UNIT 4  COMMON CONDITIONS-4 – EYE, EAR, NOSE AND THROAT

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4.0  INTRODUCTION

In this unit we will discuss some very common eye and Ear-Nose-Throat (ENT) conditions affecting various age groups. Ophthalmic conditions affect all age groups. Refractive errors, vitamin A deficiency, conjunctivitis, trachoma, cataract, glaucoma, Eye injuries are common cause of ocular morbidity. Ear-Nose-Throat conditions can affect all age groups. Children are affected frequently- as many as 40% Ear-Nose-Throat patients comprise children/ paediatric age group.

Let us review the common eye problems and Ear-Nose-Throat conditions and learn appropriate management.

4.1  OBJECTIVES

After completing this unit, you will be able to:
• enumerate common eye problems;
• recognise clinical manifestations of common eye problems;
• enumerate and advise appropriate investigations and treatment and nursing care;
• enumerate common Ear-Nose-Throat (ENT) conditions;
• recognise the signs and symptoms of common Ear-Nose-Throat (ENT) conditions; and
• enumerate and advise appropriate investigations and treatment and nursing care
4.2 COMMON EYE PROBLEMS

We will discuss about general primary care for local infections of eye followed
details of specific eye infections such as Redness of Eye, conjunctivitis, trachoma,
stye and initial diagnosis and referral of refractive errors.

4.2.1 Primary Care for Local Infection of Eye

Before discussing the primary care, let us go through symptoms and signs,
assessment for general eye problems as given below:

Symptoms and signs of eye infections.

- Pain, itching, or sensation of a foreign body in the eye
- Photosensitivity (aversion to bright light)
- Redness or small red lines in the white of the eye
- Discharge of yellow pus that may be crusty on waking up
- Watering of eyes
- Swelling of eye
- Whitening of black of eye
- Swollen eyelids
- Constant involuntary blinking (blepharospasm)
- Crusting over of the eyelid

Primary Care and Nursing Management

Assessment (WHATSUP) explained as:

- W-What part of the eye is affected? Eyelid, conjunctiva, cornea?
- A-Aggravating and alleviating factors. Worse when rubbing eyes, blinking?
- T-Timing. Was there exposure to a pathogen? Previous infection or irritation?
  Length of time, symptoms have persisted?
- S-Severity. Is there visual impairment?
- U-Useful data for associated symptoms
- P-Photosensitivity.
- Immunosuppressant drugs?
- Do other members of the family or peer group have symptoms?
- Are decongestant eye drops used?
- Are there exudates?
- Are the eyelids sticks together on awakening?
- Does patient wear contact lenses, soft contact lenses overnight, disposable
  contact lenses?
- Does Patient has dry eyes?
- Infection with Tuberculosis, Syphilis, HIV?
• What is typical eye hygiene?
• Perception by the patient of the problem. What does patient think is wrong?
• Pain related to inflammation or infection of the eye or surrounding tissues.
• Sensory-perceptual alteration (visual) related to blepharospasm, photophobia, diminished visual acuity (corneal opacity, eye patching), visual distortions (exudates, ophthalmic ointment).
• Risk for injury related to visual impairment.
• Risk for infection related to poor eye hygiene.
• Knowledge deficit related to disease process, prevention and treatment.

**Primary care**

1) Checking of visual acuity (refer BNSL-043, Block 2, Unit 5)
2) Relief of acute pain – analgesics, topical local anesthetic.
3) Cleaning of eyes with clean water.
4) Cleaning of hands to prevent spread of infection.
5) Dry hot compresses.
6) Conjunctival swab for culture sensitivity.
7) Contact lenses wearer to switch to glasses.
8) Avoid unusual strain and stress to eyes.
9) Specific management as per cause.

**Check Your Progress 1**

i) What are common signs and symptoms of eye infections? .............................................................................................................

ii) First step to assess eye infection is ......................................................

iii) In case of infection contact lens wearer should ..............................

iv) Most important step to prevent spread of infections ......................

Let us discuss common local infections which affect eyes as given below:

### 4.2.2 Redness of Eye

**Definition**: Eye redness refers to a red appearance of the normally white part of the eye. The eye looks red or bloodshot because blood vessels on the surface of the eye widen (dilate), bringing extra blood into the eye.

**Causes**

Conjunctivitis may due to following causes.

- Bacterial
- Viral (most common cause)
- Chlamydia
- Allergic
- Irritants
- Blepharitis (inflammation of eye lids)
- Stye
- Subconjunctival haemorrhage
- Keratitis
- Corneal abrasion
- Corneal ulcer
- Iridocyclitis
- Acute glaucoma
- Conjunctival or corneal foreign body
- Trichiasis- abnormally positioned eyelashes that grow back towards the eye touching cornea or conjunctiva
- Episcleritis
- Scleritis

First Aid and Nursing Management
- Visual acuity.
- Eye and hand hygiene to prevent spread
- Investigations for underlying cause
- Dark goggles
- Specific management as per cause
- Conjunctival swab for culture sensitivity
- Do not bandage the eye without ascertaining the cause
- Do not use steroids without ascertaining the cause

When to refer the patient?
- Associated diminution of vision is there
- Symptoms not improving after conservative management
- Any of the symptoms more pronounced
- In case of very severe pain
- Bulging of eyes is noted (proptosis)
- There is white in black of eye

Detailed Eye examination and investigations (to be done by ophthalmologist)
- Visual acuity
- Torch light examination
- Intra Ocular Pressure (IOP) measurement
- Slit lamp examination
- Fundus examination
- Conjunctival swab for culture sensitivity
Management of Common Conditions and Emergencies including First Aid

- In case of corneal ulcer: KOH mount, Gram stain, Sample for culture sensitivity from the lesion

Management is specific for the cause of the lesion.

- Bacterial conjunctivitis: Dry hot fomentation, Topical antibiotics, dark goggles
- Viral conjunctivitis: Supportive treatment. Cold compress, dark goggles, topical antibiotics to prevent superadded infection.

- Glaucoma:
  - Intra Occular Pressure (IOP) lowering drugs.
    - Diamox
    - I/V mannitol
    - Timolol etc.

- Scleritis/episceritis:
  - Topical steroids

- Iridocyclitis:
  - Topical steroids

- Stye:
  - Dry hot fomentation, Topical antibiotics, oral antibiotics, epilation of affected hair follicles

- Trichiasis:
  - Epilation (removal of hair) of eye lashes

Check Your Progress 2

1) What are common causes of red eye?
   ................................................................................................................
   ................................................................................................................
   ................................................................................................................

2) Blepharitis is inflammation of ..................................................

3) Conjunctival swab is taken for ...................................................

4) ........................................ should not be used without ascertaining the underlying cause.

5) Trichiasis can be treated by.........................................................

6) What action to be taken if red eye is associated with diminution of vision.
   ................................................................................................................
   ................................................................................................................
   .............................................................................................................
4.2.3 Conjunctivitis

Let us now discuss another important eye condition as given below:

**Definition:** It is an inflammation or swelling of the conjunctiva. The conjunctiva is the thin transparent layer of tissue that lines the inner surface of the eyelid and covers the white part of the eye. Often called “pink eye”, conjunctivitis is a common eye disease.

1) **Allergic Conjunctivitis:** Allergic conjunctivitis occurs more commonly among people who already have seasonal allergies. They develop it when they come into contact with a substance that triggers an allergic reaction in their eyes.

2) **Giant papillary conjunctivitis** is a type of allergic conjunctivitis caused by the chronic presence of a foreign body in the eye. People who wear hard or rigid contact lenses, wear soft contact lenses that are not replaced frequently, have an exposed suture on the surface of the eye or have a prosthetic eye are more likely to develop this form of conjunctivitis.

3) **Infectious Conjunctivitis**

   **Bacterial conjunctivitis:**
   - Staphylococcal: most common cause of bacterial conjunctivitis
   - Streptococcal: produces pseudomembranous conjunctivitis
   - Pneumococcal
   - Haemophilus influenza
   - Moraxella- axenfeld
   - Neisseria gonorrhoeae
   - Cornebacterium diptheriae: acute membranous conjunctivitis

4) **Viral conjunctivitis:** It is most commonly caused by contagious viruses associated with the common cold. Adeno virus and picorna virus are most common causes.

5) **Chemical Conjunctivitis:** Chemical Conjunctivitis can be caused by irritants like air pollution, chlorine in swimming pools, and exposure to noxious chemicals.

**Assessment**

Conjunctivitis can be diagnosed through a comprehensive eye examination.

- Patient history to determine the symptoms, when the symptoms began, and whether any general health or environmental conditions are contributing to the problem.
- Visual acuity measurements to determine whether vision has been affected.
- Evaluation of the conjunctiva and external eye tissue using bright light and magnification.
- Evaluation of the inner structures of the eye to ensure that no other tissues are affected by the condition.
- Supplemental testing, which may include taking cultures or smears of Conjunctival tissue. This is particularly important in cases of chronic conjunctivitis or when the condition is not responding to treatment.
Management of Common Conditions and Emergencies including First Aid

**Treatment** - Treating conjunctivitis has three main goals:

1) Reduce or lessen the course of the infection or inflammation.
2) Prevent the spread of the infection in contagious forms of conjunctivitis.
3) The appropriate treatment for conjunctivitis depends on its cause.

**Allergic conjunctivitis**

1) The first step is to remove or avoid the irritant, if possible.
2) Cold compresses and artificial tears to relieve discomfort in mild cases.
3) In more severe cases, non-steroidal anti-inflammatory medications and antihistaminic.
4) Persistent allergic conjunctivitis may also require topical steroid eye drops.

**Bacterial conjunctivitis**

1) Antibiotic eye drops or ointments
2) Dry hot fomentation
3) Dark goggles

**Viral conjunctivitis**

1) Usually self-limiting supportive treatment. Cold compress, dark goggles, topical antibiotics to prevent superadded infection.

**Chemical conjunctivitis**

1) Careful flushing of the eyes with saline is a standard treatment for chemical conjunctivitis.
2) Chemical conjunctivitis also may need to use topical steroids.

**When to refer the patient**

- Associated diminution of vision is there
- Symptoms not improving after conservative management
- Any of the symptoms more pronounced
- In case of very severe pain
- Bulging of eyes is noted (proptosis)
- There is white in black of eye.

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**Check Your Progress 3**

1) Why we use dark goggles in case of conjunctivitis?

........................................................................................................................................................................
........................................................................................................................................................................
........................................................................................................................................................................
........................................................................................................................................................................
2) Conjunctivitis spread by ..................................................

3) What are 3 main goal of treatment of conjunctivitis?
   ................................................................................................................
   ................................................................................................................
   ................................................................................................................

4) Most important step in treatment of chemical conjunctivitis is
   ................................................................................................................

4.2.4 Trachoma

Definition: This disease is a chronic keratoconjunctivitis caused by the obligate intracellular bacterium *Chlamydia trachomatis*.

Mode of spread

Trachoma is spread through direct contact with infected eye, nose, or throat fluids. It can also be passed by contact with contaminated objects, such as towels or clothes. Certain flies can also spread the bacteria.

Symptoms

Symptoms begin 5 to 12 days after being exposed to the bacteria. The condition begins slowly, appearing as inflammation of the tissue lining the eyelids (conjunctivitis, or “pink eye”). Untreated, this may lead to scarring.

- Mild itching and irritation of the eyes and eyelids
- Discharge from the eyes containing mucous or pus
- Eyelid swelling
- Light sensitivity (photophobia)
- Eye pain

Symptoms and signs as per WHO grading

- Trachomatous inflammation, follicular (TF) – Five or more follicles of >0.5 mm on the upper tarsal conjunctiva.
- Trachomatous inflammation, intense (TI) – Papillary hypertrophy and inflammatory thickening of the upper tarsal conjunctiva obscuring more than half the deep tarsal vessels.
- Trachomatous scarring (TS) – Presence of scarring in tarsal conjunctiva.
- Trachomatous trichiasis (TT) – Atleast one ingrown eyelash touching the globe, or evidence of epilation (eyelash removal)
- Corneal opacity (CO) – Corneal opacity blurring part of the pupil margin.

Assessment

- As per clinical examination at torch light and Slit lamp.
- Microbiological examination.
The WHO recommends 2 antibiotics for trachoma control: Oral Azithromycin single dose and Tetracycline eye ointment.

The World Health Organization (WHO) developed the SAFE strategy.

S = surgical care  
A = antibiotics  
F = facial cleanliness  
E = environmental improvement

Treatment is the one time use of Azithromycin or the topical use of 1% Tetracycline ointment.

When trachoma has progressed to inward-turning of the lashes, surgery is necessary to correct this and prevent the lashes from scarring the cornea.

Nursing action

• Visual acuity
• Identification of stages of trachoma
• To teach patient importance of hygiene and environmental factors in prevention and containment of infection
• Early institution of antibiotics ointments to the patient
• Identification of advanced stages of trachoma as per WHO grading and referral of such patients.

Check Your Progress 4

1) Trachoma is caused by .........................................................
2) Treatment of choice of trachoma is .................................
3) WHO has developed ....................................................strategy for trachoma
4) In case of inward – turning of lashes, what should be done?
   ................................................................................................................
   ................................................................................................................
   ................................................................................................................
5) Enumerate stage of trachoma as per WHO grading system.
   ................................................................................................................
   ................................................................................................................
   ................................................................................................................

4.2.5 Stye

Definition: Stye or external hordeolum is an inflammation of a gland of Zeis that opens into the lash follicle. An abscess forms, which usually points near an eyelash. Stye needs to be differentiated from other common causes of lid swelling like chalazion
Signs and symptoms

- Swelling, often with pointing on the lid margin situated near a lash
- Pain, watering
- Redness, discharge

Patient’s needs

- Relief of pain and swelling

Treatment

- Topical antibiotics
- Antibiotic ointments
- Removal of affected lash
- Rarely, oral antibiotics

Primary care and nursing management

- Visual acuity
- Eye and hand hygiene to prevent spread
- Explain the treatment to the patient
- Explain the patient how to apply ointment and drops
- If styes recur, the patient should be investigated for diabetes mellitus
- Refraction error in case of recurrent stye

Check Your Progress 5

1) Stye is inflammation of ................................................
2) In stye pus point is present near....................................
3) Stye needs to be differentiated from which condition?
   ................................................................................................................
   ................................................................................................................
   ................................................................................................................
4) Abscess in case of stye may be drained by .........................

4.2.6 Initial Diagnosis and Referral of Refractive Errors

The refractive power of eye:

The ‘refractive power’ of the eye is the degree to which the eye is able to refract the light rays. This power is expressed in dioptres. One dioptre brings rays of light to a focus over one metre. Ten dioptres bring rays of light to a focus over one-tenth of a metre or 10 cm. The refractive power of the eye is 60 dioptres. (that of the lens is 17 dioptres and of the cornea 44 dioptres).

Types of refractive errors

- Myopia
- Hypermetropia
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- Astigmatism
- Presbyopia

**Myopia (short sightedness)**
- A short-sighted person has a long eyeball. The light rays therefore come to a focus in front of the retina.
- The vision is usually more blurred for distant vision than near vision as the lens can accommodate for near vision.
- If a concave lens is placed in front of the eye, the light rays will diverge before converging through the cornea and lens and will come to a focus at the retina.
- A concave lens is spherical and is known as a ‘minus’ lens.

**Hypermetropia (long sightedness)**
- A long-sighted person has a short eyeball. The light rays therefore come to a focus behind the retina causing blurred vision.
- A long-sighted person consequently has to accommodate for their distant vision to be clear. No further accommodation is possible for near vision, so this is blurred.
- If a convex lens is placed in front of the eye, the light rays will converge more sharply and come to a focus on the retina. A convex lens is a spherical lens because its shape is equal in all meridians. It is known as a ‘plus’ lens.

**Presbyopia**
- From the age of about 40 years, the lens in the eye no longer has the ability to accommodate for near vision.
- The light rays therefore fall behind the retina before coming to a focus. This is known as presbyopia.
- Convex or plus lenses are needed to bring the image into focus on the retina.
- Prescription power of lens increases with increasing age.

**Astigmatism**
- The astigmatic cornea has an uneven curvature so that there is no point of focus of the light rays on the retina.
- A cylindrical lens placed in front of the eye with its axis corresponding to the abnormal plane on the cornea will focus the light rays.
- The cylindrical lens can either be concave or convex.
- Most spectacles combine both spherical (plus or minus) lenses with cylindrical lenses to provide a compound lens to correct myopia/hypermetropia and astigmatism.

**Assessment**
- Initial assessment involves checking visual acuity of the patient both for distance and near.
- Vision with pin hole is important as it gives clue to visual potential of eye.
- Refraction of eye can be determined under full cycloplegia with automated refractometer or retinoscopy. (objective refraction)
Patient is then called for Post Mydriatic test for prescription of final glasses after cycloplegic affect of the drug is over. (subjective refraction)

- Refraction and prescription of glasses can be done by optometrist, trained ophthalmic nurse or ophthalmologist.

**Nursing action**

- It is very important to indentify and diagnose refractive errors early.
- Visual acuity testing is most important screening method for the same.
- Specially in children early diagnosis and correction is important as uncorrected refraction can leads to development of Amblyopia. (State of permanent diminution of vision)
- After screening patient may be referred to designated centers for further diagnosis and prescription of glasses.

**Check Your Progress 6**

1) Hypermetropia is also known as ........................................
2) Myopia is also known as ...................................................
3) ......................................... is defect of accommodation.
4) Myopia correction is done by .........................lenses.
5) Hypermetropia correction is done by .........................lenses.
6) Uncorrected refractive error in children can cause............................

### 4.3 COMMON EAR-NOSE-THROAT (ENT) PROBLEMS

We will discuss Epistaxis, Acute Suppurative Otitis Media (ASOM), Sore Throat, and Deafness.

#### 4.3.1 Epistaxis

**Definition**

Bleeding from inside the nose is called epistaxis. It is also called nosebleed in common language or nakseer in the local language and is seen in all ages – children, adults, elderly.

**Causes**

These can be divided into:

- Local
- General
- Idiopathic

**Local Causes**

**Nose**

1) Trauma: Finger nail trauma, direct injury to nose, nose surgery, facial fractures
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2) Infections: Viral or bacterial rhinitis, sinusitis, fungal infections like rhinosporidiosis, tuberculosis, syphilis, atrophic rhinitis

3) Foreign Bodies: Non-living, Living: maggots, leeches

4) Neoplasms/Cancers of Nose/Paranasal Sinuses: Haemangioma, papilloma, carcinomas

5) DNS (Deviated Nasal Septum)

6) Atmospheric changes: High altitudes

Nasopharynx: Adenoiditis, Juvenile angiofibroma, malignant tumours

General Causes

1) Cardiovascular System: Hypertension, pregnancy (hypertension and hormonal), arteriosclerosis (thickened arteries)

2) Blood and Blood Vessel Disorders: Aplastic anaemia, leukemia, purpura (platelet disorders), vitamin K deficiency, haemophilia

3) Chronic liver and kidney disease

4) Acute General infections: Influenza, measles, chicken pox, rheumatic fever, typhoid, pneumonia, malaria, dengue, chikungunya

5) Drugs: Excessive use of analgesics/painkillers (for joint pains, headaches), anticoagulant therapy (blood thinners) used for heart and other conditions

6) Other Causes: Mediastinal tumours; vicarious menstruation (nosebleed at time of menses).

Idiopathic

No cause found.

Classification

Anterior: Blood flows out from front of the nose

Posterior: Blood flows back into the throat and is swallowed—patient later has coffee-coloured vomitus due to altered blood.

First Aid and Nursing Management

- Make patient sit and pinch the nose with thumb and index finger for 10 minutes. This compresses the vessels in anterior septum (called Little’s area) which is the commonest site of bleeding. It is known as Trotter’s method.

- Apply cold compresses to nose and face to cause vasoconstriction.

- Make patient sit up and record blood loss taking place through spitting/vomiting.

- Reassure patient and check pulse, BP, respiratory rate.

- Maintain haemodynamics. Fluids and blood may be required if BP falls below 100/60 mm of Hg.

- Investigate for underlying local/general cause.

Investigations: To rule out bleeding disorders

- Complete blood count
- Bleeding time, clotting time
- PT/PTTK and INR

**Drug Therapy**

Patient may be given intravenous Tranexaminic acid 500 mg stat dose, to arrest bleeding. Up to three such doses can be given over 24 hours.

**Specific Management**

- **Cauterization**: If the bleeding point has been located, in anterior epistaxis-the point is coagulated with electrocautery or silver nitrate. It can be done under endoscopic vision also.
- **Anterior Nasal Packing**: Ribbon gauze soaked in antibiotic ointment is folded upon itself and inserted along floor of nose and then whole nasal cavity. This stops bleeding by pressure.
- **Posterior Nasal Packing**: Simplest method is to insert a Foley’s catheter through one nostril and inflating it with 5–10 ml saline. Then catheter is pulled forward and anterior nasal packing is done.
- **TESPAL- Trans-Nasal Endoscopic Sphenopalatine Artery Ligation**: Specialised procedure done in the operation theatre, where this vessel is located and ligated under endoscopic guidance.

**Check Your Progress 7**

1) Commonest cause of epistaxis is .........................
2) First measure to take in a patient with epistaxis, after checking vital signs is ....................... 
3) Maximum duration of nose-pinch to stop bleeding is ................. minutes.
4) Fluid resuscitation should be considered if blood pressure falls below ..................... mm Hg.
5) Best posture for a patient with active bleeding is sitting upright, to prevent ..................... of blood.

**4.3.2 Acute Suppurative Otitis Media (ASOM)**

**Definition, Causes**

It is an acute inflammation of the middle ear cleft, that is Eustachian tube, middle ear and mastoid air cells. It is very common in small children especially of lower socioeconomic group. It usually follows upper respiratory tract infection. It can be caused by viruses or bacteria.

**Predisposing Factors**

- Recurrent attacks of common cold
- Infection of tonsils/adenoids
- Allergies
- Sinusitis
- Cleft palate.
Causative Organisms

*Streptococcus pneumonia* (commonest), *Haemophilus influenza*, *Moraxella catarrhalis*.

Clinical Symptoms: History and Examination

**History**: Patient will present with history of earache, which occurs within 3 to 5 days after an attack of common cold. There may also be

- Fever
- Decreased hearing
- Pus discharge from ear due to spontaneous rupture of tympanic membrane

**Examination**

- Child is irritable
- May be febrile
- Ear canal may or may not contain pus discharge
- Always make sure to examine ear canal to rule out inflammation of skin (otitis externa). In otitis externa light pressing of tragus will cause severe pain while this is not the case in ASOM.

**Management**

- **Ear toilet**: If there is discharge, it should be mopped gently with cotton buds. This will make eardrops more effective.
- **Antibiotic Ear Drops**: Only in cases with ear discharge.
- **Analgesics & Antipyretics**: Paracetamol (Crocin) is both analgesic as well as antipyretic (reduces fever) Dose is 15 mg/kg/day in divided doses.
- **Antibiotics**: If fever and earache do not subside even after 48 hours of the above management, antibiotics must be started. Amoxicillin or Co-amoxiclavulanic acid are the most commonly used. Dose: 40 mg/kg/day in divided doses for at least 7 days.
- **Steam inhalation**: Helps to remove congestion.

**Follow up**: All children must be followed up after one week to rule out any hearing loss or persistent symptoms. Referral to ENT surgeon must be sought if symptoms persist beyond two weeks.

Check Your Progress 8

1) Commonest manifestation of ASOM is .........................
2) .........................is the most commonly used effective drug in patients of ASOM.
3) Antibiotics must be considered if there is no improvement in symptoms after .........................hours of conservative management.
4) Ear discharge occurs only when there is .........................of the tympanic membrane.
4.3.3 Sore Throat

Definition

Sore throat can be technically classified as *pharyngitis* or *tonsillitis* (inflammation of the pharynx and tonsils) and *laryngitis* (inflammation of larynx). The clinical features may overlap with each other. Sore throat can be acute or chronic.

Etiology

Acute sore throat can be bacterial, viral or fungal. Most common causative organisms are:

**Bacteria**: *Streptococcus pneumonia*, *Haemophilus influenza*

**Viruses**: *Rhinovirus*, *influenza virus*, *Herpes virus*

**Fungal**: *Candida*

**Chronic sore throat**: Chronic acid reflux, environmental pollution, vocal abuse (excessive and inappropriate use of voice).

Signs and Symptoms

**History**

- Throat pain
- Fever - may or may not be present
- Pain during swallowing food - This may lead to decreased ability to eat. In severe pain patient may not eat at all leading to dehydration and starvation.
- Swelling in neck - Due to infected lymph nodes.

**Examination**

- General features - Patient is febrile, toxic-looking. Vital signs: Tachycardia may be present. If patient is dehydrated blood pressure will be low.
- Local Examination of throat - Congestion (redness) of tonsils and/or posterior pharyngeal wall.

**Management**

- Plenty fluids, soft diet
- Analgesics: Paracetamol (Crocin), also lowers fever
- Antibiotics: Co-amoxiclavulanic acid, Azithromycin
- Steam inhalation

**When to consider admission of patient**

- Patient cannot eat or drink at all
- Patient not improved after 48 hours of management at home
- Unstable vitals (blood pressure less than 100/60 mmHg)
4.3.4 Deafness

Definition

Inability to hear is called deafness. It can be present in children and adults. It can be:

- acute or chronic depending on duration, more than 3 months—chronic,
- conductive or sensorineural-

**Conductive** : Due to defects in : Ear canal, tympanic membrane (eardrum) or ossicles;

**Sensorineural** : Due to defect in auditory nerve or cochlea

Assessment

For diagnosis of the condition it is necessary to take history of illness and do an examination of the ear.

**History**

**Adults**

- Patient will complain of inability to hear; difficulty in conversations
- Patient may have history of ear discharge
- Ask about history of dizziness and ringing of ears
- Also take history of continuous exposure to loud sound for example, patient works in a noisy factory

**Child**

- Mother/caregiver will complain that child does not respond to loud sounds. Also child does not speak
- Ask history of ear discharge
- Ask history of low weight at birth/jaundice or high-grade fever within a week of birth/ICU admission

**Examination**

- Conversation in a low voice will help to find out if patient has significant hearing loss. In case of a child, make a loud sound (clap) and check if the child has startle reflex or blinks.
- Examine ear canal to rule out wax or ear discharge.

**Management**

**Adult**

- Ear discharge : Treat with ear drops. Once ear is dry, refer for hearing test PTA (pure tone audiometry) and further management
• Ear discharge + dizziness: Refer immediately for intravenous treatment as dizziness may indicate complication of ear disease.

• Only hearing loss: Refer for PTA

Child

• Ear discharge: Eardrops - then refer for hearing test - child below 5 years: OAE (otoacoustic emissions) - a screening test, and BERA (brainstem-evoked response audiometry)

• Only hearing loss: Refer for hearing test.

Sudden deafness in either adult or child should be immediately referred to an ENT specialist.

Further Management

• Conductive hearing loss: Ear surgery like tympanoplasty - repair of eardrum Ossiculoplasty - repair of ear ossicles

• Sensorineural hearing loss:
  • Hearing aids
  • Cochlear implants - It is a device which is fitted inside the mastoid bone after surgery and helps hearing. Minimum age to operate is 6 months.

Important Note: Deafness in a child must be addressed urgently and referred for hearing test at the earliest. Earlier the diagnosis, better the chances of the child for hearing and speech either via hearing aids or cochlear implants.

Check Your Progress 10

1) Deafness can be conductive or .......................
2) A mother may suspect deafness in an infant if there is no .................... reflex in child on hearing loud sounds.
3) Hearing test to be done in a child younger than 5 years of age is ............................
4) Minimum age to get a cochlear implant to remedy deafness is ............................

4.4 LET US SUM UP

We have learnt about 4 common ENT conditions – epistaxis, ASOM, sore throat and deafness. We have covered basic causes of these conditions, patient symptoms and signs, and basic management of these problems. Situations in which patient must be referred to a higher centre have also been described.

4.5 KEY WORDS

Aplastic Anemia: A condition in which bone marrow stops formation of all kinds of blood cells

Adenoiditis: Inflammation of the adenoid tissue – a kind of lymphoid tissue present in nasopharynx
**Analgesic** : Pain relieving drug. Examples: Paracetamol, Diclofenac, Ibuprofen

**Anticoagulant** : Drugs used as blood thinners; prevent blood from clotting. Used in some heart conditions

**Cauterization** : Burning with help of heat/chemicals

**Epistaxis** : Bleeding from nose

**Inflammation** : An acute reaction of the body involving migration of white blood cells, proliferation of blood vessels and healing

**ICU** : Intensive Care Unit. Very sick patients are admitted for round-the-clock monitoring and care

**PT/INR** : Prothrombin Time/International Normalised Ratio. Tests to detect defect in clotting of blood

**Ligation** : Tying off of blood vessels to stop bleeding

**Maggot** : Larva form of fly *Chrysomia* species

**Neoplasm** : Abnormal growth of a cluster of cells anywhere in body

**Tympanic Membrane** : Eardrum

**Startle Reflex** : When an infant gives sudden jerk of body in response to a loud sound/stimulus

### 4.6 MODEL ANSWERS

#### Check Your Progress 1

i) Symptoms and signs of eye infections.
   - Pain, itching, or sensation of a foreign body in the eye
   - Photosensitivity (aversion to bright light)
   - Redness or small red lines in the white of the eye
   - Discharge of yellow pus that may be crusty on waking up
   - Watering of eyes
   - Swelling of eye
   - Whitening of black of eye
   - Swollen eyelids
   - Constant involuntary blinking (blepharospasm)
   - Crusting over of the eyelid

ii) Assessment (WHATSUP)
   - a) What part of the eye is affected? Eyelid, conjunctiva, cornea?
   - c) Aggravating and alleviating factors. Worse when rubbing eyes, blinking? Photosensitivity?
d) Timing. Was there exposure to a pathogen? Previous infection or irritation? Length of time, symptoms have persisted?

e) Severity. Is there visual impairment?

f) Useful data for associated symptoms

g) Perception by the patient of the problem. What does patient think is wrong?

iii) Contact lenses wearer to switch to glasses

iv) Cleaning of hands to prevent spread of infection

**Check Your Progress 2**

i) Conjunctivitis may due to following causes.
   - Bacterial
   - Viral (most common cause)
   - Chlamydia
   - Allergic
   - Irritants
   - Blepharitis (inflammation of eye lids)
   - Stye
   - Subconjunctival haemorrhage
   - Keratitis
   - Corneal abrasion
   - Corneal ulcer
   - Iridocyclitis
   - Acute glaucoma
   - Conjunctival or corneal foreign body
   - Trichiasis- abnormally positioned eyelashes that grow back towards the eye touching cornea or conjunctiva
   - Episcleritis
   - Scleritis

ii) Blepharitis is inflammation of eye lids

iii) Conjunctival swab for culture sensitivity

iv) Do not bandage the eye without ascertaining the cause

v) Epilation of trichiatic lashes

vi) Refer the patient to higher medical facility when associated diminution of vision is diagnose
Check Your Progress 3
i) During Bacterial conjunctivitis
ii) Bacteria and Virus
iii) Treating conjunctivitis has three main goals:
   a) Reduce or lessen the course of the infection or inflammation.
   b) Prevent the spread of the infection in contagious forms of conjunctivitis.
   c) The appropriate treatment for conjunctivitis depends on its cause.
iv) Careful flushing of the eyes with saline is a standard treatment for chemical conjunctivitis.

Chemical conjunctivitis also may need to use topical steroids.

Check Your Progress 4
i) Bacterium Chlamydia trachomatis.
ii) The WHO recommends 2 antibiotics for trachoma control: oral azithromycin single dose and tetracycline eye ointment.

iii) The World Health Organization (WHO) developed the SAFE strategy.
   S = surgical care
   A = antibiotics
   F = facial cleanliness
   E = environmental improvement

iv) Surgery is done to correct inward-turning of the lashes and prevent the lashes from scarring the cornea.

v) Stage of Trachoma as per WHO grading system
   • Trachomatous inflammation, follicular (TF)–Five or more follicles of >0.5mm on the upper tarsal conjunctiva.
   • Trachomatous inflammation, intense (TI)–Papillary hypertrophy and inflammatory thickening of the upper tarsal conjunctiva obscuring more than half the deep tarsal vessels.
   • Trachomatous scarring (TS)–Presence of scarring in tarsal conjunctiva.
   • Trachomatous trichiasis (TT)–Atleast one ingrown eyelash touching the globe, or evidence of epilation (eyelash removal)
   • Corneal opacity (CO)–Corneal opacity blurring part of the pupil margin.

Check Your Progress 5
i) a gland of Zeis
ii) An eyelash
iii) other common causes of lid swelling like chalazion

Check Your Progress 6
i) long-sightedness
ii) short sightedness
iii) Presbyopia
iv) concave lens
v) convex lens
vi) Amblyopia

**Check Your Progress 7**
1) Fingernail trauma
2) Pinch the nose
3) 10
4) 100/60
5) Aspiration

**Check Your Progress 8**
1) Earache
2) Paracetamol
3) 48
4) Rupture

**Check Your Progress 9**
1) Lymph Nodes
2) Intravenous

**Check Your Progress 10**
1) Sensorineural
2) Startle
3) BERA
4) 6 months

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### 4.7 REFERENCES

2) Cumming’s Otolaryngology & Head & Neck Surgery.
3) Dr. PL Dhingra. A Textbook of Otorhinolaryngology.