Common Nose Problems and its Management
For MO

TRAINING MODULE FOR MEDICAL OFFICER FOR NOSE CARE AT PRIMARY/URBAN PRIMARY HEALTH CENTRE-HEALTH AND WELLNESS CENTRES (PHC / UPHC)

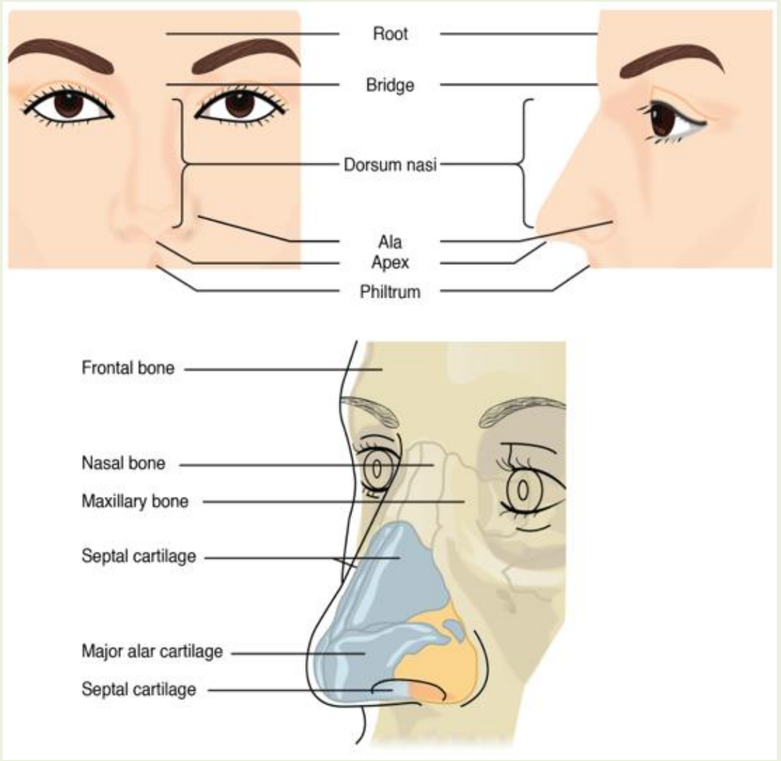
ANATOMY

Nose is divided into two parts:

- External Nose
- Internal Nose

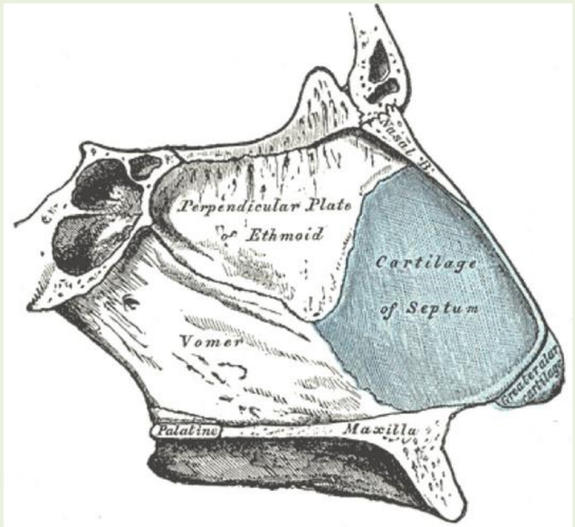
External Nose:

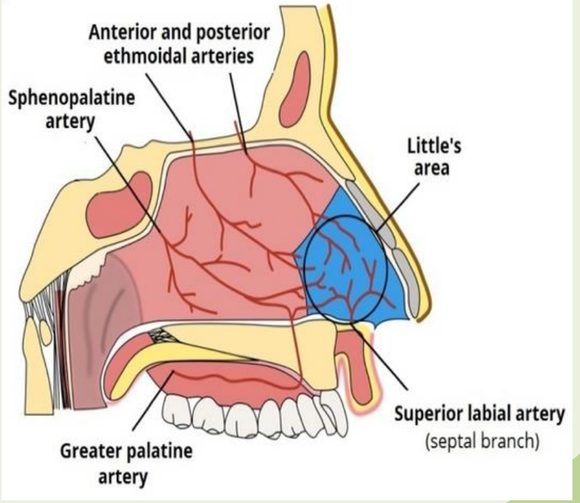
- Upper one-third is bony
    - Two nasal bone
    - frontal process of maxilla
    - Intersection of the two nasal bone with frontal bone is known as Nasion
- Lower two-third is cartilaginous



INTERNAL NOSE

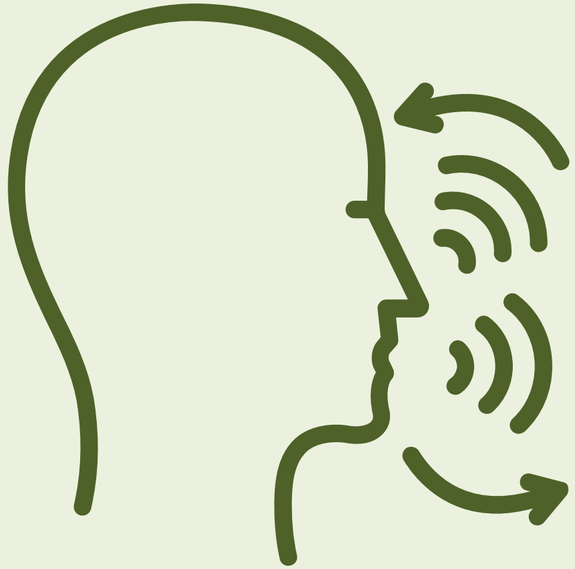
- Two nostrils by the septum.
- Each have-roof, floor and two walls- medial & lateral
- Lateral wall of nose there are three projections of bone known as concha/ turbinates.
    - Superior, middle and inferior turbinate





PHYSIOLOGY OF NOSE

- Respiration
- Olfaction
- Temperature regulation
- Humidification of air
- Protection of lower Airway
- Nasal Resonance

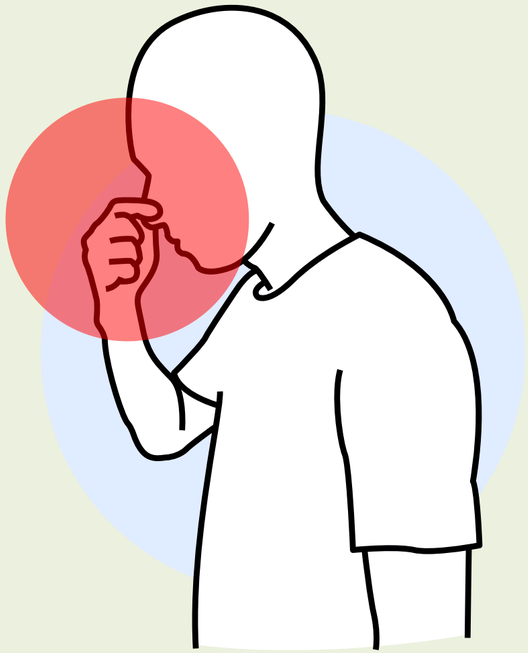


FURUNCULOSIS OF NOSE (VESTIBULITIS)

- Furunculosis is acute infection of hair follicle with Staphylococcus aureus.

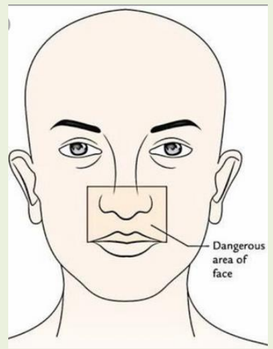
Symptoms & Sign

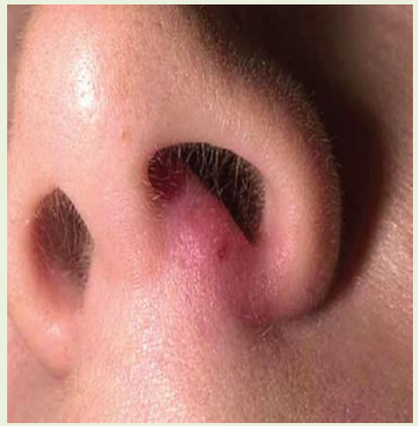
- Sever pain and tenderness over the tip of nose
- May be associated with headache, malaise and pyrexia.
- Examination reveals congestion and swelling of vestibule.



TREATMENT

- Local application of moist heat
- Packing icthymol glycerol/fusidic/mupirocin for rapid relief.
- Cap. amoxicillin 500mg or Cap. amoxicillin 250/500mg plus clavulanic acid 125mg 8 hourly for 5-7days
- Tab ibuprofen 400-600mg 3 times in a day for 5 days or Tab paracetamol 500 mg 6hrly for initial 2-3days.
- Recurrent furunculosis – r/o diabetes mellitus
- not to touch the nose as infection may spread rapidly- dangerous area of face
- Flaring of infection in the form of spreading facial cellulitis – Refer to higher center for hospitalisation and systemic IV antibiotics.





EPISTAXIS (NOSE BLEEDS)

- Epistaxis or bleeding from the nose
- In majority of cases- self-limiting and spontaneous
- Problem- recurrent, massive or occurring in children.

- Anterior bleeds: Most common and relatively easier to control. Presents as bleeding from the nose.

- Posterior bleeds: Less common. May cause profuse bleeding. More difficult to control. Usually presents as bleeding from mouth.

Pathophysiology

- rich vascular supply

- little’s area/Kisselbach’s plexus

- drier, colder months, and in less humid environments

CAUSES

- Local causes: finger nail trauma, mucosal irritation, inflammation, tumours

- Systemic causes: hypertension, liver disease, kidney disease, blood thinning drugs like aspirin, warfarin, etc.

- Idiopathic or reason unknown

MANAGEMENT AT SHC-HWC

History taking

- Duration of current episode
- Previous h/o of similar episodes
- H/o trauma
- H/o Viral fever, Dengue
- H/o bleeding tendencies elsewhere
- H/o chronic liver disease
- H/o any drug intake
- H/o Family history
- H/o Chronic alcohol intake
- Site of bleeding
- Blood pressure check
- Nasal septum deviation

- If the bleeding is mild and from the anterior part of the nose, it can be managed easily at the HWC/PHC.

- For mild bleed:

    - tilting the head forward and pinching the nostrils together for 10 minutes.

    - pinch nostrils together for 10 more minutes.

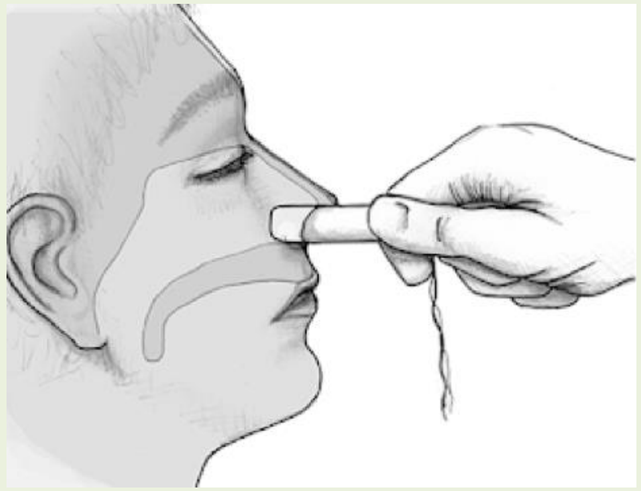
- Moderate to massive- referred to ENT specialist for further management after giving first aid(resuscitation)
- Make sure the person is relaxed.
- Make him/her sit upright with head slight bent forward.
- Ask the patient not to blow through his nose.
- Topical anaesthetic 2% lidocaine and 1:1000 epinephrine/xylometazoline soaked cotton pledgets
- Pack the nose and refer to higher centre
- Antibiotics and decongestants to be given
- If bleeding is severe or the person is unconscious- call an ambulance and refer immediately to the District Hospital where ENT surgeon is available.

INDICATIONS FOR REFERRAL

- High BP at presentation
- Epistaxis not controlled with local pressure for over 20 min
- Massive blood loss
- Bleeding following trauma to the face, with suspected facial fractures
- Other co morbidities requiring appropriate cross consultations
- For posterior nasal packing in case of posterior epistaxis

ANTERIOR NASAL PACKING

- When bleeding is not stopped by pinching and application of vasoconstrictor
- Preferably by Nasal pack(Merocel®)
- 8 cm long merocel- Adult and 4 cm merocel pack – children
- Self expanding
- In case it is not availabe, use ribbon gauze(1.25 cm wide and around 1 meter in length) for packing the nose



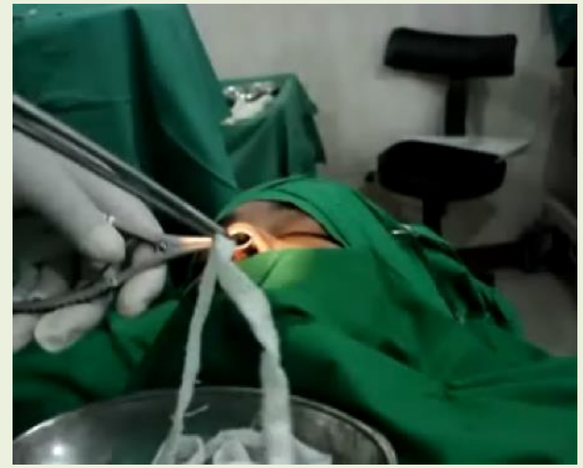
ANTERIOR NASAL PACKING

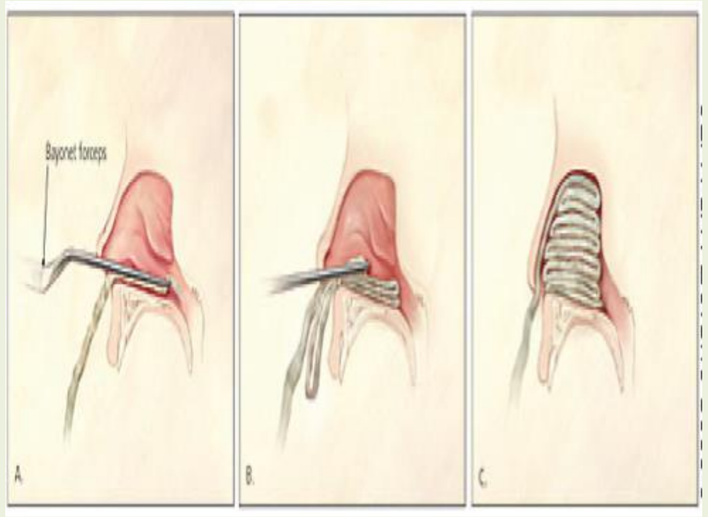
Tools needed:

- Gloves, 2% lignocaine jelly, lubricants such as petroleum jelly/antibiotic, ribbon gauze , forceps, etc.

Procedure:

- Make the patient sit up with a back rest.
- Apply local anaesthetic such as lignocaine 2% to the nasal mucosa
- Prepare a long ribbon gauze piece and smear it with abundant lubricant such as petroleum jelly
- Direction – go along the floor of the nose
- Using the help of a forceps, the gauze pieces have to be layered one upon each other, packing it from anterior to posterior
- Packing is continued until the anterior nasal cavity is filled.



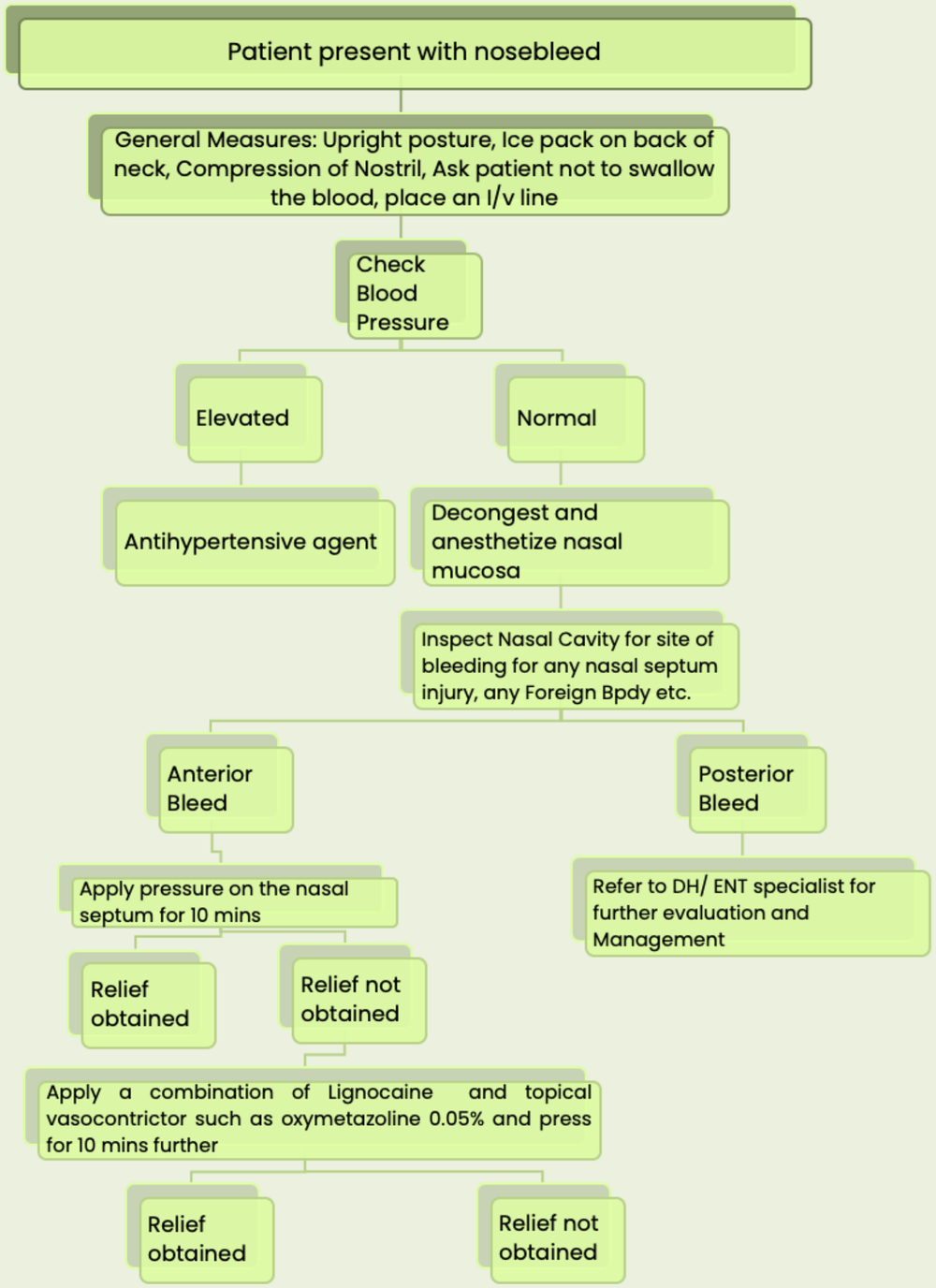


PACK REMOVAL

- Pack removal after 48 to 72 hours
- Remove gently after soaking the pack with copius saline
- Repack in case of rebleed after pack removal and refer to a higher center

PREVENTION OF EPISTAXIS

- Keep fingernails short to prevent injuring the nostril
- Blow nose gently and without too much force
- In winter, can use a vaporizer in the room of prone to nose bleeds
- Apply a thin coating of petroleum jelly inside each nostril daily in the dry season
- First aid- pinching the nose


Patient present with nosebleed
General Measures: Upright posture, Ice pack on back of neck, Compression of Nostril, Ask patient not to swallow the blood, place an I/v line
Check Blood Pressure
Elevated
Normal
Antihypertensive agent
Decongest and anesthetize nasal mucosa
Inspect Nasal Cavity for site of bleeding for any nasal septum injury, any Foreign Bpdy etc.
Anterior Bleed
Posterior Bleed
Apply pressure on the nasal septum for 10 mins
Refer to DH/ ENT specialist for further evaluation and Management
Relief obtained
Relief not obtained
Apply a combination of Lignocaine and topical vasocontrictor such as oxymetazoline 0.05% and press for 10 mins further
Relief obtained
Relief not obtained

SEPTAL DEFORMITIES

- C-shaped deviation.
- Spurs
- Thickening
- Anterior dislocation
- S Shaped Deformity.
- Bony posterior deformity of vomerine/ ethmoid bone
- External deformity

SYMPTOMS & SIGNS

- Unilateral or bilateral blocking of the nose.
- Headache due to sinusitis.
- Epistaxis.
- Anosmia.
- External deformity associated with deviation of the septum

MANAGEMENT

- As definitive treatment is surgery, early identification and proper referral is important for DNS at primary health centre level. Follow-up treatment can be done.

Investigations

- History, examination of the nose

Treatment

- Required only if the patient has persistent or recurrent symptoms due to the deviated septum or blockage of nose.
- Septoplasty/septorhinoplasty– refer to the higher centre.

MANAGEMENT

Investigation

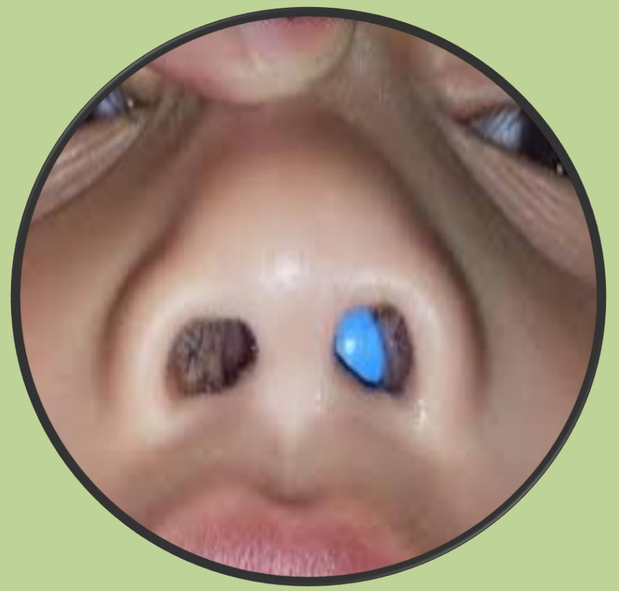
- Sniff Test
- Handkerchief Test
- Halo/ Target/ Double Ring sign
- Reservoir Sign
- Biochemical Test: Estimation of glucose and β2 transferrin
- CT cysternography/MRI

Treatment

- Referred to ENT specialist
- Advices like- bedrest in propped up position, avoidance of straining and prophylactic antibiotics and acetazolamide use can be advised if indicated.
- Avoid nasal drops

FOREIGN BODIES NOSE

- Commonly encountered in emergency department
- Mostly in children
- Seen in adults who are mentally retarded or psychiatric illness, poor general hygiene
- Foreign body nose harbors potential for mortality if the object is dislodged into airway
- Can go unnoticed for weeks months or years



FREQUENTLY ENCOUNTERED FOREIGN BODIES

- Pebbles
- Stationaries
- Beads
- Marbles
- Peas/grain
- Beans
- Nuts
- Button batteries
- Paper

TYPES OF FOREIGN BODIES IN NOSE

ANIMATE

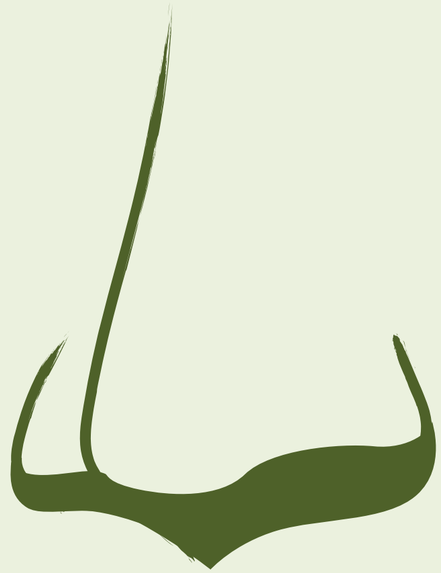
- Maggots
- Worms
- Leeches

INANIMATE

- Vegetable FB :peas ,beans
- Mineral FB : metal , plastic toys, button cell batteries
- Post surgical : swabs , packs

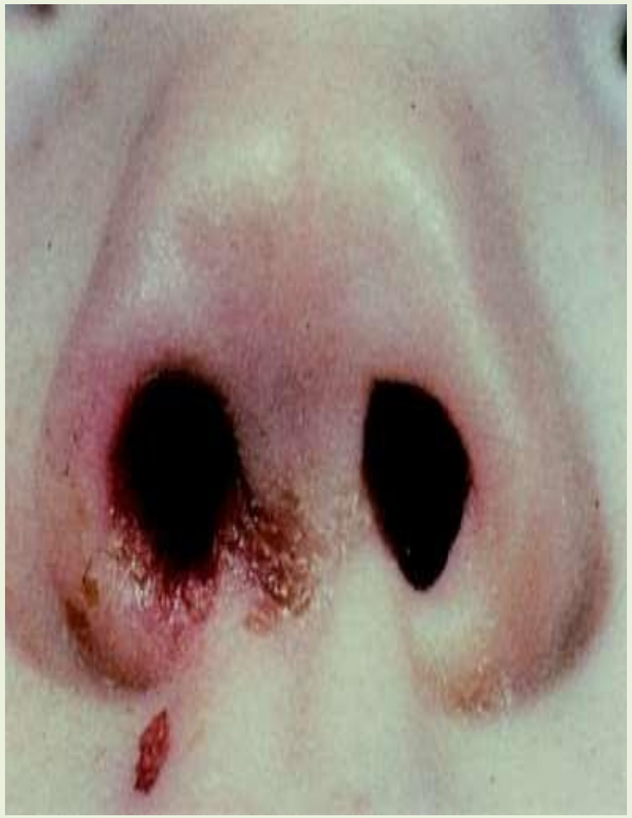
DANGERS!!!

- Injury from clumsy attempts by an unskilled person
- Potential for swallowing or obstructing the airway
- Inhalation of foreign bodies leading to pneumonia, lung collapse
- Vegetative FB- Swell- strong inflammatory response
- Sepal perforations, scarring, synechiae, saddle deformities
- Local spread of infection-sinusitis/meningitis



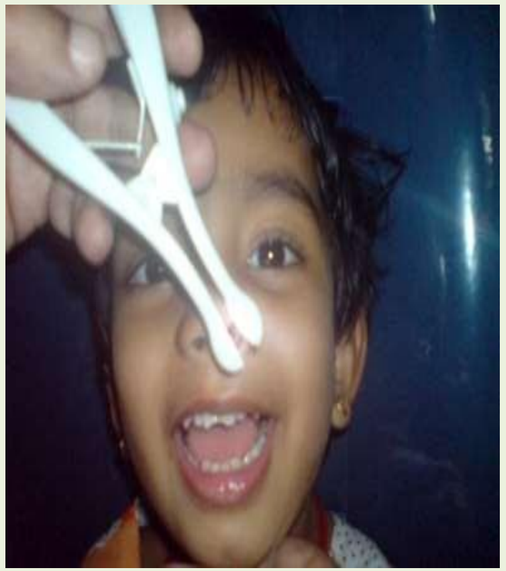
SYMPTOMS

- Unilateral foul smelling discharge
- Mucopurulent or blood stained
- u/l nasal obstruction
- Pain
- Nasal bleed
- Excoriation of nasal vestibular skin



LOCAL EXAMINATION

- Anterior rhinoscopy
- Elevate the tip of the nose
- Object mostly found beneath inferior turbinate or anterior to middle turbinate
- Long standing FB
  - Erythema, edema, foul nasal discharge
  - Bleeding, Fever
  - Sinusitis



BUTTON BATTERIES

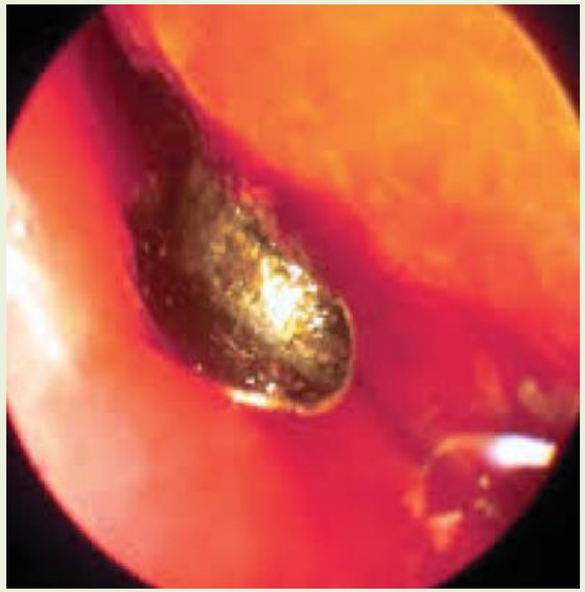
- These are composed of various types of heavy metals: mercury, zinc, silver, nickel, cadmium, and lithium.

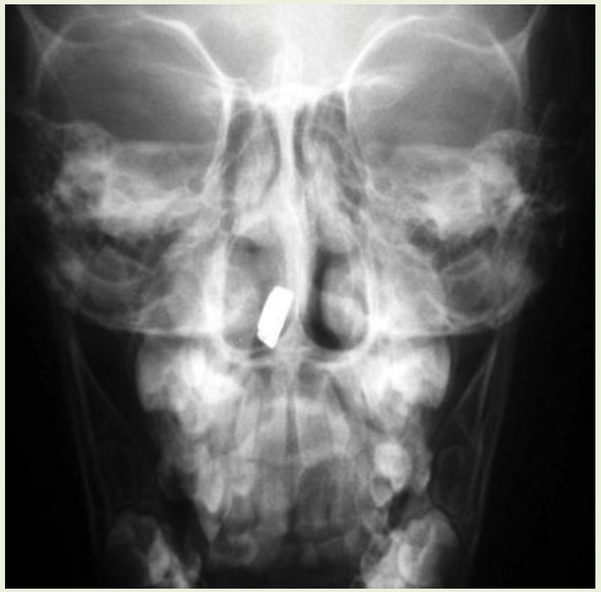
LIVE BATTERY IS MORE DANGEROUS

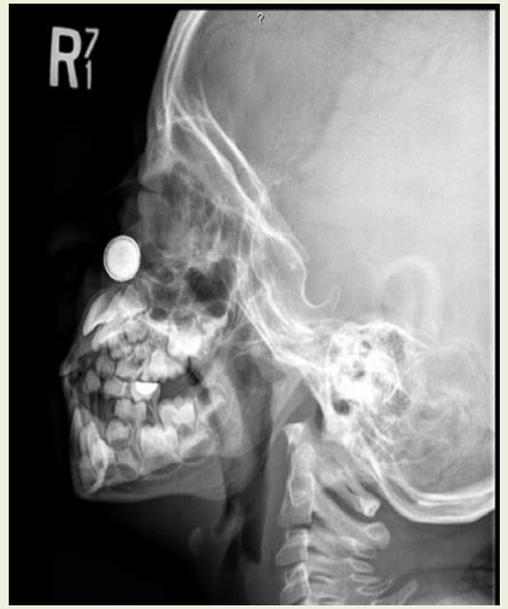
- Electric current - hydrolysis → produces a sodium hydroxide → liquifactive necrosis
- Leakage of alkaline content
- Pressure necrosis
- Release of toxic compounds(e.g. mercury)

LIVE BATTERY IS MORE DANGEROUS

- Can cause septal perforations, synechiae
- Must be removed at the earliest





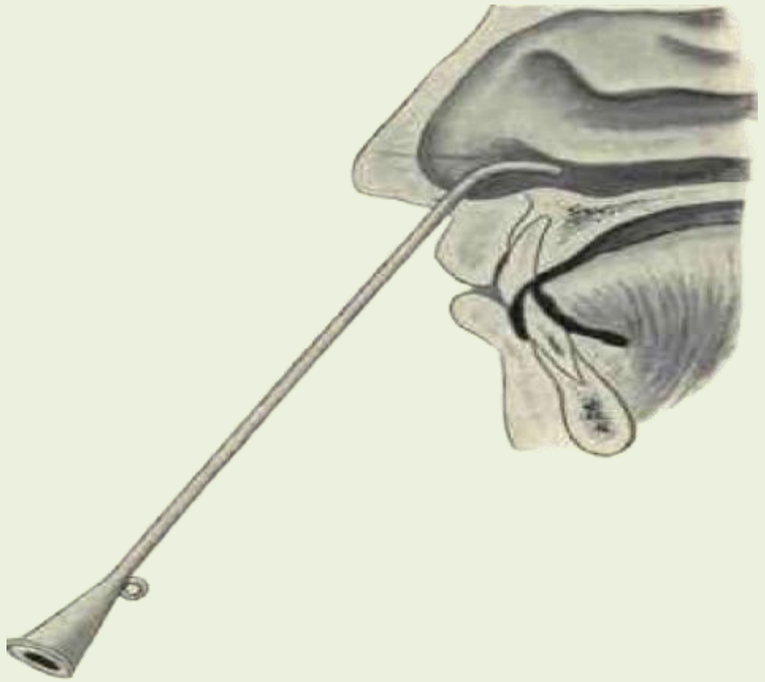


INVESTIGATIONS

- X-ray may reveal radiopaque FB

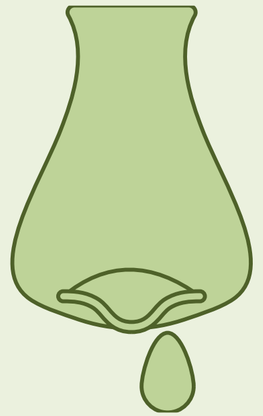
FB NOSE REMOVAL

- Child is restrained in upright position by the parent or assistant
- Curved hook/eustachian tube catheter is passed beyond FB and gradually drawn forward along the floor of the nose to remove the FB
- Use Nasal drops after removal



INDICATIONS FOR REFFERAL

- Failed attempt
- Uncooperative and very apprehensive patients
- Trauma/bleeding
- If the FB is posteriorly placed with a risk of pushing it back in to nasopharynx
- If a foreign body is strongly suspected but cannot be seen in anterior rhinoscopy and radiolucent
- Animate foreign bodies
- Long standing FB(Rhinolith)



COMMON COLD

- Viral infection to start
- Later superadded bacterial infection
- Symptomatic treatment
- Avoid antibiotics in initial non bacterial rhinitis and sinusitis

	Common Cold	Flu
Virus	Rhinovirus	Influenza
Contagiousness	Droplets by inhalation or touch	Droplets by inhalation
Onset	1–3 days after virus entrance	Sudden
Duration	One Week	One Week or More
Frequency	Children -six to eight/per year, -two to four colds per year	Once
Symptoms	Milder Weakened senses of taste and smell, cough, runny or stuffy nose, sneezing, scratchy throat	Worse Fever (39°C or above), body aches, extreme tiredness, dry cough more common, headache, sore throat, chills, tiredness
Complications	No serious complications	May have serious complications like pneumonia and bacterial infections May be fatal in elderly, immunocompromised, and chronically ill patients
Treatment	Acetaminophen Antihistamine and/or decongestant Adequate fluid intake (eight glasses of water or juice) Avoid smoking and alcohol Avoid caffeine and alcohol No antibiotics	Acetaminophen Antihistamine and/or decongestant Adequate fluid intake (eight glasses of water or juice) Avoid smoking and alcohol Avoid caffeine and alcohol Antiviral like Oseltamivir can be used

Patient presents with fever, cough & cold, sore throat, running nose, etc.

Ask for:

(1) onset and progression of symptoms (2)previous history of similar episode (3) use of Over The Counter medicines/ self-medication (4) relevant risk factors such as smoking (5) Co-mordid conditions such as Hypertension/Diabetes/Cirrhosis, etc.

Assess:

(1) vitals (temperature/pulse/BP/RR) (2) Cervical lymphadenopathy (3) tonsillar exudates/

Patient appear **stable**

- Advise and Initiate the patient on the non-pharmacological treatment options
- Give symptomatic Rx in the form of T.PCM/ T.CPM/ Nasal decongestants
- Counsel the patient to avoid sleeping in congested rooms and cover his mouth with handkerchief while coughing
- F/u the patient after a period of 5 days

Relief obtained

Relief not obtained

Patient appears **unstable**

Refer to DH/ ENT specialist for further evaluation and Management

SINUSITIS

- Acute Sinusitis - <12 weeks/3 months (complete resolution of symptoms within 12 weeks)
- Chronic Sinusitis - >12 week/3 month

Symptoms

- Headache
- Nasal obstruction
- Hawking and postnasal drip
- Fever, malaise

Signs

- Congested nasal mucosa
- Pus in the middle meatus
- Tender sinuses

MANAGEMENT

- **X ray paranasal sinuses – Water's view - haziness or opacity /fluid level.**
- **Trans illumination test reveal opaque sinuses**

Treatment

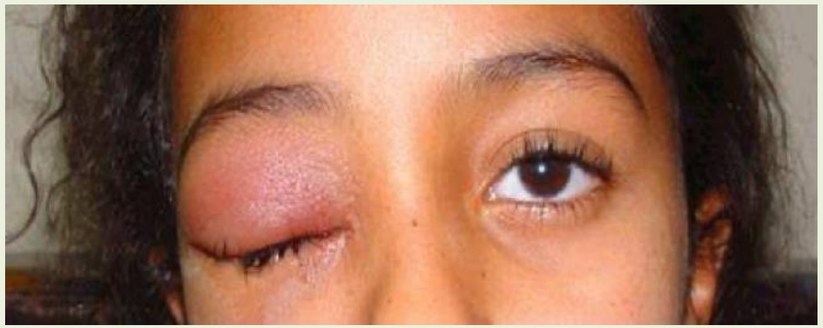
- Steam inhalation via nose 2-3 times/day for 2-3 days and rest.
- Tab. paracetamol 500 mg 3-4 times a day for 5 days (children 10 kg/dose) or Tab. ibuprofen 400 mg - 600 mg 3 times a day for 5 days (children 10 mg/kg/dose.)
- Cap. amoxicillin 500 mg 8 hourly for 5-7 days (children 50 mg/kg/day).
- Intranasal corticosteroids- Fluticasone nasal spray(two puffs in each nostril daily)
- Antihistamine to be added only when there is coexisting allergic rhinitis

If nasal obstruction

- Normal saline nasal
- Oxymetazoline or Xylometazoline

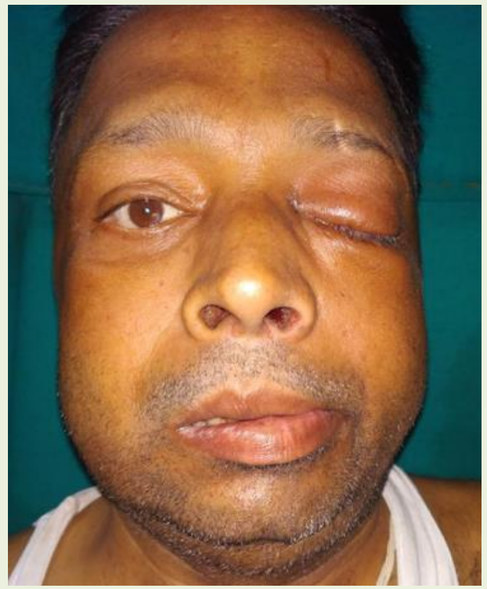
Advice for the patient

- Complete course of systemic antibiotics in order to avoid the risk of developing antimicrobial resistance
- Prolonged use of topical decongestants more than a week should be avoided as it can cause atrophic rhinitis, anosmia and rhinitis medicamentosa.



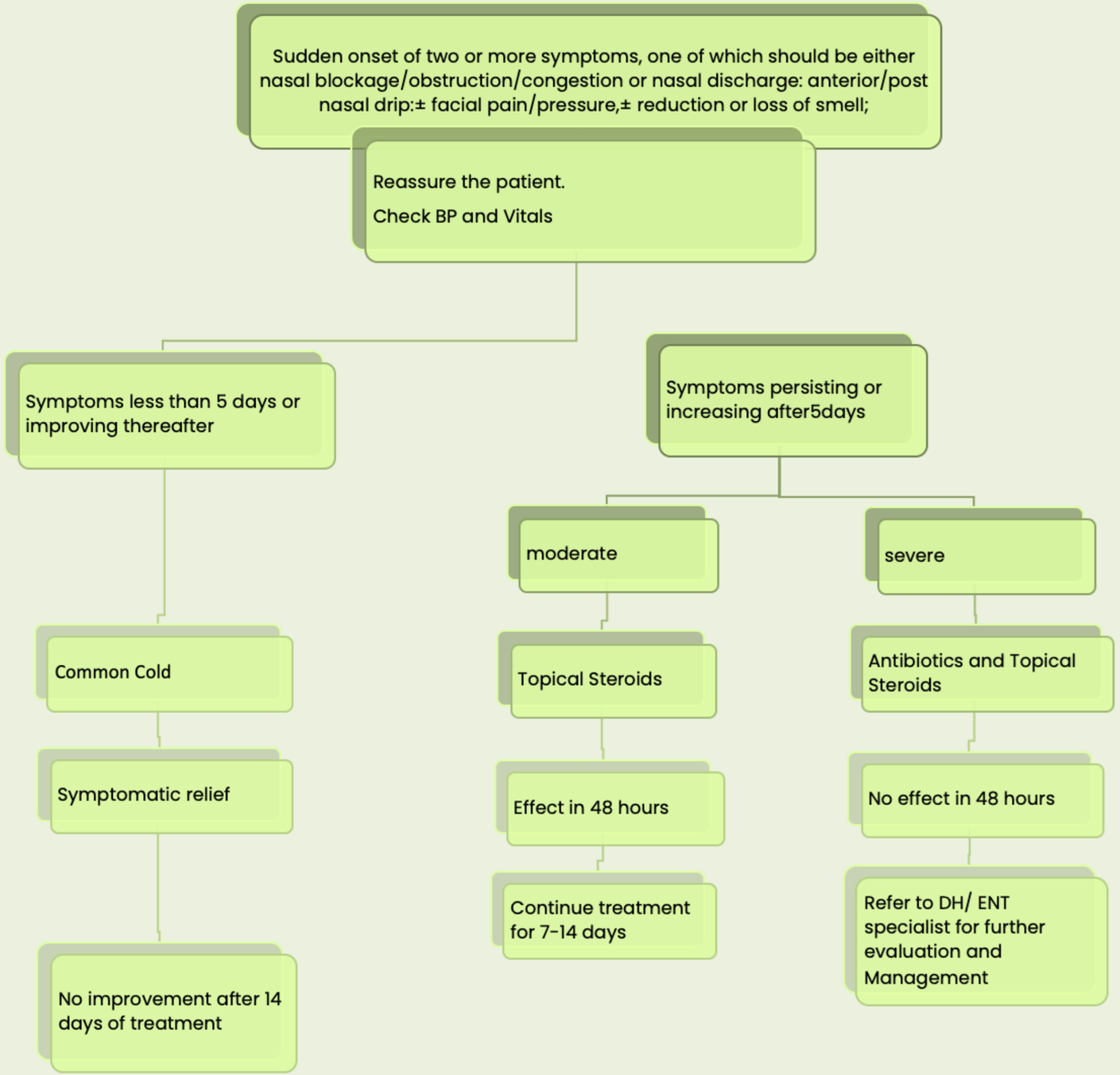
Indications for referral (Red Flags)

- Periorbital oedema
- Proptosis
- Double vision
- Ophthalmoplegia
- Reduced visual acuity
- Severe unilateral or bilateral frontal headache
- Frontal swelling
- Signs of meningitis or focal neurologic signs
- Refractory and recurrent and complicated cases



COMPLICATIONS OF SINUSITIS

- Osteomyelitis
- Frontal (Pott's puffy tumor)
- Intracranial
  - Epidural abscess
  - Subdural abscess
  - Cavernous sinus thrombosis
  - Meningitis
- Brain abscess
- Orbital
  - Inflammatory edema (periorbital cellulitis)
  - Subperiosteal abscess
  - Orbital cellulitis
  - Orbital abscess
  - Optic neuritis (cavernous sinus thrombophlebitis)

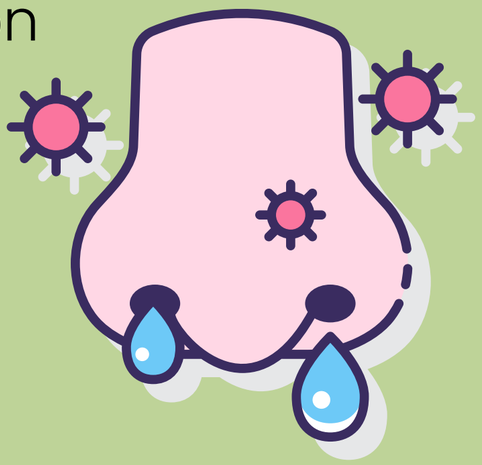

Sudden onset of two or more symptoms, one of which should be either nasal blockage/obstruction/congestion or nasal discharge: anterior/post nasal drip:± facial pain/pressure,± reduction or loss of smell;
Reassure the patient.
Check BP and Vitals
Symptoms less than 5 days or improving thereafter
Symptoms persisting or increasing after5days
moderate
severe
Common Cold
Topical Steroids
Antibiotics and Topical Steroids
Symptomatic relief
Effect in 48 hours
No effect in 48 hours
No improvement after 14 days of treatment
Continue treatment for 7-14 days
Refer to DH/ ENT specialist for further evaluation and Management

ALLERGIC RHINITIS

- Allergic rhinitis is an IgE mediated type I hypersensitivity reaction

Symptoms & Signs

- Sneezing
- Itching
- Watery nasal discharge and a feeling of nasal obstruction
- allergic conjunctivitis and bronchial asthma



Seasonal and perennial

MANAGEMENT

Investigation

- Usually not required
- Peripheral blood eosinophilia, Nasal smear – shows eosinophilia
- Specific IgE antibody test
- NCCT PNS only after consulting ENT specialist.

Treatment

- Tab. Cetirizine 10 mg in a single daily dose for 7 days and in children 5 mg od

  Or Tab. Levicetrizine 5 mg
- Fluticasone nasal spray 150 mcg/puff 1-2 puffs a day.

  Or
- Mometasone 1 to 2 puffs a day (in children)
- Immunotherapy

ADVICE FOR THE PATIENT

- Identify allergens
- Cleaning rugs, blankets, carpets- sunlight
- Pets fur, animal dander- allergic
- There is no cure but can be controlled effectively
- Avoid prolong use of topical decongestant nasal drops as it can cause atrophic rhinitis, anosmia and rhinitis medicamentosa.
- Chlorpheniramine, pheniramine etc. can cause sedation, cognitive impairment, also cause dryness of the mouth and urinary hesitancy.

ATROPHIC RHINITIS

- Progressive atrophy of the underlying bone of the turbinates and nasal mucosa.
- Copious foul-smelling crusts fill the nasal cavity.
- Hyposmia, nasal congestion, and constant bad smell in the nose(merciful anosmia).
- Klebsiella ozaenae

MANAGEMENT

- Nasal irrigation and removal of crusts – by retracted nasal douching with saline, glucose, and glycerin solution.

- Nasal douching - Normal Saline or Alkaline solution [Sodium Bicarbonate – 1part, Sodium biborate 1 part and Sodium Chloride – 2 parts (Total 1 spoon powder) mixed in 280 ml of lukewarm water] thrice a day till crust disappears.

- 25% glucose in glycerin:-25% glucose in glycerin twice a day for 1 month

- Unresponsive patients- referred to ENT surgeon

CEREBROSPINAL FLUID RHINORRHOEA

- Any disruption in the bone, dura and arachnoid of base of skull leading to leakage of CSF.

- Fluid is usually clear fluid but may be mixed with blood sometimes in case of acute injury.

Causes

- **Trauma:** Most of the cases follow trauma. It can be accidental or surgical.
- **Inflammations:** Mucoceles of sinuses, sinunasal polyposis, fungal infection of sinuses and osteomyelitis, can all erode the bone and dura
- **Neoplasms:** Tumours- both benign and malignant, invading the skull base.
- **Congenital lesions:** Meningocele, meningoencephaloceles and gliomascan have associated skull base defect.
- **Idiopathic:** Where cause is unknown and patient has spontaneous leak.

CSF AND NASAL SECRETIONS

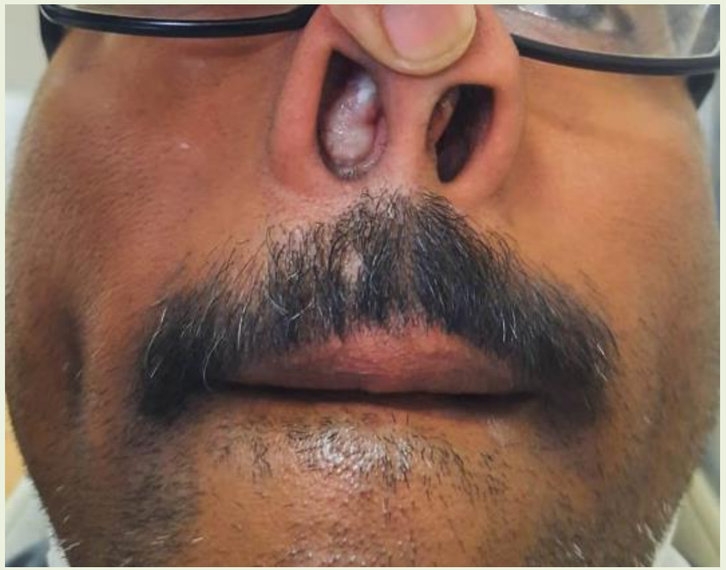
Features	CSF Fluid	Nasal Fluid
History	Some history suggestive of leak like surgery, trauma/ injury, tumour etc.	History of sign & symptoms of respiratory tract infections like nasal stuffiness, sneezing, lacrimation etc.
Flow of Discharge	Flow increases on bending forward or straining, Discharge cannot be sniffed back	Continuous, no effect of changing posture, can be sniffed back
Discharge Character	Thin, sweet and clear (watery)	Slimy (mucus)or clear (tears)
Taste	Salty	Neutral
Sugar Content	>30 mg/dl	<10 mg/dl
Presence of β2 transferrin/Bea trace protiens	+	-

NASAL TRAUMA

- Nasal bone fracture
- Undisplaced- no external deformity
- Displaced- external nasal deformity- need to refer
- Septal hematoma/abscess- refer
- Complex facial fractures(orbital, maxillary, zygomatic and mandibular fractures)- refer

ALL NASAL MASSES- REQUIRES REFERRAL

- Polypi(Antrochoanal/ ethmoidal)
- Septal hematoma
- Benign lesions-angiofibroma, hemagioma, inverted papilloma, Rhinosproidiosis
- Malignant lesions(sqaumous cell carcinoma)



Thank You