

REPUBLIC OF RWANDA



MINISTRY OF HEALTH  
P. O. Box 84 Kigali  
[www.moh.gov.rw](http://www.moh.gov.rw)

**EAR NOSE AND  
THROAT  
CLINICAL TREATMENT GUIDELINES**

September 2012



## 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.

We would like to thank our colleagues from district, referral and university teaching hospitals, and specialized departments within the Ministry of Health, our partners and private health practitioners. We also thank the Rwanda Professional Societies in their relevant areas of specialty for their contribution and technical review, which enriched the content of this document. We are indebted to the World Health Organization (WHO) and the Belgium Technical Cooperation (BTC) for their support in developing this important document.

We would like to especially thank the United States Agency for International Development (USAID) for both financial and technical support through the Management Sciences for Health (MSH) Integrated Health System Strengthening Project-(IHSSP) and Systems for Improved Access to Pharmaceuticals and Services (SIAPS).

Finally, we wish to express thanks to all those who contribute to improving the quality of health care of the Rwanda population.

  
Dr Agnes Binagwaho  
Minister of Health  
Kigali-Rwanda





# Contents

ACCRONYMS.....	3
<b>1. CONDITIONS OF THE NOSE.....</b>	<b>7</b>
4.1. Rhinitis (specific & Non-specific).....	7
4.2. Acute Rhinosinusitis.....	9
4.3. Ozena.....	11
4.4. Epistaxis.....	12
4.5. Nasal polyps.....	14
4.6. Septal abscess.....	15
4.7. Foreign Bodies in Nose.....	16
4.8. Choanal atresia.....	17
<b>2. CONDITIONS OF THE EAR.....</b>	<b>21</b>
2 . 1. Acute Otitis media.....	21
2 . 2. Chronic suppurative otitis media (CSOM).....	23
2 . 3. Diffuse Otitis external.....	24
2 . 4. Furuncle (Boil) of external ear canal.....	26
2 . 5. Foreign body in the ear.....	27
2 . 6. Impacted wax.....	28
2 . 7. Traumatic perforation of the eardrum.....	29
2 . 8. Presbycusis.....	31
2 . 9. Acute Mastoiditis.....	32
<b>3. CONDITIONS OF THE PHARYNX (THROAT).....</b>	<b>37</b>
3 . 1. Adenotonsillar hypertrophy.....	37
3 . 2. Tonsillitis (Acute & recurrent).....	38
3 . 3. Peritonsillar abscess.....	40
3 . 4. Retropharyngeal abscess.....	42
3 . 5. Pharyngitis.....	44
3 . 6. Oropharyngeal candidiasis.....	46

3 . 7.	Tumours of naso-pharynx.....	47
3 . 8.	Foreign body in the Laryngeal-tracheal bronchial tree...49	
3 . 9.	Foreign body in the oesophagus.....	50
3 . 10.	Acute Epiglottitis.....	51
3 . 11.	Laryngotracheobronchitis (subglottitis).....	53
3 . 12.	Laryngomalacia.....	56
<b>4.</b>	<b>NECK MASSES.....</b>	<b>61</b>
4.1.	Chronic cervical lymphadenopathy.....	61
4.2.	Parapharyngeal Abscess.....	62
4.3.	Parotid tumour.....	64
4.4.	Submandibular tumour.....	66
4.5.	Goitre.....	67
	<b>REFERENCES.....</b>	<b>69</b>

## 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*

- *Clarityne 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*
  - $\geq 12$  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  $\geq 4$ 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 dropsx2/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)



## REFERENCES

- 1. Cummings CW, Flint PW, Haughey BH, et al. Otolaryngology: Head & Neck Surgery. 4th ed. St Louis, Mo; Mosby; 2005:3019-3020.
- 2. Mandell GL, Bennett JE, Dolin R. Principles and Practice of Infectious Diseases. 6th ed. London: Churchill Livingstone; 2005:771.
- 3. Nasal septal abscess in children: from diagnosis to management and prevention; Int J Pediatr Otorhinolaryngol. 2011 Jun; 75(6):737-44. Epub 2011 Apr 14.
- 4. <http://www.nhs.uk/Conditions/Rhinitis---non-allergic/Pages/Treatment.aspx>
- 5. Gleeson M, et al: Scotts-Brown Otolaryngology Head and Neck Surgery, 7th Ed.(3 volumes), Hodder Arnold
- 6. Dhigra PL: Diseases of the Ear Nose and Throat. 4th Edition, Elsevier India
- 7. Ludman H, Wright T. Diseases of the ear. 6th Edition, Hodder Arnold
- 8. <http://www.waent.org/archives/2009/vol2-2/20091002-larynx-trauma/larynx-trauma.htm>
- 9. Bailey BJ, et al. Head and Neck Surgery –Otolaryngology. 4th Edition, Lippincott Williams & Wilkins

## LIST OF PARTICIPANTS

No	FAMILY NAME	FIRST NAME	TITLE
1	DR KAYITESI	BATAMULIZA	ENT SURGEON
2	DR SENDEGEYA	AUGUSTIN	ENT SURGEON
3	DR TWAGIRUMUKIZA	EUGEN	ENT SURGEON
4	DR MUNYARUGAMBA	PROTAIS	ENT SURGEON
5	DR MUNYAMPUNDU	HORATIUS	
6	NDAYAMBAJE	THEOGENE	PHARMACIST
7	DR NZEYIMANA	BONAVENTURE	PUBLIC HEALTH FACILITIES EXPERT
8	DR MANZI	EMMNUEL	QI/ADVISOR
9	AHABWE	MOSES	TECHNICAL ADVISOR
10	ATWINE	JOY	QI/SENIOR TECHNICAL ADVISOR
11	BUTARE	RICHARD	QI/TECHNICAL ADVISOR



