mg PO tid for 10 days

For clients with penicillin allergy:
- clindamycin (Dalacin C), 150–300 mg PO qid for 7 days

For spreading infections involving facial swelling:
- amoxicillin/clavulanate (Clavulin), 875 mg (of amoxicillin) PO bid for 10 days

For clients with penicillin allergy:
- clindamycin (Dalacin C), 300 mg PO qid for 7 days

Simple analgesics for mild to moderate dental pain:
- ibuprofen (Motrin), 200 mg, 1–2 tabs PO q4h prn to a maximum of ibuprofen 800 mg PO tid. Ensure patient is aware this is the maximum daily dose.
  or if unable to take ibuprofen:
- acetaminophen (Tylenol), 325 mg 1–2 tabs PO q4-6h prn

If the patient cannot take ibuprofen and is experiencing severe pain contact a physician for a codeine-containing product:
- acetaminophen with codeine (Tylenol #3), 1–2 tabs PO q4-6h prn

Monitoring and Follow-Up
Follow up in 48–72 hours. If unresolved, consult with a physician who may suggest changes to the antimicrobial therapy such as the addition of metronidazole.

Referral
Refer to a dentist for definitive therapy.

DENTAL DECAY
Dental decay is a multifactorial disease. In general, bacterial colonies (dental plaque) convert the sugar in fermentable carbohydrates into an acid that demineralizes the dental enamel. When demineralization is not occurring, protective factors such as from the saliva or fluoride exposures result in remineralization of the enamel. Decay occurs when the balance tilts toward demineralization exceeding remineralization over an extended period of time. In the early stages of decay, the enamel takes on a dull white appearance; however the decay can still be halted or reversed at this stage. It is usually asymptomatic. If demineralization is allowed to continue, eventually the enamel breaks down and cavitation occurs, at which time the process becomes less reversible.
As decay progresses into the dentine, the tooth becomes more sensitive to sweet and cold. When it approaches the pulp of the tooth, the pulp becomes hyperaemic (engorged), reacting more strongly to temperature change and other stimuli. Once bacteria have entered the pulp the process of a dental abscess begins. With destruction of the pulp, pressure builds at the apex (root end) and the tooth throbs constantly, becoming worse with hot temperatures and pressure.

**CAUSES**
- Bacteria, carbohydrate sugar and saliva in combination

**HISTORY**
For explanation of the progression of dental decay, its pathology, signs and symptoms see Table 2, “Pathology, signs and Symptoms of Dental decay”.
- Sensitivity of tooth/teeth to sweets, cold or hot food and liquids and pressure
- History of dental caries, abscess(es)
- Pain, particularly when eating
- Dental care routine
- Recent dental treatments

**Table 2 – Pathology, Signs and Symptoms of Dental Decay (along its course of progression)**

<table>
<thead>
<tr>
<th>Tooth or Soft Tissue Condition</th>
<th>Pathology / Reversibility</th>
<th>Explanation</th>
<th>Discomfort – Presenting Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic (Normal – no decay)</td>
<td>None</td>
<td>Normal – slight sensitivity to hot and cold</td>
<td></td>
</tr>
<tr>
<td>Asymptomatic (Normal – minor decay or trauma)</td>
<td>Minor decay or trauma Reversible</td>
<td>Remaining hard tooth structure insulates pulp tissue.</td>
<td>Normal (as above) No long-lasting pain</td>
</tr>
<tr>
<td>Mild pulpal involvement</td>
<td>Hypaemia of pulpal tissue Reversible</td>
<td>Cold contracts hard tissue, putting pressure on hyperaemic tissue; sweet causes osmotic ion movement.</td>
<td>Increased sensitivity to cold and sweet Occasional sharp pain to insult, but short lasting.</td>
</tr>
<tr>
<td>Severe pulpal involvement</td>
<td>Necrosis of pulp tissue Irreversible</td>
<td>Heat expands gas produced by necrotic tissue.</td>
<td>Increased sensitivity to heat Sensitivity to percussion (tapping, biting). Spontaneous pain, throbbing, moderate duration.</td>
</tr>
<tr>
<td>Involvement of soft tissue surrounding tip of root</td>
<td>Chronic inflammatory response outside of tooth Irreversible</td>
<td>Soft tissue supporting tooth is stretched, swelling confined by bone.</td>
<td>Very sensitive to percussion Tooth is extruded Mobility of tooth Long-lasting pain.</td>
</tr>
<tr>
<td>Expansion of apical pathology beyond nearest bony cortex</td>
<td>“Gum boil” or facial swelling (depends on length of root) Irreversible</td>
<td>Chronic suppuration – body cannot get to source of problem. If there is a draining fistula, there is no intrabony pressure, so no pain.</td>
<td>Pain decreases but an obvious sign is present: gum boil or facial swelling Oral soft tissue may look normal Pain originates from stretched soft tissue of face Trismus of musculature (lockjaw) may limit opening of the mouth.</td>
</tr>
</tbody>
</table>

**PHYSICAL EXAMINATION**
To assist with staging the progression of dental decay see Table 2, “Pathology, signs and Symptoms of Dental decay”. Assess for:
- General appearance
- Pain
- Temperature (client should not be febrile, unless an abscess is present)
- Draining lesion
- Oral soft tissue colour, swelling
- Sensitivity of affected teeth to percussion (tapping)
- Mobility of tooth
- Pits or caries in teeth
- Facial swelling or gum boil
- Ability to open mouth
DIFFERENTIAL DIAGNOSIS

- Dental abscess

COMPLICATIONS

- Dental abscess
- Chronic discomfort in the mouth
- Exposure of the bone in the socket after a lower back tooth has been removed (dry socket)
- Fractured tooth

MANAGEMENT

Appropriate Consultation

A physician should be consulted if:

- the client has facial swelling
- the client is immunocompromised (for example, has diabetes mellitus)
- the client has pain not relieved by treatment
- the condition is not resolving after one course of treatment
- the client is febrile
- the client has difficulty opening mouth

Nonpharmacologic Interventions

Encourage regular dental hygiene.

Mild pulpal involvement:

Allow time for healing if there has been recent dental treatment.

Pharmacologic Interventions

Refer to Table 2, “Pathology, signs and Symptoms of Dental decay” for presenting symptoms.

Mild pulpal involvement:

- Antibiotics not necessary

Simple analgesics for mild to moderate dental pain:

  - ibuprofen (Motrin), 200 mg, 1–2 tabs PO q4h pm
  - acetaminophen (Tylenol), 325 mg 1–2 tabs PO q4-6h pm

For moderately severe dental pain, codeine may be required:

  - acetaminophen with codeine (Tylenol #3), 1–2 tabs PO q4-6h pm

Severe pulpal involvement:

- Antibiotic (lower dose) (for example, Penicillin VK [Pen V] 300 mg qid)
- Analgesic as required

Involvement of soft tissue surrounding tip of root:

Oral antibiotics and analgesia. Antibiotics as follows:

  - penicillin V potassium (Penicillin V) 300–600 mg PO qid for 7 days
  - metronidazole (Flagyl), 500 mg po bid for 7 days

For clients with penicillin allergy or in areas of significant penicillin resistance:

  - clindamycin (Dalacin C), 150–300 mg PO qid for 7 days

Expansion of apical pathology beyond nearest bony cortex:

- None if draining intraorally
- With facial swelling, oral/IV antibiotic, and analgesics if required. Consult the physician if intravenous antibiotics are deemed necessary. Otherwise, oral antibiotics as used for involvement of soft tissue surrounding tip of root can be used

Monitoring and Follow-up

- Clients with facial swelling should be seen daily until it resolves
- Instruct client to return for reassessment immediately if lesion develops, if pain increases or if fever develops

Referral

If a client presents with severe facial swelling or has difficulty opening their mouth, referral to a physician may be warranted. This decision should be made in consultation with a physician.

Referral to a dentist is warranted in the following situations for treatment:

- Asymptomatic with minor decay or trauma for dental restorations
- Mild pulpal involvement for temporary filling if cavity present
- Severe pulpal involvement for removal of necrotic tissue in tooth by extraction or root canal treatment (temporary or permanent filling will not work and may increase pain)
- Involvement of soft tissue surrounding tip of root for drainage of area by extraction or root canal treatment
- When an expansion of apical pathology beyond nearest bony cortex requires an extraction of tooth, possibly with curettage. If intraoral gum boil only, immediate treatment is often not necessary

**DISCOLOURED (NON-VITAL) PERMANENT TOOTH**

See the section “Discoloured (non-vital) Permanent Tooth” in the chapter “Ears, Nose, Throat and Mouth” in the pediatric clinical practice guidelines for detailed information on the clinical presentation and treatment of a discoloured permanent tooth. Treatment is the same for children and adults.

**GINGIVITIS**

Gingivitis is inflammation of the unattached gingival tissue around a tooth.

**HISTORY AND PHYSICAL FINDINGS**

The tissues are red in colour, slightly swollen, and bleed with slight manipulation (such as toothbrushing).

**MANAGEMENT**

**Nonpharmacologic Interventions**

Gingivitis is reversible with thorough brushing and flossing. The client should be advised that the tissues will bleed upon brushing for the first few days, but with thorough self-care, this bleeding will stop and the tissues will return to health in a few days.

**MIGRATORY GLOSSITIS (GEOGRAPHIC TONGUE)**

Tongue demonstrates several smooth, red areas outlined by elevated gray margins of epithelial tissue. Migratory glossitis is not a pathological condition and no treatment is indicated.

**CAUSES**

Unknown.

**MANAGEMENT**

**Nonpharmacologic Interventions**

Reassure client.

**PERICORONITIS**

Pericoronitis is infection and inflammation of the gingival tissues around a partially erupted tooth. It is most common around a mandibular wisdom tooth.

**CAUSES**

- Bacterial (often spirochete) infection

**HISTORY**

- Newly erupting tooth
- Smoking is often a factor

**PHYSICAL FINDINGS**

- Redness and swelling of soft tissues surrounding a partially erupted tooth
- The opposing tooth may be occluding on the swollen tissues around the affected tooth
- Possible swelling of the submandibular lymph nodes
- There might be limited opening of the mandible

**COMPLICATIONS**

- More generalized infection

**MANAGEMENT**

**Goals of Treatment**

- Prevent broader infection of the area
- Reduce discomfort

**Appropriate Consultation**

Consultation with a physician is not normally warranted, unless complications arise.

**Nonpharmacologic Interventions**

- Warm saline rinses, four times daily until condition resolves
- Avoid spicy foods
- Avoid smoking

**Client Education**

- Condition will usually resolve itself
- Stress meticulous oral hygiene of other teeth

**Pharmacologic Interventions**

Pericoronal infection (pericoronitis) does not require antibiotics, unless there is lymph node involvement and facial swelling, or restricted opening.
If needed, oral antibiotics:

- amoxicillin 250–500 mg po tid for 7 days
- Metronidazone should be added to penicillin if infection spreads or systemic symptoms present:
  - metronidazole (Flagyl), 500 mg po bid x 7 days
For clients with penicillin allergy or in areas of significant penicillin resistance:

- clindamycin (Dalacin C), 150–300 mg PO qid for 7 days

Simple analgesics for mild to moderate dental pain:

- ibuprofen (Motrin), 200 mg, 1–2 tabs PO q4h prn
  or
- acetaminophen (Tylenol), 325 mg, 1–2 tabs
  PO q4-6h prn

For moderately severe dental pain, codeine may be required:

- acetaminophen with codeine (Tylenol #3), 1–2 tabs
  PO q4-6h prn

Referral

Refer to a dentist for follow-up.

PERIODONTITIS

Periodontitis is inflammation of the periodontal tissues around the teeth, and subsequent loss of supporting structures (periodontal ligament and alveolar bone). In the adult a common form of periodontitis will manifest with a slow progression of tissue destruction which may result in a loose tooth or the loss of teeth.

CAUSES

- Inflammation of the gingiva (gingivitis)
- Build-up of calculus (tartar)

Periodontitis is influenced by general health issues such as diabetes, and local irritants such as smoking.

HISTORY

- Medical conditions such as diabetes
- Smoking is often a factor
- Rate of build-up of calculus

Referral

Refer to a dental professional for follow-up.

PHYSICAL FINDINGS

- There may not be easily detectible signs of periodontitis (calculus might be subgingival; bone loss not evident)
- Heavy calculus accumulations
- Usually no discomfort – patient might complain of “itchy” or “uncomfortable” feeling in gums
- Mouth odour
- In advanced stages, teeth may be mobile

COMPLICATIONS

- Progression of periodontal disease will lead to tooth loss
- There is growing evidence of links between periodontal disease and other medical conditions such as cardiovascular disease, respiratory diseases and diabetes

MANAGEMENT

- Thorough, regular oral hygiene
- Regular professional care by dentists, dental hygienists and/or dental therapists

Goals of Treatment

- Prevent or slow down the loss of supporting tissues
- Reduce the inflammation

Nonpharmacologic Interventions

- Thorough brushing and flossing on a regular basis
- Avoid smoking

Client Education

- Need for thorough and regular oral hygiene
- Need for regular professional care (with frequency based on individual needs)

Referral

Refer to a dental professional for follow-up.

TOOTHACHE

See “Toothache” in “Ears, Nose, Throat and Mouth”, in the pediatric clinical practice guidelines for detailed information on the clinical presentation and treatment of a toothache. Treatment is the same for children and adults.
XEROSTOMIA (DRY MOUTH)25,26

Everyone’s mouth is dry now and then, but for many adults, dry mouth (xerostomia) is a chronic condition that leaves the mouth dry, sore and sticky. Some patients have difficulties eating, swallowing, talking or wearing dentures (due to loss of suction). They may be vulnerable to sores and yeast infections, and their teeth are more prone to decay.

CAUSES
- Side effect of medications such as tricyclic antidepressants, benzotropine and other anticholinergics, benzodiazepines, isotretinoin
- Medical conditions – diabetes, Sjogren’s syndrome, Parkinson’s disease
- Therapeutic radiation or chemotherapy
- Alcohol
- Head injury

HISTORY
- Medications
- Other medical conditions such as diabetes, Parkinson’s disease
- Smoking and alcohol use

PHYSICAL FINDINGS
- Oral mucosa and tongue very dry
- Loose dentures
- Candidiasis
- Alteration in speech

DIFFERENTIAL DIAGNOSIS
- Chronic xerostomia
- Short-term reaction to temporary medications

COMPLICATIONS
- Increased dental decay
- Sores
- Fungal infections
- Nutritional deficiencies (difficulty eating certain foods)

MANAGEMENT

Goals of Treatment
- Prevent dental decay, fungal infections
- Improve comfort

Nonpharmacologic Interventions
- Increase fluid intake, particularly water or carbonated water
- Avoid acidic fluids – pop, energy drinks
- Avoid drinks with caffeine – coffee, tea, some sodas
- Encourage use of a humidifier
- Sugar free gum – sweetened with xylitol
- Xylitol sweetened candies
- Avoid spicy foods
- Avoid smoking and alcohol

Client Education
- Discuss causes of dry mouth
- Stress fluid intake
- Stress oral hygiene
- Share interventions above to help decrease xerostomia

Referral
- Refer to a physician for review of medications
- Refer to a dentist for monitoring caries and oral health
EMERGENCY PROBLEMS OF THE NOSE, THROAT AND MOUTH

AVULSED TOOTH

See the section “Avulsed Tooth” in the chapter “Ears, Nose, Throat and Mouth,” in the pediatric clinical practice guidelines for detailed information on the clinical presentation and treatment of an avulsed tooth. Treatment is the same for children and adults.

FRACTURED TOOTH

See the section “Fractured Tooth” in the chapter “Ears, Nose, Throat and Mouth,” in the pediatric clinical practice guidelines for detailed information on the clinical presentation and treatment of a fractured tooth. Treatment is the same for children and adults.

MASTOIDITIS

Suppurative (bacterial) inflammation/infection of mastoid antrum and air cells. Can be acute or chronic.

CAUSES

- Acute mastoiditis is a rare complication of acute otitis media
- Chronic mastoiditis is more commonly associated with cholesteatoma (cyst of the middle ear) or chronic suppurative otitis media (tympanic perforation with chronic drainage)
- Most common organisms: Haemophilus influenzae, group A Streptococcus, Streptococcus pneumoniae

RISK FACTORS

- Recurrent otitis
- Cholesteatoma
- Immunocompromised status

HISTORY

- Ear pain
- Nonresolving otitis media
- Spiking fever
- Tinnitus
- Otorrhea if ear drum is perforated

PHYSICAL FINDINGS

- Temperature moderately to severely elevated
- Client appears moderately ill
- Hearing loss
- Posterior auricular swelling and erythema
- Pinna may be displaced anteriorly if edema severe
- Manipulation of pinna and otoscopic exam of the ear causes acute pain
- Purulent drainage if tympanic membrane ruptured
- Posterior auricular warmth
- Tenderness over mastoid process
- Anterior cervical and peri-auricular nodes enlarged and tender

DIFFERENTIAL DIAGNOSIS

- Severe otitis externa
- Posterior auricular cellulitis
- Benign or malignant neoplasm
- Infection of deep neck space (Ludwig’s angina)

COMPLICATIONS

- Residual hearing loss
- Meningitis
- Intracranial abscess
- Subperiosteal abscess

DIAGNOSTIC TESTS

Swab for culture and sensitivity if ear is draining.

MANAGEMENT

Goals of Treatment

- Relieve pain and swelling
- Prevent spread of infection

Appropriate Consultation

Consult a physician concerning intravenous (IV) antibiotic therapy.

Adjuvant Therapy

Start IV therapy with normal saline. Adjust rate according to state of hydration.

Pharmacologic Interventions

Consult a physician for prescription of IV antibiotics. Polymicrobial coverage is necessary (for example, cefuroxime [Zinacef]). Analgesics for pain and fever:

acetaminophen (Tylenol) , 325 or 500 mg, 1–2 tabs PO q4-6h
Referral

Medevac to hospital as soon as possible; client will need an urgent ENT consultation. Client may need several days of IV drug therapy and possibly surgery.

ORAL TRAUMA

With trauma, a tooth may fracture, become displaced or become non-vital (and abscess) or oral mucosa may be damaged or ulcerated.

MANAGEMENT

Nonpharmacologic Interventions

– Warm saline rinse 4 times daily for traumatic ulcers

Referral

Any problems resulting from trauma should be referred to a dentist for monitoring and/or treatment.

PERITONSILLAR ABSCESS

Cellulitis of the space behind the tonsillar capsule extending onto the soft palate, leading to an abscess. It is most common in 15–30 year olds. It is considered moderate to severe if the patient has any of the following symptoms: appears acutely ill, drooling, difficulty swallowing, difficulty breathing and/or inability to open mouth. Otherwise it is considered mild to moderate.

CAUSES

Bacterial infection, usually related to group A Streptococcus (GAS) (50%), S. pyogenes, S. aureus, H. influenza.

HISTORY

– Recent episode of pharyngitis
– Gradually increasing unilateral ear and throat pain
– Fever
– Malaise
– Dysphagia (difficulty swallowing)
– Dysphonia
– Drooling
– Trismus (difficulty opening mouth)

PHYSICAL FINDINGS

– Fever
– Heart rate increased
– Client may appear acutely ill or distressed
– Diaphoretic; flushed if feverish
– Affected tonsil grossly swollen medially and reddened
– Tonsil may displace uvula and soft palate to the opposite side of pharynx
– Swelling and redness of the soft palate
– Trismus (difficulty opening mouth)
– Increased salivation
– Dysphonia with (“hot potato” voice)
– Unilateral referred ear pain
– Tonsillar/cervical lymph nodes enlarged and very tender
– Fluctuance may be felt on affected side of palate

DIFFERENTIAL DIAGNOSIS

– Epiglottitis
– Gonococcal pharyngitis

COMPLICATIONS

– Obstruction of the airways
– Sepsis

DIAGNOSTIC TESTS

Swab any exudate for culture and sensitivity.

MANAGEMENT OF MILD-TO-MODERATE PERITONSILLAR ABSCESS

Treat on an outpatient basis.

Goals of Treatment

– Relieve symptoms
– Prevent complications

Nonpharmacologic Interventions

Client Education

– Advise client to return immediately if pain becomes worse or if drooling, difficulty swallowing, difficulty breathing or inability to open mouth develops
– Recommend increased fluid intake
– Recommend increased rest until fever settles
– Recommend frequent gargling with warm saline for 48 hours
Pharmacologic Interventions

Antibiotics:
- penicillin V potassium (Penicillin V), 300 mg PO qid or 600 mg bid for 10 days
For clients with penicillin allergy:
- clindamycin (Dalacin C), 300 mg PO tid for 10 days

Analgesics for pain and fever:
- acetaminophen (Tylenol), 325 mg, 1–2 tabs PO q4h prn
  or
- ibuprofen (Motrin), 200 mg, 1–2 tabs PO q4h prn

Monitoring and Follow-Up

Follow up in 24 hours. If no improvement, consult with a physician. Needle aspiration, performed by a physician, may be required.

MANAGEMENT OF MODERATE-TO-SEVERE PERITONSILLAR ABSCESS

Client appears acutely ill and has difficulty swallowing.

Goals of Treatment
- Relieve symptoms
- Prevent complications

Appropriate Consultation

Consult a physician if the abscess is significant in size and the client appears acutely ill; immediate referral to hospital and examination by an ear, nose and throat (ENT) specialist are in order.

Adjuvant Therapy

Start IV therapy with normal saline; adjust rate according to age and state of hydration.

Nonpharmacologic Interventions
- Bed rest
- Give sips of cold liquids only
- Give nothing by mouth if drooling

Pharmacologic Interventions

Consult with a physician concerning choices for IV antibiotic treatment. Clindamycin (Dalacin) IV is often the drug of choice. In addition, one or two doses of dexamethasone IV can be used in conjunction with IV antibiotics.

Monitoring and Follow-Up

Monitor client to ensure adequate airway is maintained.

Referral

Medevac to hospital; client requires IV antibiotics and aspiration or surgical incision to drain abscess.

POSTERIOR EPISTAXIS

Source of bleeding appears to be from the posterior portion of the nose.

CAUSES
- Idiopathic (cause unknown)
- Hypertension
- Vascular abnormalities (hereditary hemorrhagic telangiectasia)
- Trauma: deviation or perforation of the septum
- Infection (for example, chronic sinusitis)
- Neoplasm (rare)

HISTORY
- Sudden onset of brisk, bright bleeding from nose
- May be unilateral or bilateral
- Blood running down back of throat
- May be a history of hematemesis if client has swallowed a large quantity of blood
- History of easy bruising, bleeding elsewhere (for example, melena, heavy menses), family history of bleeding tendencies, use of anticoagulants, use of acetylsalicylic acid (ASA) products

PHYSICAL FINDINGS
- Heart rate elevated
- Blood pressure may be reduced if loss of blood is significant
- Client appears anxious
- Client may be pale, sweaty if loss of blood is significant
- Bright red bleeding from nares (unilateral or bilateral)
- Bleeding site not visible
- Blood observed in pharynx

DIFFERENTIAL DIAGNOSIS
- Upper gastrointestinal bleed
- Post-tonsillectomy bleed
- Perforation of the septum
**COMPLICATIONS**
- Hypotension or shock (hypovolemic)
- Anemia, if bleeds are intermittent and frequent

**DIAGNOSTIC TESTS**
None.

**MANAGEMENT**

**Goals of Treatment**
- Stop bleeding
- Maintain circulating blood volume

**Appropriate Consultation**
Consult a physician if initial management fails to control bleeding, client is not stable or there is significant potential of underlying pathology.

**Adjuvant Therapy**
- Resuscitate patient as required
- Start IV therapy with normal saline or Ringer’s lactate solution; adjust IV rate according to pulse, blood pressure and rate of bleeding

**Nonpharmacologic Interventions**
- Keep client at rest, sitting in most comfortable position for patient
- Apply pressure to the nose
- Insert a posterior nasal pack; use a posterior nasal pack balloon system if available; alternatively use a Foley catheter

Procedure for Foley catheter system:

1. Place a 12–16 French catheter with a 30-cc balloon into the nose along the floor of the nasopharynx, until the tip is visible in the posterior pharynx.
2. Slowly inflate the balloon with 15 mL of sterile water, pull it anteriorly until it firmly sets against the posterior choanae.
3. Maintain catheter traction and stretch slightly.
4. Insert an anterior nasal pack next (½ x 72 inch [1.25 x 180 cm] ribbon gauze impregnated with petroleum jelly).
5. Place an umbilical cord clamp across the nostril against the anterior pack so that the elasticity of the catheter compresses the balloon against the anterior pack.
6. Protect facial skin from clamp by padding with 2 x 2 inch (5 x 5 cm) gauze.
7. Drape rest of catheter over ear on same side and tape in place.

Bilateral packing is sometimes required to achieve adequate compression. The bleeding should stop after the nasal packs are in place.

**Monitoring and Follow-Up**
Monitor vital signs and loss of blood closely. Remove packs and balloons in 24–36 hours. There is a possibility that bleeding may continue or restart.

**Referral**
Medevac to hospital if bleeding does not stop, if hypovolemia is evident (hypotension, tachycardia) or if significant underlying pathology is suspected.

**SOURCES**

Internet addresses are valid as of February 2012.

**BOOKS AND MONOGRAPHS**


Ears, Nose, Throat and Mouth


INTERNET GUIDELINES


END NOTES


