

REPUBLIC OF RWANDA



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**EAR NOSE AND
THROAT
CLINICAL TREATMENT GUIDELINES**

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Foreword

The guidelines presented in this document are designed to provide a useful resource for healthcare professionals involved in clinical case management. They were developed taking into consideration services provided at different levels within the health system and resources available. These guidelines are intended to standardize care at both tertiary and secondary levels of service delivery across different socio-economic stratifications of our society.


The clinical conditions included in this manual were selected based on facility reports of high volume and high risk conditions treated in each specialty area. The guidelines were developed through extensive consultative work sessions, which included health experts and clinicians from different specialties. The work group brought together current evidence-based knowledge in an effort to provide the highest quality of healthcare to the public. It is my strong hope that the use of these guidelines will greatly contribute to improved diagnosis, management and treatment of patients. And, it is my sincere expectation that service providers will adhere to these guidelines/protocols.

The Ministry of Health is grateful for the efforts of all those who contributed in various ways to the development, review and validation of the National Clinical Treatment Guidelines.

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ACCRONYMS

CBC: Complete Blood Count

CSOM: Chronic Suppurative Otitis Media

CT: Computer Tomography

ENT: Ear Nose and Throat

ESR: Electrocyte Sedimentation Rate

FBC: Full blood Count

FNA: Fine Needle Aspiration

HRT: Hormone Replacement Therapy

KOH: Potassium Hydroxide

MRI: Magnetic Resonance Imaging

MVA: Motor Vehicle Accident

PO: Per Os

TB: Tuberculosis

TSH: Thyroid Stimulating Hormone



CHAPTER I

**CONDITIONS OF
THE NOSE**



1. CONDITIONS OF THE NOSE

4.1. Rhinitis (specific & Non-specific)

Definition: It is the inflammation of the mucous lining of the nose, which may be acute or chronic.

Causes

- Infection
 - Viral
 - Bacterial
 - Fungal
- Predisposing factors
 - Allergy
 - Polluting environment e.g. Dust, fumes
 - Overuse of nasal decongestants (Rhinitis medicamentosa)
 - Hormone imbalances : e.g. During pregnancy, puberty, Hormone Replacement Therapy (HRT), hormonal contraception

Signs and symptoms

- Nasopharyngeal discomfort
- Dry cough
- Headache
- Running nose
- Fever
- Watery eyes
- Sensation of nasal obstruction
- Some people develop muscle or joint aches and feel generally tired or weak
- Thick, sticky mucus (after 3-days)
- Allergic rhinitis presents with a triad of symptoms; sensation of nasal obstruction, sneezing and watery running nose

Complications

- Otitis media
- Sinusitis
- Pharyngitis
- Laryngo-bronchitis

Investigations

- Full Blood Count
- skin testing for allergens
- Nasal smears

Management

- Most cases, treatment is symptomatic
- Supportive care includes bed rest and drinking plenty of fluid
- Refer the patient to an ENT specialist if no improvement within 5 days of treatment.

First choice treatment

- *Paracetamol*, 500mg x 3/day/3-5days for adults; 10 - 15mg/kg x 3-4/day/5days (oral or rectal) for children
- Local nasal decongestants: *Xylometazoline (Otrivine) nasal drops* – 0.05% 2-3 drops x 3/day/5 days for children; 0.1% 2-3 drops x3/day/5 days for adults
- Antihistamines: *Chlorphenylamine tabs/syrup* – 4mg x3/day/1-3days

Alternative treatment

- *Clarytine tabs/syrup*

≥ 12 years of age:

- One tablet [10 mg] once daily,
- Clarityne Syrup: 5 ml x1/day [10 mg]

Children 2 to 11 years of age:

- Body Weight > 30 kg: Clarityne Syrup, 10 mg x 1/day
- Body Weight 30 kg: Clarityne Syrup, 5 mg x 1/day

- *Cetirizine*
 - ≥ 12 years of age: 5 mg - 10 mg per day
 - Children 6 to 11 years: 5 mg - 10 mg once daily depending on symptom severity
 - Children 2 to 5 years: 2.5 mg ($\frac{1}{2}$ teaspoon) syrup once daily increased to a maximum dose of 5 mg per day given as 1 teaspoon syrup once a day or one $\frac{1}{2}$ teaspoon syrup
 - Children 6 months to <2 years: 2.5 mg ($\frac{1}{2}$ teaspoon) once daily

4.2. Acute Rhinosinusitis

Definition: It is an inflammation of the mucosa of the nasal passages and sinus cavities.

Causes

- Rhinitis (most common cause)
- Trauma with open sinuses
- Abscess and tooth extraction
- Infections (bacterial, viral, fungal)
- Common predisposing factors include chemical irritants, nasal polyp, deviation of nasal septum, perfumes or paint fumes, and changes in the weather

Signs and symptoms

- Purulent nasal discharge (anterior or posterior)
- Nasal obstruction
- Fever
- Frontal headache and heaviness exaggerated on bending forward
- On clinical examination, tenderness over the frontal and maxillary sinuses
- Anterior rhinoscopy shows pus in the middle meatus

Complications

- *Local*: Osteomyelitis
- *Orbital*: Orbital cellulitis, orbital abscess
- *Intra-Cranial*: Meningitis, brain abscess, Thrombophlebitis of cavernous sinus
- *Local-Regional* : Pharyngitis, tonsillitis, bronchitis, pneumonia, Otitis media
- *Systemic*: Septicemia

Investigations

- X-ray of sinuses – May show opacification of sinus with or without air-fluid level
- CT Scan (If complications are suspected)

Management

- Medical treatment consists of nasal decongestants and antibiotics
- Surgery for complicated acute Rhinosinusitis

First choice treatment

- *Amoxicillin*: Po 1000mgx3/day/10-14 days for adults; 50mg-100mg/kg x3/day/10-14 days for children
- *Xylometazoline (Otrivine) nasal drops*: 0.05% 2-3 drops x 3/day/5 days for children; 0.1% 2-3 drops x3/day/5 days for adults
- *Topical Nasal steroids such as Nasonex or Avamys*: Dose, 1 puff once daily for two weeks.

Alternative treatment

- *Amoxicillin+clavulanic acid (amoxiclav)* : Oral, 625mgx3/day/8-10 days; Syrup x 3 weight graduation/day/10-14 days

OR

- *Oracefal (cefadroxyl)*: 1gx2/day/10days in adults and 50mg/kg/day in children divided into two doses for children.

OR

- *Zinnat (cefuroxime)*: 500mg to 1g every 12 hours for at least 10 days

Recommendations

- Caution should be taken when associating nasal decongestants containing pseudo-ephedrin in hypertensive patient
- Refer immediately patients with suspected complications to an ENT surgeon

4.3. Ozena

Definition: It is a chronic inflammation of nose characterized by atrophy of nasal mucosa including the glands, turbinate bones, and the nerve elements supplying the nose.

Causes

- Infection
- Idiopathic

Signs and symptoms

- Nasal foul smell
- Crusting
- Widening nasal cavities (roomy)
- Loss of smell
- Feeling of nasal obstruction

Complications

- Psychosocial discomfort
- Septum perforation/ulcers

Investigations

- Nasal swab for lab analysis to identify associated microbes

Management

- Restoration of nasal hydration by irrigation with normal saline
- Surgical treatment

First choice treatment

- Irrigation with *Normal saline* x4/day/
- *25% glucose in glycerine ointment* after each irrigation

Alternative treatment

- *Tetracycline ointment* after each irrigation
- Surgical treatment to reduce nasal cavity (e.g. Young procedure)

4.4. Epistaxis

Definition: It is a nose bleeding

Causes

- *Local* (trauma, inflammation, foreign bodies, tumours of the nose and rhinopharynx, Iatrogenic)
- *Systemic* (cardiovascular diseases, bleeding disorder, liver diseases, kidney diseases, febrile diseases)
- *Idiopathic* (unknown)

Signs and symptoms

- Blood coming from the nose or the rhinopharynx

Investigations

- Full blood count
- Clotting profile
- Nasal endoscopy
- Other investigations requested based on general examination findings

Complications

- Hypovolemic shock
- Anaemia

Management

- CAB assessment
- Treatment of the cause

Non Surgical

- Clean blood clots from the nose
- Application of cold compresses on the nose
- Direct pressure applied by pinching the soft fleshy part of the nose applied for at least five minutes and up to 20 minutes
- Topical antibiotics Ointment to the nasal mucosa has been shown to be an effective treatment for recurrent epistaxis
 - *Tetracycline Ointment*
- Topical vasoconstrictor;
 - *Xylometazoline spray (otrivine) 0.5mg/ml*
- Platelets aggregates
- *Dicynone solution* for anterior nasal packing
- Proper Anterior nasal packing
- Combining posterior and anterior nasal packing
- Correct complications if any

Surgical

- Chemical Cautery of the bleeding site with silver nitrate or 20% of solution trichlor acetic acid under topical anaesthesia
- Electro coagulation
- Arterial ligation
- Embolisation

4.5. Nasal polyps

Definition: Nasal polyps are sac-like growths of inflamed tissue lining the nose (nasal mucosa) or sinuses

Causes

- Chronic sinus infections
- Allergic rhinitis

Signs and symptoms

- Nasal obstruction
- Mouth breathing
- Nasal discharge
- Hyposmia (Reduced sense of smell) and Anosmia (complete loss of sense of smell)
- Examination of the nose shows a grayish/pale mass in the nasal cavity

Complications

- Sinusitis
- Obstructive sleep apnea
- Facial deformity

Investigations

- Signs and symptoms; Nasal endoscopy, Rhinoscopy
- X-ray of the sinuses - shows an opaque image
- CT scan of the sinuses will show opaque (cloudy) spots where the polyps are

Management

- Nasal steroid sprays may help with nasal blockage
- Corticosteroid pills or liquid may also improve symptoms
- Antibiotics should only be taken if there is a bacterial sinus infection

First choice treatment

- *Avamys/flixonase (fluticazone propionate) nasal spray 2 sprays once daily (evening hours) for patients with ≥ 4 years*

old for 30 days to be repeated when necessary

- *Prednisolone 5mg PO*, Dose: 1mg/kg/day without exceeding 60mg daily for 10days
- If infection is associated, refer to acute sinusitis

Surgical treatment

- Surgery of the polyps is indicated after failure of the medical treatment

Recommendation

- Always send the biopsy specimen for Histopathology examination
- Refer all patient with a nasal mass to an ENT surgeon

4.6. Septal abscess

Definition: Infection with pus collection within the nasal septum

Causes

- Infection of the nasal septum hematoma
- Furuncle of the nose
- Untreated Septal hematoma

Signs and symptoms

- Increasing nasal obstruction
- Swelling of the nasal septum
- Significant tenderness over the nasal tip
- May present a purulent discharge
- Fever

Complications

- Deformation of the nasal pyramid
- Perforation of the nasal septum
- Septicemia
- Thrombophlebitis of cavernous sinus

Management

- Immediate Incision and drainage of the abscess + Nasal packing
- Antibiotics
 - *Cloxacillin PO* 50-100mg/kgx3/day/8days for children and 500-1g x 3/day/8 days for adults.

Recommendations

- Early septal reconstruction in children in order to prevent immediate and late facial deformity and nasal dysfunction
- Immediately drain the septal abscess as soon as the patient presents
- Keep the nasal pack as long as the collection is present

4.7. Foreign Bodies in Nose

Definition: It is a foreign object inserted into the nose

Predisposing factors

- Curious children
- Mental ill patients
- Trauma

Signs and symptoms

- Unilateral foul-smelling or bloody nasal discharge
- Difficult breathing through the affected nostril
- Irritation or pain in the nose
- Suspicion/reported foreign body

Complications

- Sinusitis
- Otitis media
- Accidental migration of foreign body in the lower airway
- Nasal stone or Rhinolith

Management

- Removal of the foreign body
- Treatment of any associated infection if any

Recommendations

- Proper setting, proper lighting, proper equipment and a cooperative patient are all important
- Foreign body in the nasal cavity is an emergency
- Any unilateral nasal blockage and foul smell should be treated as a foreign body unless otherwise.

4.8. Choanal atresia

Definition: Congenital disorder where the back of the nasal passage or Choana is blocked unilaterally or bilaterally usually by abnormal bone or soft tissue formed during fetal development

Cause

- Idiopathic

Signs/symptoms

- Severe airway obstruction at birth (Usually when Bilateral)
- Cyclical cyanosis
- Inability to breast feed and breathe at the same time
- Inability to pass a catheter through each side of the nose into the throat
- Persistent one-sided nasal blockage or discharge

Complications

- Aspiration while feeding
- Cardio-respiratory arrest
- Re-narrowing of the area after surgery

Investigations

- Endoscopy
- CT scan
- Investigations to rule out other associated congenital malformations

Management

- Placement of an oral airway
- Immediate Resuscitation of the baby
- Intubation or tracheotomy
- Surgical intervention

Recommendation

- Failure to pass a suction catheter through the nose after delivery, suspect Choana Atresia and this is a high index of suspicion. Immediately place an oral airway and transfer to the ENT surgeon

CHAPTER 2

CONDITIONS OF THE EAR



2. CONDITIONS OF THE EAR

2.1. Acute Otitis media

Definition: It is an inflammation of the middle ear cavities lasting less than 3 weeks

Causes

- Viral
- Bacterial (*Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhalis* etc)
- Predisposing factors include poor living conditions, adenoids, sinusitis, allergic rhinitis, tonsillitis, asthma, Cranial facial abnormalities, etc

Signs and symptoms

- Fever
- Sometimes convulsions in children
- Crying in children with ear scrubbing
- Diarrhea
- Vomiting
- Otagia
- Otorrhea
- Impaired hearing
- Redness and sometimes bulging of the eardrum

Complications

- Secretory otitis media (Glue ear)
- Chronic otitis media with perforation
- Acute mastoiditis sometimes with periosteal abscess
- Intracranial (meningitis, brain abscess, subdural abscess, etc)
- Facial paralysis
- Labyrinthitis
- Hearing impairment

Investigations

- Pus swab for laboratory analysis
- FBC

Management

- Elimination of predisposing or risk factors

Pharmacological treatment

First choice treatment

- *Amoxicillin*, Po 1000mgx3/day/10-14 days for adults; 50mg-100mg/kg day/10-14 days in children
- *Otrivine*(*Xylometazoline*)1% nose drops x2/day/ 5 day maximum for adults. Then for children use *Otrivine* 0.5% nose drops

Alternative treatment

- *Amoxicillin+clavuronic acid (amoxiclav)* Oral, 625mgx3/day/8-10 days in Adults; Syrup x 3 weight graduation/day/10-14 days in children
OR
- *Oracefal (cefadroxyl)*: 1gx2/day/10days for adults and 50mg/kg/day divided into two doses for children
OR
- *Zinnat (cefuroxime)*: tabs 250mg x2/day/7days

Surgical Treatment

- Myringotomy and sometimes ventilating Tube insertion
- Surgical treatment of complications

Recommendation

- Patients representing with recurrent Acute Otitis media should be referred to an ENT specialist

2 . 2. Chronic suppurative otitis media (CSOM)

Definition: A chronic inflammation of the middle ear lasting more than 6 weeks

Causes

- Inadequate management of otitis media
- Predisposing factors are: Frequent upper respiratory tract infections, poor living conditions, poor housing, hygiene and nutrition, analphabetism

Signs and symptoms

- Recurrent or persistent ear pus discharge or otorrhoea through a tympanic membrane perforation
- Large perforation of the eardrum on examination
- Impaired hearing

Complications

- Extracranial complications
 - Subperiosteal abscesses
 - Facial nerve paralysis
 - Suppurative labyrinthitis
 - Hearing impairment
 - Neck abscesses
- Intracranial complications
 - Lateral sinus thrombophlebitis
 - Brain abscess
 - Otitic hydrocephalus
 - Meningitis

Investigations

- Pus Cultures
- Audiogram
- CT-scan

Management

- It is aimed at eradication of infections and closure of tympanic perforation

First choice treatment

- Aural toilet by medicines' droppers combine with topic antibiotics (*Ofloxacin ear drops* x 2/day/ 10-14 days)

Alternative treatment

- Aural toilet by medicines' droppers combine with *Polydexta ear drops* x 2/day/ 7-10 day

Surgical Treatment

- Tympanoplasty
- Mastoidectomy

2 . 3. Diffuse Otitis external

Definition: It is an inflammatory process of the external auditory canal and/or the Auricle

Causes

- Bacterial infection
- Fungal infection
- Allergy
- Trauma

Signs and symptoms

- Discomfort , Itching and Pain in the ear
- Ear discharge
- Erythema and swelling of the external auditory canal
- Impaired hearing

Complications

- Stenosis of external auditory canal
- Osteitis
- Septicemia
- Facial nerve palsy

Investigations

- Swabs for laboratory analysis
- Investigations depending on suspected predisposing factors (Blood sugar, FBC)
- CT Scan (especially in malignant Otitis externa)

Management

Non-pharmacological treatment

- Dry mopping of the external auditory canal

Pharmacological treatment

- Topical Anti-Microbial
 - *Terra cortryl ointment* local application renewable every two days until symptoms subside
 - *Candiderm cream* local application renewable every two days for 10 days
- Systemic Antibiotic
 - *Cloxacillin* PO 500mg x3/day/7 days in adults and 50-100mg/kg/day divided in 3 doses in children
 - *Ciprofloxacin* 500mg x 2/day (In cases of malignant Otitis externa) until bone scan becomes normal
- Anti- Inflammatory
 - *Ibuprofen* PO 400mgx3/day/5days for adults; 200mgx3/day/5days in children

Recommendations

- In cases of persistent otitis externa. Refer the patient to an ENT specialist
- Treatment of refractive Otitis externa should be guided by culture and sensitivity results

2 . 4. Furuncle (Boil) of external ear canal

Definition: It is a very painful infective process to the hair follicle that occurs in the external ear canal

Causes

- Bacterial infection (staphylococcus aureus)
- Damaged skin is the predisposing factor

Signs and symptoms

- Pain, which may become quite severe (common)
- Itching ear
- Irritation and sometimes there is temporary hearing loss
- Sudden discharge from the ear which eases pain dramatically

Complications

- Perichondritis
- Stenosis of the external auditory canal
- Cellulitis

Investigation

- Pus swab for lab analysis

Management

- If not yet auto incised, Incision and drainage of the furuncle

Medical treatment

First choice treatment

- *Terra cortryl ointment* local application renewable every two days for 6 days with *Paracetamol* PO 500mgx3/day/5-7days in adults; 15mg/kg/dose x 3/5-7days in children

Alternative treatment

- *Fucidine ointment* local application 2 times/day for 7-10 days
- *Brufen* PO 400mgx3/day/5days for adults; 200mgx3/day/5days in children
- *Cloxacillin* PO 500mg x3/day/7days in adults; 50-100mg/kg/day divided in 3 doses for children

2 . 5. Foreign body in the ear

Definition: It is a foreign object stuck in the external ear canal

Predisposing factors

- Children often place items in their ears
- Mentally ill patients
- Adults leaving cotton tissue while cleaning their ears

Signs and symptoms

- Discomfort
- Otorrhea and pain when the foreign body stays long in the ear
- Visualization of foreign body with use of otoscopy
- Hypoacusis (impaired hearing)

Complications

- Infection
- Secondary stenosis

Management

Non-pharmacological treatment:

- Removal of foreign body
- If a foreign body is alive (e.g. insects) has to be killed with cooking oil or warm water by suffocation as an emergency before removal

Pharmacological treatment:

First choice treatment

- Removal of foreign body by; syringing using warm water or specific instruments under general anesthesia for children or uncooperative patients
- *Brufen + Terra cortryl ointment* local application renewable every two days for 6 days, + *Amoxicillin* tabs or syrup (if infection or trauma)

Alternative treatment

- *Polydexa ear drops*; 3 drops x 2/day/7-10 days

Recommendation

- Proper setting, proper lighting, proper equipment and a cooperative patient are all important
- Foreign body in the ear canal is an emergency if object alive or a corrosive object

2 . 6. Impacted wax

Definition: It's a condition in which ear wax has become tightly packed in the external ear canal to the point that the canal is blocked

Cause

- Idiopathic

Predisposing factors: include pushing wax deeper when cleaning the outer ear with a cottontipped applicator.

Signs and symptoms

- Hearing loss
- pain in the ear
- A ringing in the ear (tinnitus)
- Itching of the ear
- Ear wax build-up on otoscopy

Complications

- Infections
- Hearing impairment

Management

- Removal of impacted wax by syringing
- Medical treatment if necessary

First choice treatment

- *Glycerine phenique 2%* eardrops to loosen the impacted wax
- Removal of impacted wax by; syringing lukewarm water or specific instruments
- *Brufen* if necessary

Alternative treatment

- *Cerulyx topical ear* drops to loosen the impacted wax

2 . 7. Traumatic perforation of the eardrum

Definition: It is a hole in the eardrum due to impact.

Causes

- Trauma
- Barometric pressure changes

Signs and symptoms

- Immediate hearing impairment
- Tinnitus may be present
- Bloody ear discharge
- Otoscopy shows blood in the middle ear, around the edges of the perforation and in the external canal

Complications

- Infections
- Imbalance depending on the severity of trauma
- Loss of hearing

Investigation

- Hearing tests (audiogram, tympanogram)

Management

- Most small traumatic perforations will heal spontaneously

Non-pharmacological treatment:

- Instruct the patient to keep liquids out of the ear canal

Pharmacological treatment

First choice treatment

- *Amoxicillin* 500mgx3/day/7days for adults; 50-100mg/kgx3/day/7days for children
- *Brufen* tabs PO 400mgx3/day/5days for adults; *Brufen* syrup 20mg/kgx3/day/3-4days for children

Alternative treatment

- *Cloxacillin* tabs PO 500mgx3/day/7days for adults; 50-100mg/kg x4/day/7days for children
- *Paracetamol* tabs 500mgx3/day/5-7days for adults; paracetamol suspension 250mg/5ml (5- 10 ml x3/day 3-5 days) for children

Surgery: Closure of perforation (Myringoplasty or Tympanoplasty)

Recommendation

- Refer patient to the ENT if no closure of the perforation

2 . 8. Presbycusis

Definition: It is a progressive and bilateral hearing loss related to age. It starts in early age but complaints are evident at around 60 years of age in most patients.

Cause

- Physiological

Signs and symptoms

- Hearing impairment
- Tinnitus

Investigation

- Hearing tests (Audiometry etc)

Complication

- Psychosocial (social isolation) problems

Management

- No known cure for age-related hearing loss
- Rehabilitation with hearing aids

Recommendation

- Management of presbycusis should be done in the audiology center

2.9. Acute Mastoiditis

Definition: It is an acute and sudden infection of the mastoid cells following an infection of the middle ear cavity.

Cause

- Bacterial micro-organisms always spreading from middle ear cavity infection (Acute otitis media)

Signs and symptoms

- Fever
- Tenderness, and swelling behind the ear
- In some instances, the ear on the affected side seems pushed out and quite prominent due to collection of pus in the mastoid bone.
- Suppurative otitis media
- Headache
- Hearing loss

Complications

- Extra-cranial complications:
 - Facial paralysis
 - Neck abscess
 - Septicemia
 - Labyrinthitis
- Intra-cranial complications:
 - Extradural abscess
 - Subdural abscess
 - Brain abscess
 - Meningitis
 - Otitic hydrocephalus

Investigations

- Pus culture
- X-ray of the mastoid shows opacification of mastoid cells
- CT-scan of the middle ear

Management

Medical treatment

First choice treatment

- Antibiotics:
 - *Ampicillin* Adult; 1gx4/day/10-14 days; Child; Amp 50-100mg/kg/ (max 2g)/ day for 10-14 days divided in 4 doses i.v
 - *Gentamycin* Adult; 80mgx2/day/7 days iv ; Child; Genta 2-5mg/kg/day divided in 2 doses /7days i.v
- Analgesics
 - *Paracetamol* PO 500mgx3/day/5-7days in adults; 15mg/kg/dose x 3/5-7days in children
- Ant-inflammatory
 - *Brufen* PO 400mgx3/day/5days for adults; 200mgx3/day/5days in children

Alternative treatment

- *Amoxicillin + claviranic acid* iv 40mg/kgx3/day/10days (Max) for Adult
- *Cefotaxime* iv 50 -100mg/kg x3/day/7-10 days (for Children)
- *Ceftriaxone* iv 50mg/kg once daily

Surgical treatment

- Incision of abscess and drainage
- Myringotomy
- Mastoidectomy .This is done in cases of antibiotic therapy.

Recommendation

- Refer the suspected or confirmed case of acute mastoiditis to an ENT surgeon.



CHAPTER 3

CONDITIONS OF THE PHARYNX



3. CONDITIONS OF THE PHARYNX (THROAT)

3.1. Adenotonsillar hypertrophy

Definition: It is an exaggerated hypertrophy of adenoid and palatine tonsil tissues that may affect normal breathing.

Cause

- Repetitive infection of the upper airway (viral and bacterial) or allergy.

Sign and symptoms

- Breathing in the mouth
- Nasal voice
- Adenoid faces
- Snoring
- Sleep apnea
- Difficulty in swallowing (Dysphagia)

Complications

- Sinusitis
- Otitis media with or without middle ear effusions (fluid)
- Cor pulmonale
- Growth retardation
- Diabetes
- Obesity

Investigation

- X-ray of rhino pharynx (lateral view)

Management

Surgery treatment

- Surgery - Adenoidectomy plus tonsillectomy under general anesthesia

3 . 2. Tonsillitis (Acute & recurrent)

Definition: It is an inflammation of the tonsils

Causes

- Bacterial infection
- Viral infection
- Fungal infection

Signs and symptoms

- Pain on swallowing (odynophagia)
- Fever, chills
- Foul smell
- Headache
- Enlarged and tender sub-mandibular lymph nodes
- Swollen red tonsils sometimes with white spots

Complications

- Middle ear infections
- Peritonsillar abscess (quinsy)
- Abscess of the pharynx
- Sinusitis
- Rheumatic fever
- Acute glomerulonephritis
- Septicemia
- Bronchitis or pneumonia
- Rheumatic heart disease
- Septic arthritis

Investigations

- Swab for laboratory analysis
- complete blood count,
- streptococcal screen

Management

Non-pharmacological

- Rest in a quiet, warm place and try to sleep
- Ensure enough fluids, as dehydration can make a patient feel worse

Pharmacological treatment

First choice treatment

- *Amoxicillin*, Po 1000mgx3/day/8 days for adults; 50mg-100mg/kg day/8 days
- *Amoxicillin syrup* 250mg/5ml, 50-100mg/kgx3/day/8days for children
- *Ibuprofen* 400mgx3/day for 5 days, Child; ibuprofen 5-10mg/kgx3/day/5 days
- Antiseptics; Adult: *Hextril, betadine or sonatec guagings* x2-3/day for 5days.

Alternative treatment

- *Amoxicillin+clavuronic acid (amoxiclav)* Oral, 625mgx3/day/8 days in Adults; Syrup x 3 weight graduation/day/8 days in children
- OR
- *Oracefal (cefadroxyl)*: 1gx2/day/8days for adults and 50mg/kg/day divided into two doses for children
- OR
- *Zinnat (cefuroxime)*: tabs 250mg x2/day/7days

Surgery

- Tonsillectomy indicated in Chronic repetitive tonsillitis

3 . 3. Peritonsillar abscess

Definition: It is collection of pus in the peritonsillar space.

Cause

- Complication of a local or pharyngeal infection

Signs and symptoms

- Acute sore throat
- Trismus
- Unilateral throat pain
- Dysphagia
- Muffled voice(hot potato voice)
- Unilateral otalgia
- Fever
- Halitosis
- Displacement of the tonsil to the middle

Complications

- Dehydration
- Airway obstruction due to edema of larynx
- Cellulitis of the jaw or neck
- Sepsis
- Neck abscesses
- Meningitis and cerebral abscesses
- Aspiration leading to pneumonia

Investigations

- Needle aspiration to confirm presence of pus
- Lab analysis of pus from the abscess

Management

Non-pharmacological treatment:

- Admit the patient and rehydrate

Surgery

- Incision and drainage of the pus
- Antibiotic treatment

Pharmacological treatment

First choice treatment

- Anti-Inflammatory
 - *Diclofenac* 75 mg IMx 2/day/5days
- Antibiotics
 - *Benzylpenicillin (Penicillin G) iv*, 30 mg/kg x4/ to a maximum of 1.2g/day/ 6 days
 - *Metronidazole* 500mgx3/day i.v for 5 days Adult; 7.5mg/kg/dose x 3 doses/day

Alternative

- *Clindamycin iv* 10 mg – 500mg/kg x4/day/3-4 days, and thereafter, oral, 10 mg – 500mg/kg x3/day/3-4days
- *Amoxillin+Clavuramic acid* PO 625mgx3/day/6days

Recommendation

- Tonsillectomy done one Month after medical treatment for recurrent to Peritonsillar abscess

3 . 4. Retropharyngeal abscess

Definition: Severe complication of upper respiratory tract infections common in children less than 3 years of age

Causes

- Spread of nasopharyngeal infection to retro- pharyngeal lymph- nodes

Signs and symptoms

- Torticollis
- Soar throat
- Drooling
- Stridor
- Dyspnea
- Dysphagia
- Lethalgia
- Posterior Pharyngeal edema
- Fever
- Dehydration

Complications

- Pneumonia
- Death due to aspiration
- Mediastinitis
- Mediastinal abscess
- Neck abscesses
- Brain abscess
- Septicemia
- Pericarditis

Investigations

- CBC(complete blood count)
- Lateral neck X-ray

Management

Non-pharmacological treatment

- Maintain the airway
- Insert a reliable IV catheter
- Keep the child nil by mouth
- Rehydration

Surgical

- Incision and drainage of abscess under general anesthesia

Pharmacological treatment

First choice treatment

- Anti-Inflammatory
 - *Diclofenac* 75 mg IMx 2/day/5days
- Antibiotics
 - *Benzylpenicillin (Penicillin G) iv*, 30 mg/kg x4/ to a maximum of 1.2g/day/ 6 days
 - *Metronidazole* 500mgx3/day i.v for 5 days Adult; 7.5mg/kg/dose x 3 doses/day

Alternative

- *Clindamycin iv* 10 mg – 500mg/kg x4/day/3-4 days, and thereafter, oral, 10 mg – 500mg/kg x3/day/3-4days
- *Amoxillin+Claviranic acid* PO 625mgx3/day/6days

Recommendation

- In case of High index suspicion refer the patient to the ENT surgeon

3.5. Pharyngitis

Definition: It is a diffuse inflammation of the mucous membrane lining the pharynx

Causes

- Viral infection
- Bacterial infection
- Irritation due to Gastric reflux, very cold drinks etc
- Fungal infection
- Chronic rhino-sinusitis

Signs and symptoms

- Sore throat (is the main complaint)
- Fever and Chills
- Headache
- Joint pain and muscle aches
- Swollen and tender sub-mandibular lymph nodes
- Redness of the mucous membrane lining the pharynx sometimes pus exudates,
- edema of uvula
- Dysphagia

Complications

- Blockage of the airway (in severe cases)
- Middle ear infections
- Peritonsillar abscess (quinsy)
- Retropharyngeal and parapharyngeal abscesses
- Sinusitis
- Rheumatic fever
- Acute glomerulonephritis
- Septicemia
- Bronchitis or pneumonia
- Rheumatic heart disease
- Septic arthritis

Investigations

- Throat swab for lab analysis
- FBC

Management

Non-pharmacological treatment (for viral and mild bacterial infections)

- Drink warm liquids such as lemon tea or tea with honey
- Humid inhalation e.g.5% alcohol menthol

Pharmacological treatment

First choice treatment

- *Amoxicillin*, Po 1000mgx3/day/8 days for adults; 50mg-100mg/kg day/8 days *Amoxicillin syrup* 250mg/5ml, 50-100mg/kgx3/day/8days for children
- *Ibuprofen* 400mgx3/day for 5 days, Child; ibuprofen 5-10mg/kgx3/day/5 days
- *Antiseptics*; Adult: *hextril, betadine or sonatec guag-ings* x2-3/day for 5days.

Alternative treatment

- *Amoxicillin+clavuronic acid* (amoxiclav) Oral, 625mgx3/day/8 days in Adults; Syrup x 3 weight graduation/day/8 days in children
OR
- *Oracefal (cefadroxyl)*: 1gx2/day/8days for adults and 50mg/kg/day divided into two doses for children
OR
- *Zinnat (cefuroxime)*: tabs 250mg x2/day/7days

Recommendations

- Pharyngitis due to virus should be treated conservatively.
- Gastro-oesophageal reflux disease should be treated with proton-pump inhibitors (like omeprazol) and referred to internal medicine

3 . 6. Oropharyngeal candidiasis

Definition: It is a diffuse inflammation of the mucous membrane lining the oral cavity and pharynx due to candida albicans.

Causes/predisposing factors

- Candida albicans
- Immunocompromised patients

Signs/symptoms

- Painless, white patches in the mouth and pharynx
- Pain and difficulty swallowing

Complications

- Esophagitis
- Gastro-enteritis
- Meningitis
- Endocarditis
- Arthritis
- Endophthalmitis

Investigations

- KOH preparation of scraping from mucosal surface

Management

- Management of associated disease

Pharmacological treatment:

First choice treatment

- *Nystatin*
 - Oral tablets, 100,000 unitsx3/day/14 days,
 - Oral suspension, 1 to 2 teaspoons, held in mouth for 5 min and then swallowed

OR

- *Itraconazole:* Capsules or oral solution. 100 mg Pox4/day or x2/day for 2 weeks

OR

- *Ketoconazole* 200 mg PO x4/day to x2/day for 1 to 2 weeks

Alternative treatment

- *Clotrimazole*: Oral tablets, 10 mg, one tablet x 5/ day/8days
- *Fluconazole*: 200 mg PO once followed by 100 mg/d for 2 to 3 weeks Increase the dose to 400 to 800 mg in resistant infection. Also available in IV form

Recommendation

- Investigations should be done to identify the underlying cause of immune-suppression.

3.7. Tumours of naso-pharynx

Definition: It is any mass located in the naso-pharynx, which could be benign or malignant.

Causes

- Epstein Bar Virus
- Congenital
- Environmental factors
- Unknown
- Predisposing factors include problems with the body's immune system, alcohol, genetic factors, smoking etc

Signs and symptoms

- Purulent rhinorrhoea
- Epistaxis which is usually unilateral
- Progressive unilateral hearing loss
- Cervical adenopathy in case of malignant tumours
- Progressive nasal obstruction
- Breathing in the mouth
- Nasal voice

- Snoring
- Sleep apnea

Complications

- Severe hemorrhage which can lead to shock and death
- Loco-regional and distant metastasis

Investigations

- Nasal fibroscopy
- Biopsy for histopathology exams
- CT- scan
- Arteriography
- FNA cytology for the nodes

Management

- *If Malignant:* Irradiation and/ or chemotherapy
- *If benign:* Surgical removal after evaluation
- *Palliative care*

Recommendation

- High index of suspicion is an indication for referral for appropriate care.

3 . 8. Foreign body in the Laryngeal-tracheal bronchial tree

Definition: Foreign body found in the lower airway that is not a normal part of the tissue.

Cause

- Accidental inhalation

Signs and symptoms

- Sudden onset of choking and gasping
- Coughing
- Airway obstruction
- Persistent dyspnea
- Wheezing
- Inter-costal and supra-sternal recession
- Cyanosis

Complications

- Bronchiectasis
- Atelectasis
- Pneumothorax
- Pneumonia
- Lung consolidation
- Abscess

Investigation

- X-ray of the chest

Management

Non-pharmacological treatment

- Hospitalization of the patient
- First aid management (Heimlich manoeuvre or Mof-feson manoeuvre for children under 8 months)

- Airway maintenance
- Supportive care (oxygen etc)
- Monitoring oxygen saturation

Pharmacological treatment

- Steroids:
 - *Dexamethazone iv* 0.1mg/kgx3/day/3-4 days for children iv; 4mgx3/day/3-4days for adults
- *Antibiotics:*
 - *Ampicillin iv* 50-100mg/kgx4/day/7days

Surgical management

- Endoscopy and extraction of the foreign body under general anesthesia

Recommendation

- High index of suspicion and refer the patient to an ENT surgeon

3 . 9. Foreign body in the oesophagus

Definition: Foreign body present in the esophagus that is not normal part of the esophageal tissue.

Causes

- Accidental mainly in children and unconscious patients
- Large food bolus ingestion

Signs and symptoms

- Acute onset of dysphagia
- Inability to swallow oral secretions
- Drooling
- Retrosternal fullness/or pain
- Suffocation
- Hematemesis

Complications

- Breach to the mucosa
- Oesophageal stricture or stenosis
- Esophageal perforation with mediastinitis, Pneumothorax
- Tracheal-osophageal fistula
- Aorto-esophageal fistula

Investigation

- Neck and chest X-ray

Management

- Maintenance of airway in case of suffocation
- Reassurance of the family members and patient

Surgical

- Removal of foreign body with use of esophagoscopy as an emergency

Recommendation

- Transfer the patient to an ENT surgeon

3 . 10. Acute Epiglottitis

Definition: It is an acute and life threatening inflammation of the epiglottis common in children, which may lead to airway obstruction

Causes

- Bacterial infections especially hemophilus influenza
- Viral infections

Signs and symptoms

- Hoarseness of voice
- Fever
- Dysphagia
- Dyspnea which may lead to asphyxia

- Drooling
- Hyper extended neck
- Stridor
- Sore throat

Complications

- Asphyxia and death may occur
- Septic shock
- Edema of larynx
- Pneumonia
- Meningitis
- Pneumothorax
- Epiglottitis abscess

Investigations

- Direct inspection using laryngoscope under anesthesia
- Neck X-ray

Management

- Letting the child be in a position of comfort
- Immediate hospitalization
- Urgent tracheal intubation to protect the airway or tracheotomy
- Surgical airway (cricothyrotomy) if necessary

Medical treatment

First choice treatment

- *Ampicillin iv* 50-100mg/kgx4/day/10days; and *Gentamycin iv* 3-5mg/kgx2/day/5days
- *Hydrocortizone iv* 0.1-1 mg/kgx3/day/3-5days
- *Paracetamol syrup* in children; *Paracetamol tabs* in adults

Alternative treatment

- *Amoxicillin + clavuronic acid iv* 40mg/kgx3/day/7-10days
- *Cefotaxime iv* 50-100mg/kg x3/day/7-10 days in children; 1gx2/day/7 days in adults

Recommendation

- High index of suspicion start patient on treatment and transfer to an ENT surgeon for further management of the airway.

3 . 11. Laryngotracheobronchitis (subglottitis)

Definition: An acute infection of the upper respiratory tract that causes varying degrees of airway obstruction

Causes

- Viral infection (common cause)
- Bacterial infection

Signs and symptoms

- Stridor
- Barking cough
- Fever
- Diffuse inflammation with exudate and edema of the subglottic
- Respiratory Distress
- Dyspnea
- Dysphonia
- Sore throat

Complications

- Airway obstruction
- Septicemia
- Sub-glottis Stenosis
- Toxic shock
- Cardio-respiratory arrest
- Pneumonia

Investigation

- X-ray exam of the neck and chest

Management

Non-pharmacological treatment:

- Make the child as comfortable as possible
- Avoid agitating the child with unnecessary procedures and examinations
- Maintenance of the airway

Pharmacological treatment

First choice Treatment

- Intubation or *tracheotomy* to maintain airway
- *Ampicillin iv* 50-100mg/kgx4/day/10days with *Gentamycin iv* 3-5mg/kgx2/day/5days
- *Hydrocortizone iv* 0.1-1 mg/kgx3/day/3-5days
- Anti-nflammatories: *Brufen syrup* in children; *Paracetamol tabs* in adults

Alternative treatment

- *Amoxicillin + claviranic acid iv* 40mg/kgx3/day/7-10days
- *Cefotaxime iv* 50-100mg/kg x3/day/7-10 days

Recommendation

- High index of suspicion start patient on treatment and transfer to an ENT surgeon for further management of the airway

Laryngeal Trauma

Definition: It is an injury of the larynx, which may be penetrating or blunt

Causes

- Motor vehicle accident (MVA)
- Direct blows sustained during assaults
- Sport injuries
- Strangulation
- Falls

Signs and symptoms

- Signs of cervical trauma (Subcutaneous emphysema, hematoma, ecchymosis, laryngeal tenderness and bony crepitus)
- Neck pain
- Dyspnea
- Stridor, dysphonia, odynophonia and aphonia
- Cyanosis
- Exsanguination

Complications

- Asphyxia and death may occur immediately
- Cricothyroid and cricoarytenoid dislocation
- Endolaryngeal mucosal tears and hematoma
- Fractures, edema, hematoma, cartilage necrosis, cord paralysis,
- Laryngeal stenosis
- Infections (Mediastinitis, Pneumonia)
- Pneumothorax

Investigations

- Esophagoscopy to rule out injury of esophagus
- Laryngoscopy
- laryngeal CT examination
- MRI
- Angiography
- Chest and cervical x-ray

Management

- Airway maintenance

Medical treatment

- Surgical exploration and repair where indicated
- Management based on classification laryngeal trauma

First choice treatment

- Tracheotomy to maintain airway
- *Ampicillin iv* 50-100mg/kgx4/day/10days; and *Gentamycine iv* 3-5mg/kgx2/ day/5days
- *Hydrocortizone iv* 0.1-1 mg/kgx3/day/3-5days
- Anti-inflammatory drugs: *Brufen syrup* in children; *Paracetamol* tabs in adults

Alternative treatment

- *Amoxicillin + clavuranic acid iv* 40mg/kgx3/day/7-10days
OR
- *Cefotaxime iv* 50-100mg/kg x3/day/7-10 days

Surgery

- For repair of associated injuries

Recommendation

- High index of suspicion and clinical judgment should guide transfer to an ENT surgeon for further management

3 . 12. Laryngomalacia

Definition: It is a very common condition of infancy, in which the soft, immature cartilage of the upper larynx collapses inward during inhalation, causing airway obstruction

Causes

- Congenital
- Idiopathic

Signs and symptoms

- Intermittent inspiratory stridor which may become worse with agitation, crying, excitement, feeding or position/ sleeping in the supine (on the back) position
- Poor weight gain
- Difficulty in feeding with regurgitation of food (vomiting or spitting up),

- Apnea (stops breathing)
- Inter-costal and supra-sternal recessions
- Cyanosis

Investigations

- Flexible fiberoptic laryngoscopy
- Bronchoscopy under general anaesthesia
- Chest X-rays

Complications

- Episodes of interrupted breathing(apnoea)
- Aspiration pneumonia due to stomach reflux
- Feeding problems leading to growth retardation

Management

Non-pharmacological treatment

- Condition is usually self limiting
- Reassuring family members of favorable prognosis
- Position adjustments (Propped up position)

Pharmacological treatment

- Supplemental oxygen should be administered in case significant hypoxemia

Surgical management

- Tracheotomy in severely affected infants
- Supraglottoplasty



CHAPTER 4

NECK MASSES



4. NECK MASSES

4.1. Chronic cervical lymphadenopathy

Definition: It refers to nodes that are abnormal in size, consistency or number

Causes

- Infection of the head, neck, sinuses, ears, eyes, scalp, pharynx
- Mononucleosis syndromes, Epstein-Barr virus, Cytomegalovirus, toxoplasmosis, rubella organisms
- Tuberculosis
- Lymphoma
- Head and neck malignancy
- Lung, retroperitoneal or gastrointestinal cancer
- Thoracic or retroperitoneal cancer

Signs and symptoms

- History of masses in the neck which may be fixed or mobile, soft or hard
- Fever and tenderness in case of infections
- Painless, matted cervical nodes in case of TB

Complication

- Depend on the cause

Investigations

- Complete blood count and ESR
- Tuberculin test
- Chest X-ray
- Ultrasound of the hypertrophied node
- Blood analysis for specific infections (serology, bacterial, viral etc)
- Fine needle aspiration cytology for lab analysis

- Endoscopy of the aerodigestive tract under general/local anaesthesia and biopsy where appropriate for histopathology exams

Management

- Medical
- Surgical
- Treating the cause

Recommendations

- Open biopsy should never be carried out as primary investigative modality for a neck mass/ node in the head and neck region.
- FNA cytology should be the first choice for investigation and facilities are available at referral hospitals

4.2. Parapharyngeal Abscess

Definition: It is a suppurative infection of tissues in the para-pharyngeal space (adjacent to the pharynx), usually a complication of acute pharyngitis or tonsillitis.

Causes

- Complication of dental infection
- Peritonsillar abscess
- Mastoiditis
- Aerobic organisms (streptococcus, Haemophilus influenzae, staphylococcus aureus etc)
- Trauma
- Superficial neck infections
- Tumours
- Abscesses of the brain, liver (caused by bacteria amoeba and fungi)
- Lung abscess may be caused normal airway flora, pneumonia germs or TB

Signs/symptoms

- Severe pain and swelling of the upper neck
- High fever
- Odynophagia
- Trismus
- Sore throat
- Torticollis (rare)
- Displacement of lateral pharyngeal wall towards the midline
- Brawny or erythematous lateral neck swelling
- Palpable usually non fluctuant tender mass below the angle of the mandible
- Stridor
- Respiratory distress (rare)

Complications

- Airway obstruction
- Suppurative Mediastinitis
- Erosion into the carotid artery
- Sepsis
- Neck cellulitis

Investigations

- Needle aspiration of pus for confirmation of abscess and sent for lab analysis
- Ultrasound over the mass – safe and less traumatic
- CT-scan – distinguishes the abscess from cellulitis and determines presence and location of the abscess
- MRI

Management**Pharmacological treatment****First choice treatment**

- Antibiotics: *Ampicillin iv* 50-100mg/kgx4/day/10days; and
- *Fragyl iv*
- Steroids: *Hydrocortizone iv* 0.1-1 mg/kgx3/day/3-5days
- Anti-inflammatory drugs, *Brufen syrup* in children;
Paracetamol tabs in adults PO
500mgx3/day/5days

Alternative treatment

- *Cefotaxime iv* 50-100mg/kg x3/day/7-10 days; *Flagyle iv*
OR
- *Amoxicillin + clavulanic acid iv* 40mg/kgx3/day/7-10days;
Flagyl iv 15mg/kg as loadng dose then 7mg/kg x 4/day/7-10
days

Surgery

- Incision and drainage of the abscess under general anes-
thesia

4.3. Parotid tumour

Definition: It is an uncontrolled growth of cells that originates in the parotid gland. It may be benign or malignant. 80% of them are benign.

Causes

- Idiopathic
- Predisposing factors include radiation therapy

Signs and symptoms

- Swelling in the parotid region
- Facial paralysis in case of malignancy
- A lump or mass in the mouth if advanced case
- Pain in the jaw or the side of parotid area
- Painless if benign and small mass
- Physical examination reveals a fixed or mobile mass

Complications

- Facial peripheral paralysis
- Ulceration and hemorrhages
- Metastasis

Investigations

- Fine needle aspiration (FNA)
- Ultrasound
- MRI
- CT- scan
- Histopathology exams

Management

Surgery removal

- Total or superficial parotidectomy is the mainstay of treatment

Pharmaceutical

- Chemotherapy+/- Radiotherapy indicated in advanced disease or where surgery is not indicated.

Recommendations

- Refer patients with parotid tumors to ENT department.
- Open biopsy is CONTRAINDICATED.

4.4. Submandibular tumour

Definition: It is an uncontrolled growth of cells that originates in the submandibular gland. It may be benign or malignant

Causes

- Idiopathic
- Predisposing factors include infections and salivary calculus

Signs and symptoms

- Swelling in the area of sub-mandibular gland
- Pain at times painless
- A lump or mass in the mouth sometimes pus or blood discharge

Investigations

- FNA
- Ultra-sound
- MRI
- CT- scan
- Histopathology exams
- Chest X-ray

Management

- Medical
- Surgical removal of the tumor
- Support treatment
 - Analgesics like *Paracetamol* 500 mgx3/day 5 days

4.5. Goitre

Definition: It is an enlargement of the thyroid gland which can be seen as a swelling in the front of the neck.

Types

- *Diffuse small goiter:* The whole thyroid gland swells. When touched it feels smooth
- *Nodular goiter:* Certain parts of the thyroid gland - nodules - swell. The gland may feel lumpy when touched

Causes

- Idiopathic
- Iodine deficiency in the diet
- Predisposing factors include:
 - Age over 40 years
 - Family history of goiter
 - Female gender

Signs and symptoms

- A visible swelling on the front of the neck
- Noticeable lump in the throat
- Hoarseness (voice)
- Coughing more frequently than usual
- A feeling of tightness in the throat
- Swallowing difficulties (less common)
- Breathing difficulties (less common)
- Emotional outbursts, depression or mood swings
- Unexplained weight loss or perhaps even weight gain

Complications

- Compression of trachea
- Myxoedema (in case of hypothyroidism)
- Hyperthyroidism(thyrotoxicosis)
- Cardiac complications
- Exophthalmia
- Cancer

Investigation

- T3, T4 and TSH
- Ultrasound of thyroid gland
- CT-scan
- FNA
- Histology
- Scintigraphy

Management

Pharmacological treatment

- *Levo-thyroxine*, 100 µg/day in case of total thyroidectomy

Surgical

- Thyroidectomy (total or partial)

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