

ENT PRACTICAL

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ENT PRACTICAL

- ❖ ORAL- 10 Marks
- ❖ CASE 1 (CSOM)- 10 Marks
- ❖ CASE 2 (DNS/ Tonsillitis / Rhinosporodiosis/ Nasal polyp)- 10 marks
- ❖ INSTRUMENTS, X-Rays, Audiograms- 10 Marks

NOTE: Highlighted with yellow colour=>> Important for exam



OPD INSTRUMENTS

1. Bull's eye lamp & Head mirror
2. Aural speculum (Toynbee's)
3. Nasal speculum [Thodicum, St Clair Thomson]
4. Lack's tongue depressor
5. IL Mirror
6. St Clair Thomson's Posterior Rhinoscopy mirror
7. Dressing forceps [Tilly's forceps, Hartman's forceps]
8. Tuning fork (Gardiner Brown's)
9. Otoscope

1. BULL'S EYE LAMP WITH A HEAD MIRROR



BULL'S LAMP This consists of a metal box with vents within which is kept a 100 W bulb. The light rays come out through a central opening.

This opening has a biconvex lens of approximately 30 to 40 cm focal length. The lamp is placed 30 cm behind the left ear of the patient. The lamp can be adjusted to focus the rays on the head mirror.

HEAD MIRROR

It is used to reflect the light for the examination of nasal and oral cavity

Concave mirror

FL=25 cm

Diameter 89 mm(3.5 inch) & central hole 19 mm (0.75 inch)

HEAD MIRROR It consists of a plastic headband to which is attached adjustable concave mirror with a central hole. The diameter of the mirror is 9 cm while that of the central aperture is 2 cm and the focal length of the mirror is approximately 18 cm.

When parallel rays of light from the Bull's lamp impinge on the concave mirror, the light rays converge at the focal point of the mirror.

The advantage of wearing this head mirror is that it keeps both hands free for procedures. However, the head has to be kept fixed and cannot be moved to any position like the headlight.

2.AURAL SPECULUM



Uses:

- **DIAGNOSTIC**-Examination of the external ear canal and tympanic membrane
- **THERAPEUTIC**-
 - Removal of wax, foreign body, otomycosis or ear discharge
 - In operative procedures like myringotomy, myringoplasty, stapedotomy, stapedectomy
 - For trans canal injections.





There are several types of aural speculum.

- a. **Holmgren adjustable aural speculum** This is a self-retaining adjustable aural speculum with a screw. Used for examination of ear and ear surgeries.
- b. **Hartmann aural speculum**: This is a funnel shaped speculum that has no slit on the body. The broader end is thickened for better grip.
- c. **Rosen aural speculum** This is an aural speculum with an **incomplete slit** on its body. The slit is useful for injections on the external canal wall with the speculum in place.
- d. **Shea aural speculum**: This aural speculum resembles Hartmann aural speculum. However, the narrow end of this **speculum is beveled**.
- e. **Tumarkin aural speculum**: This aural speculum has a **complete split** on its body to facilitate intra-aural injections into the external canal.

3. NASAL SPECULUM

THODICUM'S



ST. CLAIR THOMSON'S



3. THUDICUM NASAL SPECULUM



Q. How to hold it?

- Held over the hooked index finger of the non dominant hand.
- Blades are then closed by pressing b/w middle and ring finger.

It is a self retaining nasal speculum.

Q. Uses

Diagnostic- Anterior rhinoscopy- nasal septum, little's area, lateral wall of nose, nasal cavity

Therapeutic- removal of foreign bodies, antral wash, nasal packing, surgical procedure inside nose

They are of 2 types-with short & Long blades .

- Uses – For Anterior Rhinoscopy, Removal of nasal foreign body, Packing the nose.

ST. CLAIR THOMPSON NASAL SPECULUM



- This is a self-retaining nasal speculum similar to Thudicum nasal speculum except that the blades are longer here.
- The longer blades permit deeper visualization of the nasal cavity and its structures.
- USES:
 - particularly used for nasal surgeries like:
 - a. Septoplasty/SMR
 - b. Polypectomy
 - c. Deep foreign bodies removal.

KILLIAN LONG BLADED NASAL SPECULUM



This is a self-retaining nasal speculum and is available with blades of different sizes. The distance between the blades can be adjusted and fixed with a screw.

Uses:

- a. Diagnostic: Anterior rhinoscopy—nasal septum, Little's area, lateral wall of nose, nasal cavity.
- b. Therapeutic: Removal of foreign bodies, antral wash, nasal packing, surgical procedures inside the nose like polypectomy, SMR, septoplasty, etc

4. LACK'S TONGUE DEPRESSOR



It has a flat end and a slightly curved end. The flat end is placed over the anterior two-third of the tongue to depress it. The posterior one-third should not be touched in order to prevent gag reflex.

- It is L shaped .One blade is slightly bent and used for holding depressor .
- Uses – For examining oral cavity & oropharynx ,Used while performing posterior Rhinoscopy , Squeezing the Tonsil, To retract cheek

Q. What are its uses:

- Examination of oral cavity and oropharynx
- To retract lips and cheek
- To express pus /debris out of the tonsil— septic squeeze test
- To test gag reflex
- For cold spatula test to check patency of nasal passage
- For posterior rhinoscopy
- For oral cavity procedures like injection of steroids, biopsy, excision of cysts, etc.

5. IL Mirror- indirect laryngoscopy mirror



This instrument has a handle, shaft and a plain mirror at an angle. The **focal length of this mirror is at infinity**. The mirror is available in various sizes ranging from 8 mm to 30 mm.

Q. How to perform Indirect laryngoscopy?

First explain the procedure to the patient → use LA (10% Xylocaine- to prevent gag reflex) → to prevent fogging- heating/ savlon → The tongue is held with a dry gauze piece with the left hand. → The handle of the mirror is held like a pen The patient is asked to breathe through the mouth. The patient is asked to phonate 'eee' for observing vocal cord adduction and is asked to breathe gently for observing vocal cord abduction.

Q. Pitfalls of indirect laryngoscopic examination:

- There is anterior and posterior reversal of structures in the mirror image
- Overhanging of epiglottis may obscure vision
- The anterior commissure is poorly visualized
- Depth perception is poor
- The procedure is difficult in children
- The tongue may rise on phonation and may obscure the view of larynx
- The procedure is difficult in a person with short neck
- The vocal cords appear short and flat in the mirror
- The vocal cords appear white due to the reflection of a greater amount of light to the mirror from the vocal cords than the rest of the larynx

Q. USES

- a. For examination of tongue base, valleculae, glossoepiglottic fold, pharyngoepiglottic fold, arytenoids, aryepiglottic folds, ventricular bands, vocal cords, interarytenoid region, pyriform fossae and posterior pharyngeal wall. These regions can be examined for any foreign body, inflammatory, noninflammatory, traumatic or neoplastic lesions.
- b. To remove small foreign bodies like fish bone.
- c. To remove tissue for histopathological examination.

Q. Draw the diagram of indirect laryngoscopy.



Figure 76.14. Indirect laryngoscopy.

Q. Hidden areas in IL- Structures not seen in IL procedure:

- ☐ Post-cricoid region
- ☐ Apex of pyriform fossa
- ☐ Ventricles
- ☐ Under surface of vocal cords and adjoining subglottic region
- ☐ Laryngeal surface of epiglottis.

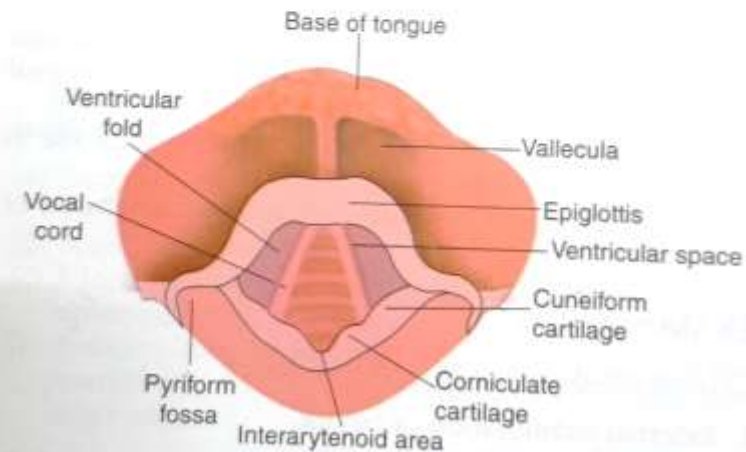


Figure 76.15. Structures seen upon indirect laryngoscopy.

6. ST. CLAIR THOMSON'S POSTERIOR RHINOSCOPIC MIRROR.



This instrument has a **bayonet shaped handle** (hence differs from indirect laryngoscopy mirror) so that the examiner's hand does not block his vision. The mirror is available in sizes of 0 to 5 and should be of an appropriate size so as to pass behind soft palate and reflect sufficient light for the image to be seen. This is a plain mirror and does not magnify the image.

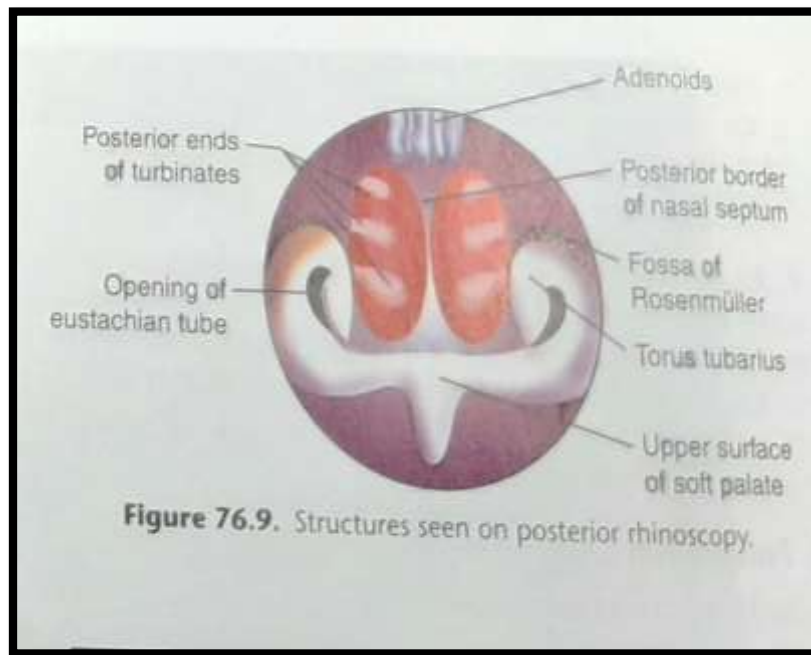
The mirror surface is either heated or dipped in savlon (or touched against oral mucosa) in order to prevent fogging during the procedure. The tongue is depressed gently with a tongue depressor and this mirror is introduced inside like a pen with the mirror facing upwards.

USES

- Posterior rhinoscopy-NOSE & NP
- to examine the postnasal space after adenoidectomy to look for remnants if any.



Q. Draw the diagram of posterior rhinoscopy.



TUNING FORK. (GARDINER BROWNS)



512 Hz tuning fork

USES

- To detect the type of hearing loss
- To make an approximate estimate of the degree of hearing loss.



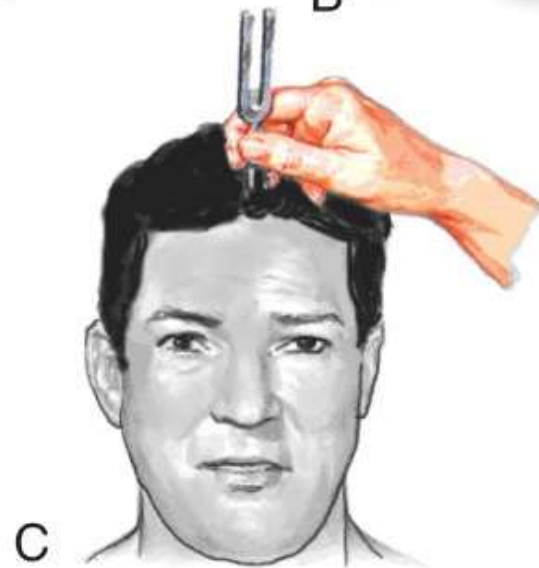
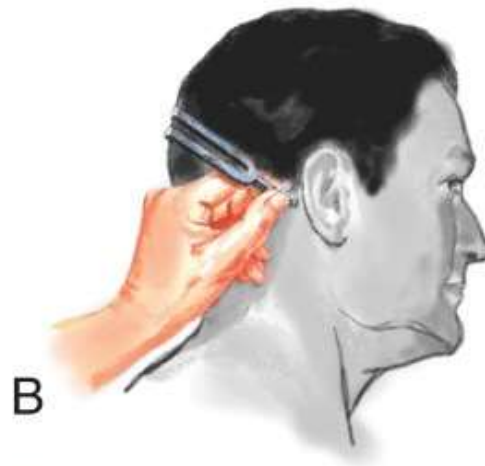
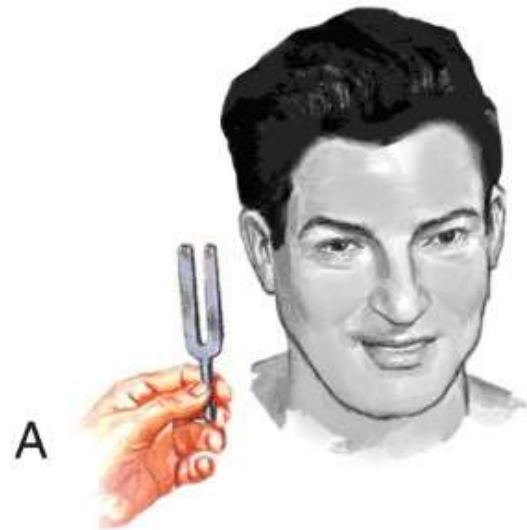
PARTS: • Two prongs • Shoulder
• Stem • Base

TYPES Hartmann TF, Gardiner TF

Q. The 512 Hz tuning fork is commonly used for the following reasons.

- It is present in the mid speech frequency range
- Overtones are minimal
- Sound is more auditory than tactile in nature
- Tone decay is optimal. (more tone decay occur in higher frequency)

PROCEDURE- The tuning fork is struck at the junction of upper one-third and lower two-third of the prongs. The vibrating tuning fork with the prongs in the acoustic axis is placed at a distance of 2.5 cm from the auricle for air conduction. The vibrating tuning fork is then placed with the base touching the mastoid process for bone conduction. It is available in various frequencies—128, 256, 512 and 1024.



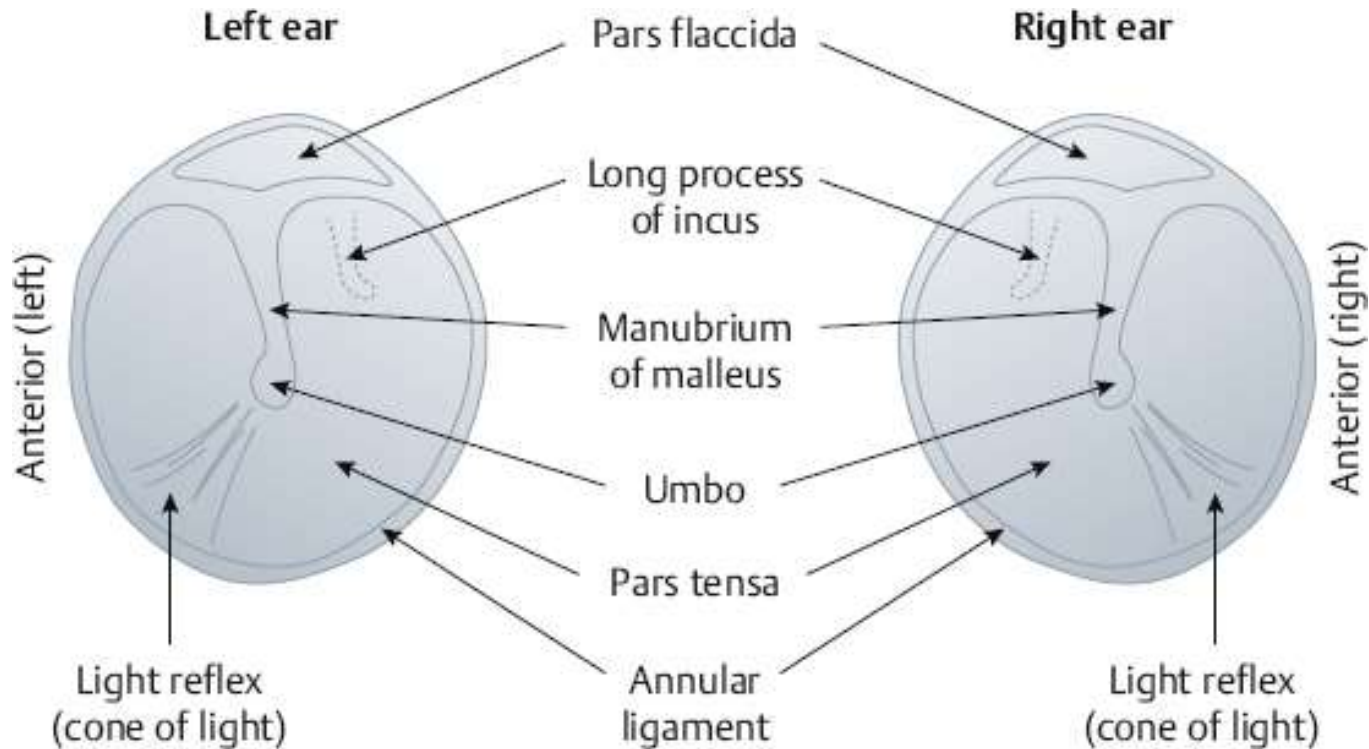
9. OTOSCOPE



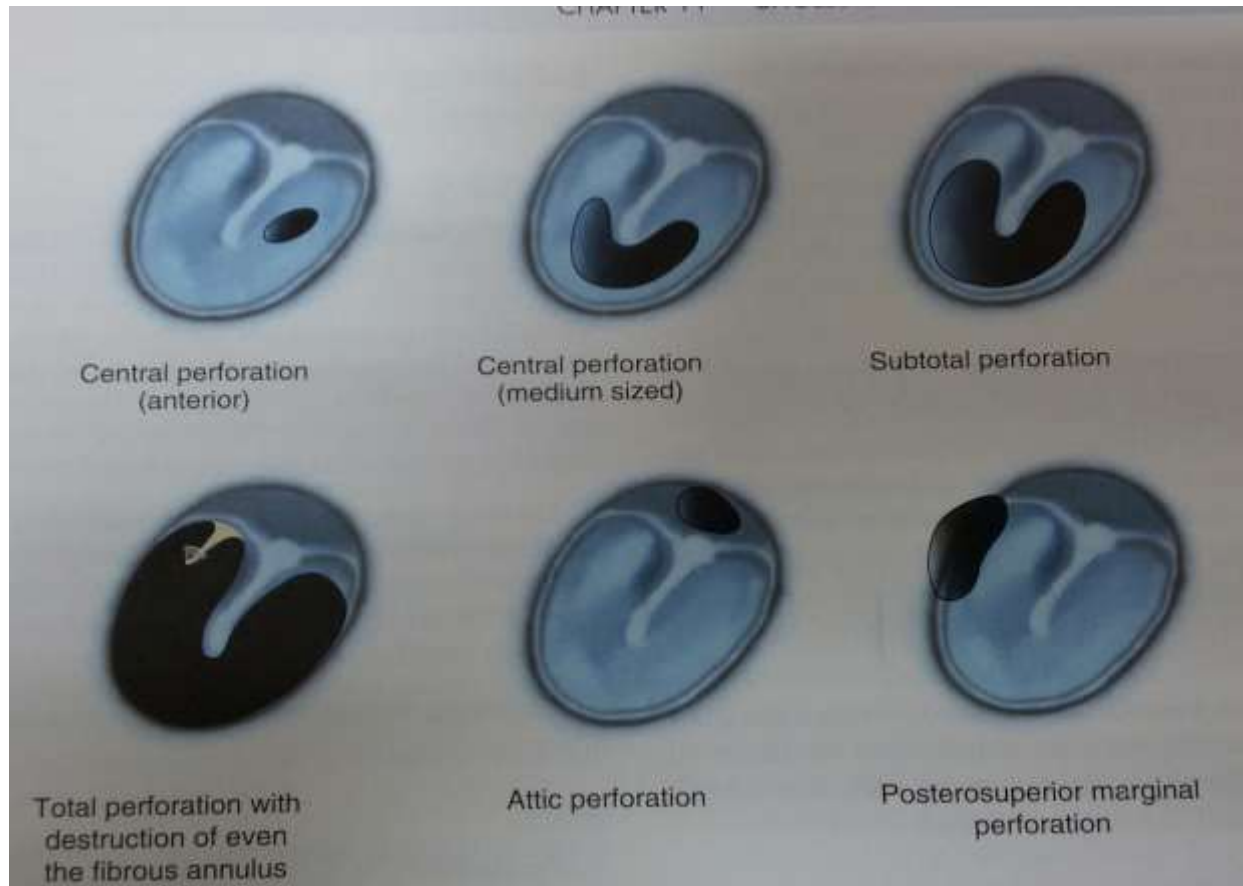
Auriscopes (Otoscope)

- 1) To examine the external auditory canal and ear drum
- 2) Used during aural toileting, removal of wax, myringotomy, stapedectomy and to dilate the stenosis of canal

Q. Draw the diagram of Right and Left Tympanic membrane.



Q. TYMPANIC MEMBRANE PERFORATION





TONSILLECTOMY

TONSIL INSTRUMENTS

1. Boyle- Davis mouth gag
2. Draffin metallic bipod stand & Magauran's plate
3. Eve's tonsillar snare
4. Mollison's tonsil dissector & Anterior pillar retractor
5. GWYNNE EVAN TONSILLAR DISSECTOR
6. Negus knot tier/ Negus ligature slipper
7. St clair Thomson's Adenoid curette with Guard

- Indications
- Contraindications
- Position
- Methods
- Complications



TONSILLECTOMY:

1. Name complications that can occur in the immediate post-operative period.
2. Name complications that can occur in the per-operative period.
3. What are the indications of the tonsillectomy?
4. What is the cause of the secondary haemorrhage?
5. How do you treat the secondary haemorrhage?
6. What are the contraindications of this operation?
7. What are the different types of haemorrhage that can occur after tonsillectomy operation?

A. ABSOLUTE

1. **Recurrent infections of throat.** This is the most common indication. Recurrent infections are further defined as:

- (a) Seven or more episodes in 1 year, or
- (b) Five episodes per year for 2 years, or
- (c) Three episodes per year for 3 years, or
- (d) Two weeks or more of lost school or work in 1 year.

2. **Peritonsillar abscess.** In children, tonsillectomy is done 4–6 weeks after abscess has been treated. In adults, second attack of peritonsillar abscess forms the absolute indication.

3. **Tonsillitis.** 4. **Hypertrophy of tonsils**

5. **Suspicion of malignancy.** An excisional biopsy is done.

B. RELATIVE

- 1. Diphtheria carriers, who do not respond to antibiotics.
- 2. Streptococcal carriers, who may be the source of infection to others.
- 3. Chronic tonsillitis with bad taste or halitosis which is unresponsive to medical treatment.
- 4. Recurrent streptococcal tonsillitis in a patient with valvular heart disease

C. AS A PART OF ANOTHER OPERATION

1. **Palatopharyngoplasty** which is done for sleep apnoea syndrome.

2. **Glossopharyngeal neurectomy.** Tonsil is removed first

and then IX nerve is severed in the bed of tonsil.

3. Removal of styloid process. (IN EAGLE SYNDROME)

CONTRAINDICATIONS

- 1. **Haemoglobin level less than 10 g%.**
- 2. Presence of acute infection in upper respiratory tract, even acute tonsillitis. Bleeding is more in the presence of acute infection.
- 3. **Children under 3 years of age.** They are poor surgical risks.
- 4. Overt or submucous cleft palate.
- 5. **Bleeding disorders**, e.g. leukaemia, purpura, aplastic anaemia or haemophilia.
- 6. At the time of epidemic of polio.
- 7. Uncontrolled systemic disease, e.g. diabetes, cardiac disease, hypertension or asthma.
- 8. Tonsillectomy is avoided during the period of menses.

Q. What are the Complications of tonsillectomy?

Table 93.1 Techniques of tonsillectomy/tonsillotomy

- **Cold methods**
 - Dissection and snare (most common)
 - Guillotine method
 - Intracapsular (capsule preserving) tonsillectomy with debrider
 - Harmonic scalpel (ultrasound)
 - Plasma-mediated ablation technique
 - Cryosurgical technique
- **Hot methods**
 - Electrocautery
 - Laser tonsillectomy or tonsillotomy (CO₂ or KTP)
 - Coblation tonsillectomy
 - Radiofrequency

IMMEDIATE

1. **Primary hemorrhage.** Occurs at the time of operation.

It can be controlled by pressure, ligation or electrocoagulation of the bleeding vessels.

2. **Reactionary hemorrhage**

3. **Injury to tonsillar pillars, uvula, soft palate, tongue** or superior constrictor muscle due to bad surgical technique.

4. **Injury to teeth.**

5. **Aspiration of blood.**

6. **Facial oedema.**

7. **Surgical emphysema.**

B. DELAYED

1. **Secondary hemorrhage.**

2. **Infection.** Infection of tonsillar fossa may lead to parapharyngeal abscess or otitis media.

3. **Lung complications.** Aspiration of blood, mucus or tissue fragments may cause atelectasis or lung abscess.

4. **Scarring in soft palate and pillars.**

5. **Tonsillar remnants.** 6. **Hypertrophy of lingual tonsil.**



Figure 93.2 Set of instruments for tonsillectomy. (1) Knife in kidney tray, (2) and (3) toothed and nontoothed Waugh's forceps, (4) tonsil holding forceps, (5) tonsil dissector and anterior pillar retractor, (6) Luc's forceps, (7) scissor, (8) curved artery forceps, (9) Negus artery forceps, (10) tonsillar nare, (11) Boyle–Davis mouth gag with three sizes of tongue blades, (12) Doyen's mouth gag, (13) adenoid curette, (14) tonsil swabs, (15) nasopharyngeal pack, (16) towel clips.

BOYLE-DEVIS MOUTH GAG



Indications:

- a. Tonsillectomy
- b. Adenoidectomy
- c. Surgeries of palate and nasopharynx
- d. Excision of choanal polyp.

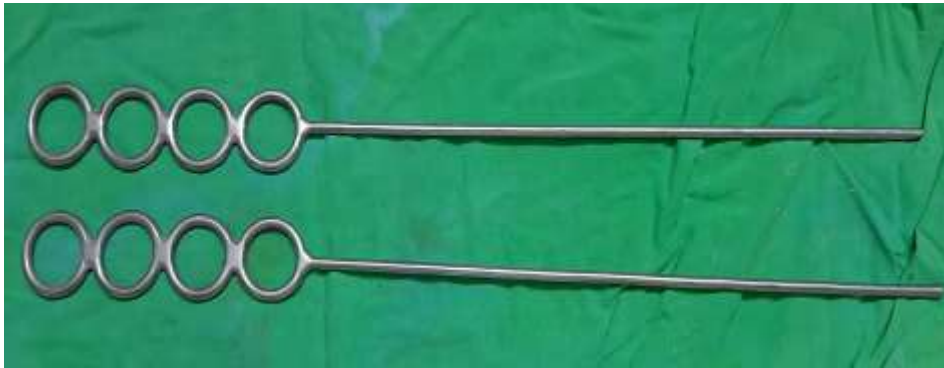


Used for various operations:

- ✓ Oral cavity -palate surgery
- ✓ Oropharynx- Tonsillectomy, surgery of the soft palate, pharyngoplasty.
- ✓ Nasopharynx- Adenoidectomy, excision of angiofibroma.

- It has two components: Boyle blade and Davis gag that are used simultaneously.
- It helps to keep the mouth open and push the tongue up and away from the operation site. Upper tooth plate has small holes to which a rubber tube is sutured to prevent trauma to the incisor tooth.
- The mouth gag is introduced in the closed position after opening the mouth with the head extended.
- The mouth gag is gradually opened and the ratchet lock makes it self-retaining.
- The whole assembly can be lifted up and maintained in that position using Draffin bipods.

DRAFFIN'S METALLIC BIPOD STAND & MAGAURAN'S PLATE



It consists of two rods with multiple rings in a row. **Used to anchor and fix the Boyle Davis mouth gag** for numerous oropharyngeal surgeries including adenotonsillectomy

MOLLISON'S TONSIL DISSECTOR AND ANTERIOR PILLAR RETRACTOR



Uses – Blunt dissection of Tonsils by its blunt end.

- Retracting the anterior pillar
- To visualize bleeders in Tonsillar fossa
- For retracting soft palate & Uvula

It has a **blunt end** used for initial non-traumatic dissection of the tonsil. The **retracting end** is used to retract the anterior pillar to look for bleeding points and tags of tonsillar tissue left behind.

Any other use?

- Used to see nasopharyngeal mass by retracting soft palate & uvula.

GWYNNE EVAN TONSILLAR DISSECTOR



Gwynne Evan Tonsillar dissector.....helps in fibrotic tonsil dissection

This instrument is used to dissect out the tonsil from tonsillar fossa. It has a blunt end and a serrated end. The blunt end is used for the initial dissection of tonsil and to ensure that a proper plane is obtained. The serrated end is used to cut the tissues from the upper pole, pillars and the tonsillar bed till the lower pole is reached.

EVE'S TONSILLAR SNARE



The snare has a stainless steel wire which is usually 3 inches long with a thickness of 28 gauge. It is used to snare the lower pole of the tonsil after dissection. The lower pole is crushed on snaring and thromboplastin is released which is a powerful vasoconstrictor.

(CUTTING AND CRUSHING ACTION)

NEGUS LIGATURE SLIPPER OR KNOT TIER



It is used to push the ligature loop on the Negus second artery forceps to ligate the bleeding point.

Negus knot tier (Negus ligature slipper)

Used with Negus or Wilson artery forceps to help tie sutures; help to slip the ligature over the tip of Negus or Wilson forceps during ligation of vessels following tonsillectomy

NEGUS'S ARTERY FORCEPS OR REPLACEMENT FORCEPS



It has a curved tip and is used after the first artery forceps for ligating blood vessels in a deep site.

Negus tonsil artery forcep

- 1) As a haemostat replaces tonsil artery forceps
- 2) Used to tie ligature at a depth and ligature won't slip due to its curve tip

DENIS BROWNE'S TONSIL HOLDING FORCEPS



Fig. : Dennis Browne tonsil holding forceps

- Although the name ,Forcep , their jaws are not sharp & upper jaw sits within larger lower jaw.
- Uses – Used for holding Tonsil during dissection & pulling it medially.

It is used to hold the tonsil and pull it medially during the process of dissection.

This instrument resembles Luc forceps but differs

from it in the following:

- a. The edges of the jaw are blunt and do not cut tissue.
- b. The upper jaw is smaller than the lower jaw.
- c. The tip has a box mechanism.

VULSELLUM TONSIL HOLDING FORCEP



**vulsellum tonsillar
forcep**



ADENOIDECTOMY

ST. CLAIR THOMSON'S ADENOID CURETTE WITH GUARD



This instrument is **used to curette the adenoids** by a blind technique. The curette is introduced behind the soft palate with the blade facing down.

It is **held like a dagger** and the adenoid is curetted from the nasopharyngeal wall in the midline by sweeping movement. **The cage is used to prevent slipping of the excised tissue into the throat.** During the procedure, the neck of the patient should not be in too much extension as it might injure the atlanto-occipital joint.

Q. Another variety without cage is called- **Beckman adenoid curette.**



TRACHEOSTOMY

TRACHEOSTOMY INSTRUMENTS

1. Trousseau's Tracheal dilator
2. Isthmus hook
3. Lange beck's Retractor
4. Tracheostomy Tubes

TRACHEOSTOMY

1. What is tracheostomy?
2. What are the indications for this procedure?
3. What are the different per operative and post operative complications of tracehostomy?
4. Where do you make the opening at the trachea?
5. What is the mechanism of apnoea after opening the trachea?
6. What are the differences between emergency and elective tracheostomy?
7. Where do you make the opening in trachea during tracehostomy in patient of cancer of larynx?
8. Name two late complications that can occur with tracheostomy.
9. What are uses, advantages and disadvantages, indications of portex tracheostomy tube and metallic tube??
10. What are equipment required to be kept besides the bed of a patient whose tracheostomy is done?

Indications

Position

Types

Complications

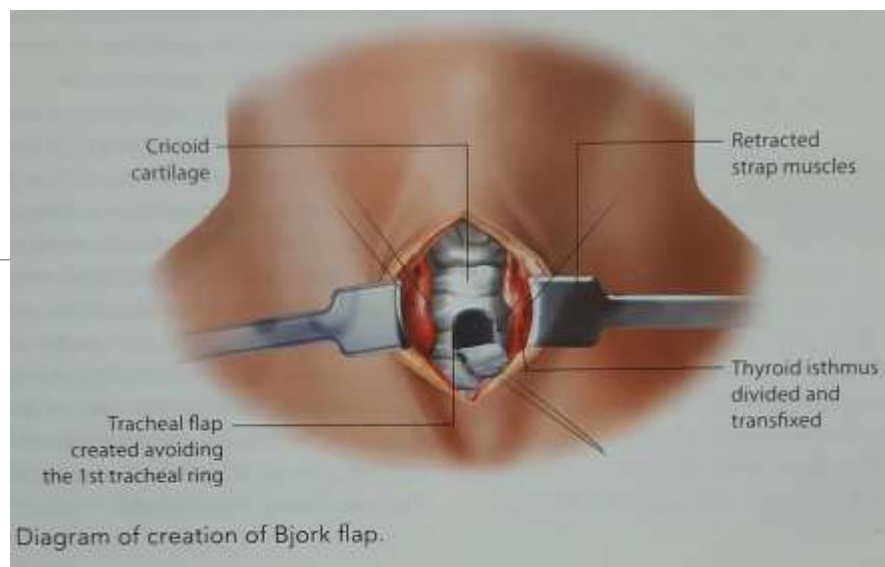


Table 76.2: Types of tracheostomy

Timing	Duration	Site	Technique	Age
• Elective	• Temporary	• High	• Anterior wall-skin	• Adult
• Emergency	• Permanent	• Mid	• Slit/ window/ 'U' or 'H' flap	• Pediatric
• Semi-emergency	-Tracheal fenestration -Postlaryngectomy	• Low	• End-skin	

TROUSSEAU'S TRACHEAL DILATOR



It is an instrument used to dilate the tracheostoma during or after the tracheostomy to insert the tracheostomy tube. It allows easier introduction of the tracheostomy tube and prevents formation of a false passage.

Trosseau tracheal dilator



<i>Feature</i>	<i>Tracheal dilator</i>	<i>Artery forceps</i>
Pressing the handle of the instrument	Opens the prongs	Closes the prongs
Ratchet	Absent	Present
Inner aspect serrations	Absent	Present

ISTHMUS HOOK

1. Tracheal Hooks

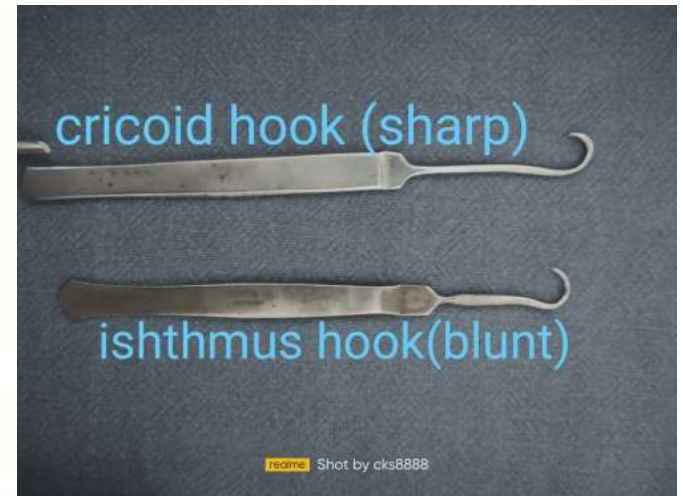
Sharp and blunt

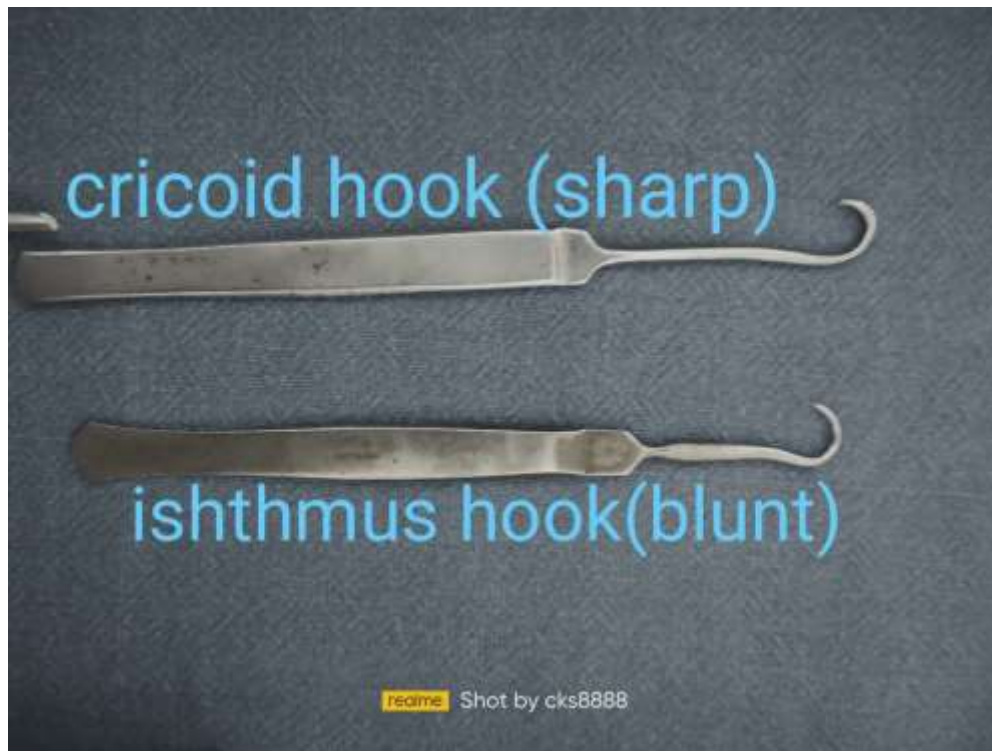
Parts

Handle and curved tip

Uses: Blunt hook is used to retract the isthmus of thyroid gland to expose tracheal wall

Sharp hook is used to retract cricoid cartilage by hooking at its lower border to stabilize trachea before making incision.





CRICOID HOOK

ISTHMUS HOOK

TRACHEOSTOMY TUBES



Figs 76.8a and b: Metallic tracheostomy tubes (a) Jackson's type with inner and outer tubes and obturator, (b) Fuller's bivalved tracheostomy tube



Fig. 76.9: Portex cuffed tracheostomy tube

FULLER'S

Fuller's bivalve metallic tube



This is a metallic tracheostomy tube and has an inner tube that is longer than the biflanged outer tube. This prevents the outer tube from getting blocked by secretions. The inner tube can easily be removed for cleaning. Also the posterior wall of the inner tube has an opening that permits the patient to breathe through the nose and phonate. The two flanges of the outer tube can be compressed for initial introduction into the trachea. Hence a pilot is not necessary for introduction. The compressed flanges of the outer tube hold the inner tube in place and prevent it from getting coughed out. Hence a lock system is not required in this tube.

Parts:

- a. Bi flanged outer tube: collar present to tie ropes
- b. Inner tube: has two circular rings to grasp, remove and insert the tube

Disadvantages:

- a. The tip of the flanges can injure the tracheal wall
- b. Flanges can break after long use and present as foreign bodies
- c. There is a risk of granulation tissue formation

JACKSON'S



Feature	Fuller tracheostomy tube	Jackson tracheostomy tube
Outer tube	Biflanged	No flanges
Lock for inner tube	Absent	Present
Vent for breathing and phonation on inner tube	Present	Absent
Pilot for introduction	Absent	Present

Parts:

- Inner tube
- Outer tube: Contains a collar and a locking mechanism
- Pilot obturator

Disadvantages:

- Phonation is not possible
- The patency of the natural air passage cannot be checked by blocking the tube
- There is a risk of granulation tissue formation.

There is a pilot for introducing the tube into the trachea so that injury is not caused to the posterior wall

The French gauge (FG or FR) is three times the outer diameter (millimeters) of the tube. This FG system is commonly followed for identifying the number of metal tracheostomy tube.

Advantages of portex tubes:

- Made up of soft material, hence **less damaging to the tracheal wall**
- Since it has a **cuff** it is particularly useful for intensive care unit patients
- It is useful during radiotherapy
- It has a blue radiopaque line all along the tube for **radiological detection** of the site of the tube.

Disadvantages of portex tubes:

- Cleaning the tube is more difficult—requires removal
- Phonation not possible usually
- Checking the patency of natural air passage is not possible
- Cuff might injure the tracheal wall (tracheal necrosis) if overinflated and left for a longer period of time. Pressure should be preferably less than 30 mm of Hg.





MASTOIDECTOMY

EAR SURGERY INSTRUMENTS

1. Mollison's self retaining haemostatic mastoid retractor
2. Facial Nerve Guard
3. Mastoid gouge
4. Hand piece of mastoid drill

MASTOIDECTOMY:

1. What do you mean by canal up and canal down mastoidectomy?
2. What are the different types of mastoidectomy?
3. What are the indications for Radical mastoidectomy?
4. What are the indications and complications for Modified Radical Mastoidectomy?
5. What are the structures preserved in MRM, why?
6. How does MRM differ from Radical mastoidectomy?
7. What are requirements of good mastoidectomy?
8. What are the indications for simple mastoidectomy?
9. What are complications of mastoid surgery?
10. What do you mean by cavity problem?

MOLLISON'S SELF RETAINING HAEMOSTATIC MASTOID RETRACTOR



Self Retaining Mastoid Retractor

Used in mastoidectomy to retract soft tissues after incision and elevation of flaps. It is self retaining and haemostatic.

It is used in mastoidectomy to retract the skin, subcutaneous tissue and periosteum

FACIAL NERVE GUARD/ STAKE'S GUIDE



Facial nerve guard
-cover facial canal, short process of incus and
horizontal semi-circular canal

JENKIN MASTOID GOUGE



A gouge is an instrument with a curved rounded tip that has smooth beveling. Hence, it cuts bone in a circular pattern. It is held at an acute angle to the bone for cutting it and a mallet is used for hitting on it. The gouge has been replaced by the electrical drill in the present day.

USES a. Remove hard bone during mastoidectomy b. Caldwell-Luc operation c. Excision of exostosis in external auditory canal

Jenkin mastoid gouge



Fig. . : Jenkin mastoid gouge

A gouge is an instrument with a curved rounded tip that has smooth beveling. Hence, it cuts bone in a circular pattern. It is held at an acute angle to the bone for cutting it and a mallet is used for hitting on it. The gouge has been replaced by the electrical drill in the present day.

USES

- a. Remove hard bone during mastoidectomy
- b. Caldwell-Luc operation
- c. Excision of exostosis in external auditory canal.

HAND PEICE OF MASTOID DRILL



MYRINGOTOMY

1. Define myringotomy.
2. What are its indications?
3. Which is the site in TM for myringotomy in OME and what is the rationale for it?
4. Which is the site in TM for myringotomy in ASOM and what is the rationale for it?
5. When is the Grommet indicated?
6. What are the complications of myringotomy?
7. What is the mechanism of extrusion of grommet after insertion?

MYRINGOPLASTY:

1. Define it.
2. What are the different types of graft materials used during this operation?
3. What benefits a patient can get by undergoing this operation?
4. What are the types of anaesthesia used in myringoplasty? Which one do you prefer or or better ? Why?
5. What are the different approaches to the myringoplasty?
6. Mention two preconditions that may be necessary before doing this operation.

TYMPANOPLASTY:

1. Define it.
2. Is there any difference between tympanoplasty and myringoplasty?
3. What are the contraindications of this operation?

NOSE SURGERY INSTRUMENTS

1. Killian's long bladed nasal speculum
2. Freer's elevator
3. Tilley's Harpoon
4. Tilley's Antral Burr
5. Mallet (Heermann)
6. Asch's septum forcep
7. Walshman's forceps
8. Hajeck's punch forceps

FESS INSTRUMENTS

1. Hopkin's nasal endoscope
2. Blakesly nasal forcep straight and 45 degree upturned
3. Back biting forcep (Stammberger's)
4. Luc's forcep

SEPTAL SURGERY:

1. Enumerate complications of septal surgery.
2. Is there any age bar for the septal surgery?
3. How does SMR differ from the SEPTOPLASTY in the principle?
4. What are the bony and cartilaginous constituents removed in SMR?
4. What are the bony and cartilaginous constituents removed in SEPTOPLASTY?
5. What are the indications of septoplasty?
6. What are the indications of SMR?
7. What do you mean by the symptomatic DNS?
8. For DNS, SEPTOPLASTY or SMR? Which one do you choose and why?
9. What are complications of SMR?
10. What are complications of SEPTOPLASTY?

KILLIAN'S LONG BLADED NASAL SPECULUM



This is a self-retaining nasal speculum and is available with blades of different sizes. The distance between the blades can be adjusted and fixed with a screw.

- a. Diagnostic: Anterior rhinoscopy—nasal septum, Little's area, lateral wall of nose, nasal cavity.
- b. Therapeutic:
_Removal of foreign bodies, antral wash, nasal packing, surgical procedures inside the nose like **polypectomy**, **SMR**, **septoplasty**, etc

Killian nasal Speculum

Used in SMR or Septoplasty to keep the mucoperiosteal flaps away

KILLIAN BAYONET SHAPED NASAL GOUGE



- This instrument is bayonet shaped to allow the adequate visualization of the nasal cavity during the procedures.
- The tip of the instrument has a rounded smooth bevelling for a better grip on the bone. It is always used with a mallet.
- Uses:
 - a. removal of maxillary crest and spur in septal surgeries.
 - b. Opening the bone of the canine fossa in Caldwell-Luc surgery.



Killian's Nasal Gouge

It is a bayonet shaped instrument with a grooved cutting edge at one end. Other end is flat.

The bend of the instrument offers better field of vision.

Uses

For reduction of spur, by engaging it in the groove of the cutting edge and gouging.

DRESSING FORCEPS

TILLEY'S FORCEP



HARTMANN'S



TILLEY'S NASAL PACKING FORCEP



USES:

- To perform anterior nasal packing
- To remove foreign bodies, crusts or packs from nose
- To pack the nose with gauze strips during nasal surgeries or sinus sx.
- To remove cartilage and bone pieces during septoplasty.

Serrations only at the tip of the blades. It can also be used in the nose.

Uses:

- For packing or unpacking the ear canal or mastoid cavity
- For delivery of medicated dressings into the ear canal
- For packing and unpacking the nose
- For introduction of medicated pledgets for local anesthesia in the nasal cavity
- Removal of foreign body/crusts/debris in the nose and ear.

ANTERIOR NASAL PACKING:

1. What are its indications?
2. How long do you keep it?

POSTERIOR NASAL PACKING:

1. What are its indications?
2. What else if this fails?

HARTMANN'S FORCEPS



Hartmann forceps

- This resembles the Tilley aural forceps. However, the tip is wide and spade like
- used to deliver dressings and medications into the ear
- It can also be used to remove foreign bodies in the ear canal



Tilley forceps

- This is an angled instrument with serrations only at the tip of the blades.
- Uses:
 1. For packing or unpacking the ear canal or mastoid cavity
 2. For delivery of medicated dressings into the **ear** canal
 3. For packing and unpacking the **nose**

Hartmann forceps

- This resembles the Tilley aural forceps. However, the tip is wide and spade like
- used to deliver dressings and medications into the **ear**
- It can also be used to remove foreign bodies in the ear canal



ASCH'S SEPTUM FORCEP



Q. Which type of cast is given after nasal bone reduction?
- Butterfly cast

Walsham Forceps



Ash forceps



WALSHAM'S FORCEP



Asch septal forceps



Fig. : Asch septal forceps

Walsham forceps



Fig. : Walsham forceps

Asch forceps

Angled blades
No rubber tube on the tip
Gap seen between prongs on approximation
Used to elevate and straighten the septum
Stout

Walsham forceps

Straight blades
Rubber tube on one tip to protect skin
No gap seen on approximation
Used to refracture and realign the nasal bones
Smaller in size

DIRECT LARYNGOSCOPE



- a. For examination of larynx, hypopharynx, crico-pharynx and upper esophagus
- b. Removal of foreign bodies from the above regions
- c. For biopsy from tumors
- d. For excision of tumors or nodules from the glottis or supraglottis
- e. To assess the extent of laryngeal growth before laryngectomy.

Direct Laryngoscope with Sliding Plate

Sliding part with proximal or Distal Illumination:
Sliding part allows opening of the tube and thereby helping in guiding and directing the bronchoscope in case of children and difficult cases.

Anterior commissure direct laryngoscope (Fig. 99.66)

Types

1. Chevalier Jackson type

- Distal illumination of the laryngoscope

2. Negus type: Proximal illumination

Advantages

- Bright light and clear view
- Fogging unlikely
- Double illumination
- Broader so better view.

Disadvantages

- Heavy and difficult to sterilize.

Distal Illumination

Advantages

- Lighter in weight.
- Completely sterilized.
- Narrow and easy to insert
- Unobstructed lumen for passage of instruments.

Disadvantages

- Less bright light
- Fogging due to secretions

Advantages of Anterior Commissure Direct Laryngoscope

- Anterior commissure can be visualized better.
- Vocal cord can be fixed in on position.
- Subglottis can be examined by manipulation of laryngoscope.

Uses

Diagnostic

- For detailed examination of the hypopharynx; and larynx
- For biopsy

Therapeutic

- Removal of foreign body

Microlaryngoscope

Kleinssaur's suspension laryngoscope system (Figs 99.67 a to c) and operating microscope with 400 mm lens are commonly used for this procedure (Fig. 99.68).

Advantages of microlaryngoscopy over direct laryngoscopy are

- Precision
- Better illumination and magnification
- Both hands of the surgeon will be free to perform precision surgery
- Laser laryngeal surgery can be performed with much ease.

Hypopharyngoscope (Fig. 99.69)

Diagnostic Indications

To examine and rule out growth in the pyriform fossa, postcricoid region and cervical esophagus and performing biopsy.

Therapeutic

- For removal of foreign body from pyriform fossa, postcricoid region and cervical esophagus
- Cricopharyngeal dilatation
- Use in cricopharyngeal myotomy
- Excision of cricopharyngeal web

OESOPHAGOSCOPE



It is a long rigid hollow tube of 40 to 45 cm length and 16 to 20 mm diameter. It is available as Negus and Jackson type. The Negus type generally has double proximal illumination, tapers distally and has markings on it. The Jackson type has single distal illumination and has no markings and does not taper distally.

Uses:

Diagnostic

- a. Malignancy
- b. Foreign body examination
- c. Cardio spasm
- d. Tracheoesophageal fistula
- e. Stricture.

Therapeutic

- a. Removal of foreign body
- b. To guide bougies through esophageal strictures
- c. Esophageal stenting
- d. Sclerosing agent injection into esophageal varices

FREER'S ELEVATOR



Freer double ended mucoperichondrial elevator

- a. To elevate mucoperichondrial and periosteal flap in septal surgeries
- b. For displacement of inferior turbinate in antrostomy operation
- c. For elevating canal skin and cartilage perichondrium in mastoid surgeries
- d. For elevation of mucosa in Caldwell-Luc operation
- e. To spread and tease temporalis fascia graft
- f. To perform uncinctomy.

PERIOSTEAL ELEVATOR



TILLEY'S HARPOON



It is an instrument used to make an opening in the medial wall of the maxillary antrum. The puncture is made just below the genu of the inferior turbinate where the bone is thinnest. It is held like a dagger in one hand and the index and thumb of the other hand are used for an adequate fulcrum. It has one antegrade pointing tip and three retrograde pointing tips. While the instrument is removed, a piece of bone could come out thereby enlarging the antrostome

USES

1. Intranasal antrostomy for the drainage of chronic maxillary sinusitis
2. As an adjunct procedure during Caldwell-Luc surgery.

TILLEY'S ANTRAL BURR



USES 1. Intranasal antrostomy for the drainage of chronic maxillary sinusitis 2. As an adjunct procedure during Caldwell-Luc surgery.

MALLET (HEERMANN)



This instrument appears like a hammer and is used along with a gouge, chisel or osteotome. The gouge is to be hit by a mallet with movement at the wrist during septal surgery.

HAJEK'S PUNCH FORCEP



For FESS

HOPKIN'S NASAL ENDOSCOPE



FESS

Indication?

Advantages?

Complications?

Q. Advantage?

- Preserve normal mucocilliary function [we remove only damaged part]

INDICATIONS

1. Chronic bacterial sinusitis unresponsive to adequate medical treatment.
2. Recurrent acute bacterial sinusitis.
3. Polypoid rhinosinusitis (diffuse nasal polyposis).
4. Fungal sinusitis with fungal ball or nasal polypi.
5. Antrochoanal polyp.
6. Mucocele of frontoethmoid or sphenoid sinus.
7. Control of epistaxis by endoscopic cautery.
8. Removal of foreign body from the nose or sinus.
9. Endoscopic septoplasty.

Table 89.1 Major and minor complications of endoscopic sinus surgery

Major	Minor
1. Orbital haemorrhage	1. Periorbital ecchymosis
2. Loss of vision/blindness	2. Periorbital emphysema
3. Diplopia	3. Postoperative epistaxis
4. CSF leak	4. Postoperative infection: rhinitis or sinusitis
5. Meningitis	5. Adhesions
6. Brain abscess	6. Stenosis of maxillary or frontal sinus opening
7. Massive haemorrhage requiring blood transfusion	7. Exacerbation of asthma
8. Intracranial haemorrhage and direct brain trauma	8. Hyposmia
9. Anosmia	9. Dental pain
10. Injury to internal carotid artery in sphenoid sinus	
11. Injury to nasolacrimal duct and epiphora	
12. Death	

LUC'S FORCEP



This forceps has a screw joint and has a fenestrated tip with sharp blades that grasp the tissue and cut it. Hence, this forceps is suitable for biopsy of various soft tissues and delicate bone.

Blades are fenestrated ,cup shaped ,with sharp edges.

□ Uses – Very useful for Nasal & Throat operations.

Used for thickened antral mucosa, antrochonal polyp & Neoplasms.

□ Also used in submucous resection of nasal septum for excision of septal cartilage

- **USES:**

- SMR or septoplasty for removal of cartilage and bone
- Polypectomy and Caldwell-Luc operation
- **Edge biopsy** from oral cavity and oropharynx
- Turbinectomy.

Q. Why there is hole/ fenestrated in tip?



X RAYS

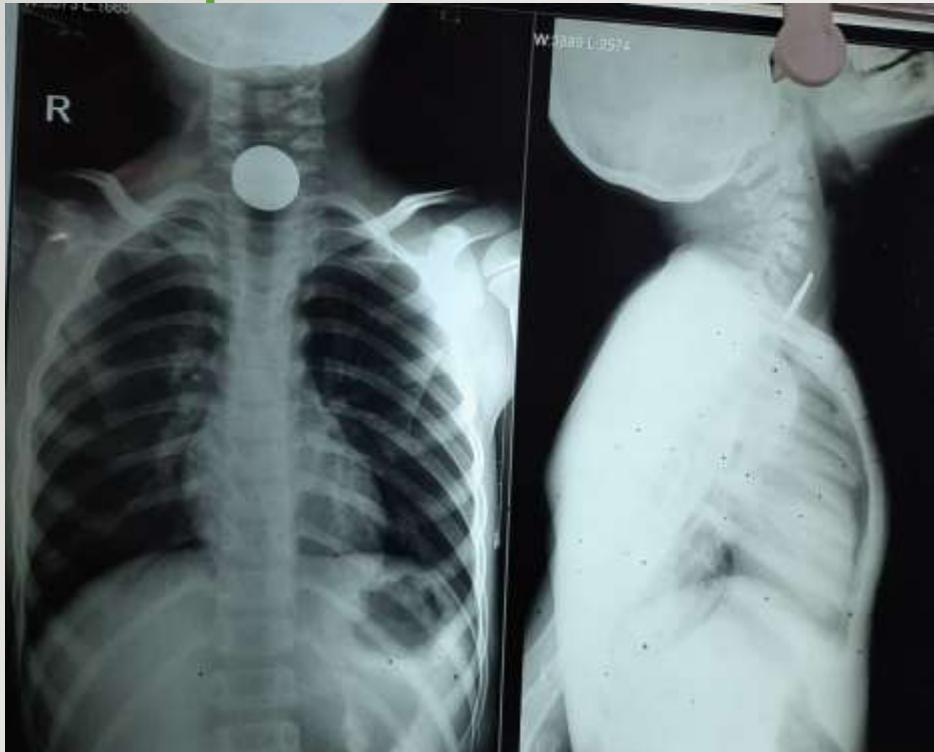
X RAY Lateral view of neck. It is an extremely useful view in ENT. In a normal person, it shows:

- (a) Outline of base of tongue.
- (b) Vallecula.
- (c) Hyoid bone.
- (d) Epiglottis and aryepiglottic folds.
- (e) Arytenoids.
- (f) False and true cords with ventricle in between them.
- (g) Thyroid and cricoid cartilages.
- (h) Subglottic space and trachea.
- (i) Prevertebral soft tissues.
- (j) Cervical spine.
- (k) Pretracheal soft tissues and thyroid.

Anteroposterior view of neck This view is useful to differentiate a foreign body of larynx from that of oesophagus. It is also done to see any compression or displacement of trachea by lateral neck masses, e.g. thyroid tumours or enlargement.

This view helps in the diagnosis of:

- (a) Foreign bodies of larynx, pharynx and upper oesophagus and to differentiate a foreign body of the airway from that of the food passage.
- (b) Acute epiglottitis (**Thumb sign**).
- (c) Retropharyngeal abscess.
- (d) Position of tracheostomy tube, T-tube or laryngeal stent.
- (e) Laryngeal stenosis.
- (f) Fractures of larynx and hyoid bone and their displacement.
- (g) Compression of trachea by thyroid or retropharyngeal masses.
- (h) Caries of cervical spine, associated with retropharyngeal abscess or osteophytes in cervical vertebrae or injuries of spine.



X Ray of upper neck, Thx, & Upper abdomen showing AP & Lateral view.

1. A radio opaque rounded foreign body (coin) in the esophagus at the level of C6-C7 (thoracic inlet.)
2. Lateral view showing a FB (coin) in the oesophagus {see the end on position of coin in this position}.

- **Why do you say it is in the cricopharynx but not in trachea?** Cricopharyngeal foreign body is seen in coronal plane in AP view where as tracheal foreign body is seen in sagittal plane in same view.
- **How will you confirm that foreign body is not in trachea?** By taking a lateral view which shows that tracheal air shadow is in front of the cricopharyngeal foreign body (Fig. 100.20).
- **How will you remove the foreign body from the cricopharynx?** By visualizing the foreign body with hypopharyngoscope and remove with foreign body removal forceps preferably under general anesthesia

- **What are the complications of untreated foreign body in the cricopharynx?**
 - Mucosal ulceration and perforation of hollow viscus
 - Retropharyngeal abscess
 - Laryngeal-edema
 - Migration of foreign body from cricopharynx which may get stuck in the ileocecal junction , the 2nd narrowest part of GI tract
 - Mediastinitis and septicemia.



X Ray of upper neck, Thx, & showing AP & Lateral view.

1. Lateral view showing a A radio opaque slender foreign body in the esophagus at the level of C7-T1

X RAY – NOSE & PNS

Waters' view (occipitomenal view or nose-chin position).

It is taken in such a way that nose and chin of the patient touch the film while X-ray beam is projected from behind.

Waters' view with open mouth is preferred as it also shows sphenoid sinus. –

PIERR'S VIEW In this view, petrous bones are projected below the maxillary antra.

Structures seen are:

- (a) Maxillary sinuses (seen best).
- (b) Frontal sinuses.
- (c) Sphenoid sinus (if the film is taken with open mouth).
- (d) Zygoma.
- (e) Zygomatic arch.
- (f) Nasal bone.
- (g) Frontal process of maxilla
- (h) Superior orbital fissure.
- (i) Intratemporal fossa.

Caldwell view (Occipitofrontal view or nose-forehead

position). The view is taken with nose and forehead touching the film and X-ray beam is projected 15–20° caudally.

Structures seen are:

- (a) Frontal sinuses (seen best).
- (b) Ethmoid sinuses.
- (c) Maxillary sinuses.
- (d) Frontal process of zygoma and zygomatic process of frontal bone.
- (e) Superior margin of orbit and lamina papyracea.
- (f) Superior orbital fissure.
- (g) Foramen rotundum (inferolateral to superior orbital fissure).



X Ray of Nose and Paranasal sinuses

haziness in the right antrum and nasal cavity.

Diag- Right Antro choanal polyp.



Water's view/ occipito mental view of skull with opened mouth.

Haziness in the maxillary sinus on the right side with Rt nasal cavity blockage.

Diagnosis- Maxillary sinusitis/ **Sinonasal mass**

Differential Diagnosis of Maxillary Sinus Opacity

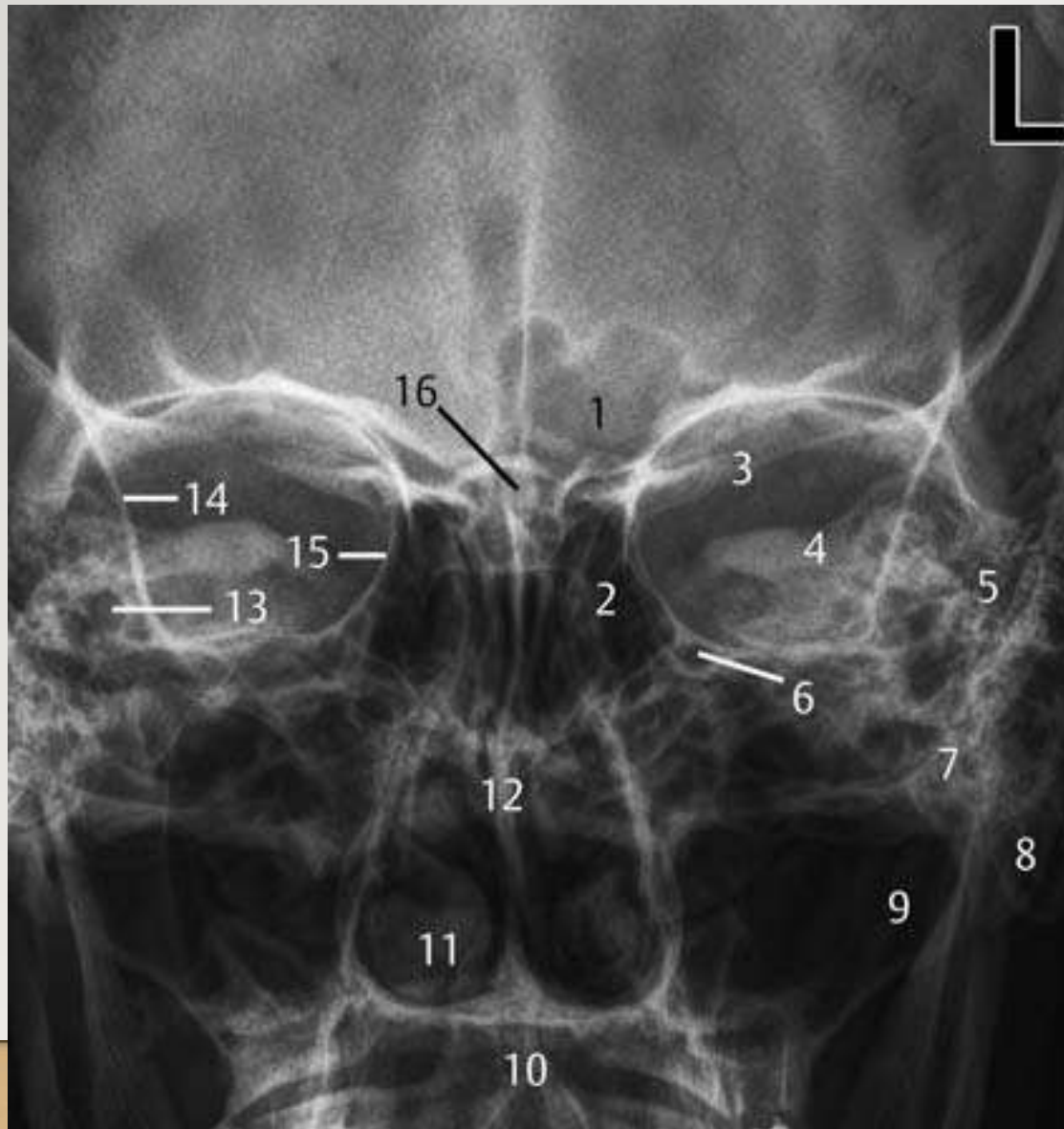
- Thickened maxillary bony wall
- Hemoantrum
- Thickened maxillary sinus wall
- Fibrous dysplasia
- Ossifying fibroma
- Dental cyst
- Dentigerous cyst
- Antral polyp/antrochoanal polyp
- Malignant growth of maxilla.

Whether acute or chronic sinusitis:

Chronic sinusitis invariably is associated with mucosal thickening which is missing in acute sinusitis whereas fluid level can be seen (Fig. 100.5b)

How will you differentiate a polyp from mucosal cyst and fluid level: X-ray PNS

should be taken in different position when fluid level will assume different positions which is absent in polyp and mucosal cyst.



- 1.1 Left frontal sinus, right side aplasia
- 2.2 Ethmoid sinus
- 3.3 Planum sphenoidale
- 4.4 Superior aspect of
- 5.the petrous bone
- 6.5 Pneumatized and
- 7.aerated mastoid cells
- 8.6 Foramen rotundum
- 9.(infraorbital canal)
- 10.7 Zygomatic arch (better
- 11.seen on Waters view)
- 12.8 Mastoid apex
- 13.9 Maxillary sinus
- 14.10 Maxilla
- 15.11 Inferior turbinate
- 16.12 Nasal septum
- 17.13 Cochlea
- 18.14 Innominate line of
- 19.the greater wing of
- 20.the sphenoid
- 21.15 Lamina papyracea

X RAY – TEMPORAL BONE

Law's view It is lateral oblique view of mastoid.

Patient lies in such a way that sagittal plane of the skull is parallel to the film and X-ray beam is projected 15° cephalocaudal.

Structures seen are:

- (a) External auditory canal superimposed on internal auditory canal.
- (b) Mastoid air cells.
- (c) Tegmen.
- (d) Lateral sinus plate.
- (e) Temporomandibular joint.

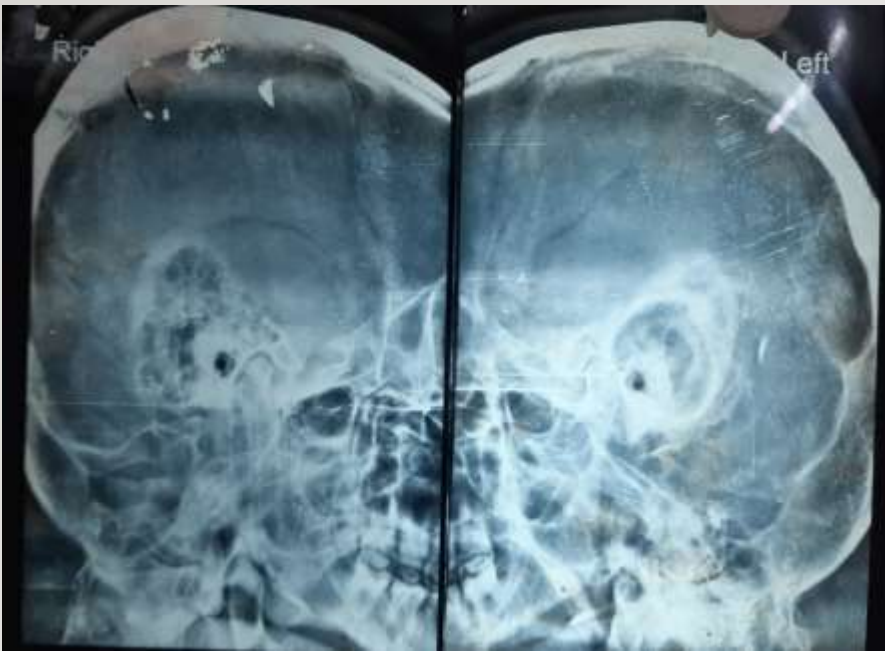
Q. "Key area" of the mastoid, i.e. attic, aditus and antrum are not well seen.

Schuller's view. Similar to Law's view but cephalocaudal beam makes an angle of 30° to the sagittal.

Structures seen are:

- (a) External canal superimposed on internal canal.
- (b) Mastoid air cells.
- (c) Tegmen.
- (d) Lateral sinus plate.
- (e) Condyle of mandible.
- (f) Sino Dural angle.
- (g) Antrum and upper part of attic (i.e. key area).

This view is taken to see the extent of pneumatization, destruction of intercellular septa (as in mastoiditis), location of sinus plate and tegmen, cholesteatoma and longitudinal fracture of petrous pyramid.



X Ray Lateral Oblique view showing B/L mastoid

- Well pneumatized mastoid air cells on the Rt side
- Lt side- Opacity
- Diag- **Left side sclerotic mastoid**
- Side Q- What may be the cause
- Ans- may be due to Cholesteatoma

Differential diagnosis of a cavity on X-ray mastoid.

- Cholesteatoma cavity
- Postmastoidectomy
- Mega antrum
- Multiple myeloma
- Eosinophilic granuloma
- Gun shot injury
- Abnormal emissary vein
- Neoplastic lesions eroding the mastoid

How will you differentiate a postmastoid cavity from cholesteatoma cavity?

- Cholesteatoma cavity-wall will be smooth
- Cholesteatoma cavity will be localized to attic and antrum
- Its wall will be surrounded by a zone of sclerosis
- Cholesteatoma mass will be seen in center of cavity with cotton wool appearance
- Postmastoidectomy cavity will appear as single cavity connecting attic antrum and canal in case of canal wall down mastoidectomy
- Wall of this will be irregular because of new bone formation.

Why should you take X-ray mastoid in chronic suppurative otitis media?

- To know the normal and abnormal landmarks like forward lying sinus plate and low lying dural plate
- To know the status of pneumatization, whether there is primary or secondary sclerosis
- To know the evidence of bone destruction or cavity formation



X Ray Lateral Oblique view showing B/L mastoid

- Opacity in both rt and lt sides
- Diag- **Bilateral sclerotic mastoid**

A decorative graphic on the left side of the slide, consisting of a light cream-colored area with a green wavy line running vertically through it.

AUDIOGRAMS

Audiograms

How to know intensity level of hearing loss ?

Calculate the average of intensities at 500 Hz, 1000 Hz and 2000 Hz.

DEGREE OF HEARING LOSS

Normal – 0-25 dB

Mild – 26-40

Moderate- 41-55

Moderately Severe- 56-70 dB

Severe- 71-91

Profound Hearing Loss- >91 dB

SPEECH AND HEARING CENTRE, DEPARTMENT OF E.N.T.
V.S.S.I.M.S.A.R, BURLA(SAMBALPUR)

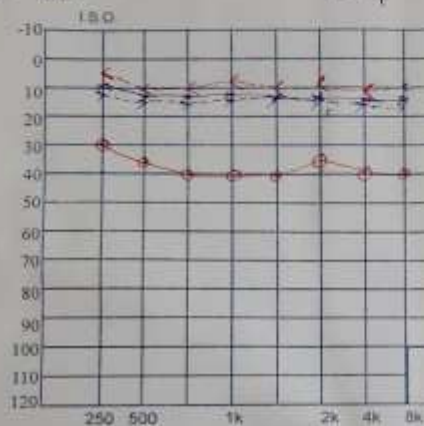
AUDIOGRAM

Name: Bhima Kanda
Age: 25/10

Case No.
Sex: M

Date:

Test No.



AC
Unmasked
Masked
BC
Unmasked
Masked
AC not heard
BC not heard
Audiometer used: SIEMENS
Procedure
Standard/Play
Audiometry

RT Lt
O X
△ △
[]
I I
O X
↓ ↓
I I
↓ ↓

- FREQUENCY IN HERTZ -

	Right	Left	Aid in Ear	
			Rt	Lt
2 Frequency average				
S.R.T				
Distmin P.B. Max				

WEBER TEST

Test	Lt.	Rt.	C.
250			
500			
1k			
2k			
4k			

SPECIAL TESTS

	Right Ear				Left Ear			
	500	1000	2000	4000	500	1000	2000	4000
SISI								
ABR II								
STENGER								
I.D.T								

Interpretation:

Hearing Aid Model
Recommended
General Remarks

Speech Pathologist & Audiologist

**Audiogram showing
Lt Sided Normal**

**Rt side- conductive type HL
avg= 37 dB - Mild**

SPEECH AND HEARING CENTRE, DEPARTMENT OF E.N.T.
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AUDIOGRAM



- FREQUENCY IN HERTZ -

	Right	Left	Ad'n Ear	
			Rt	Lt
3 Frequency average				
S.R.T.				
Osseous P.H. Max				

WEBER TEST

Test	Lt	Rt	C
250			
500			
1k			
2k			
4k			

SPECIAL TESTS

	Right Ear				Left Ear			
	500	1000	2000	4000	500	1000	2000	4000
SISI								
AN.B								
STENDER								
I.D.T								

Interpretations:

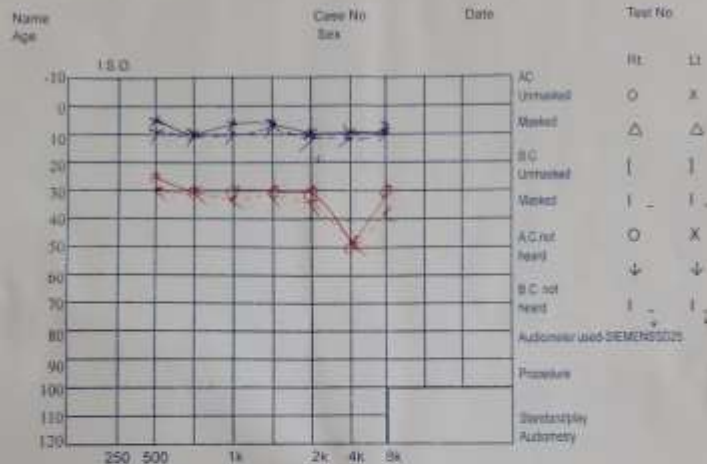
Hearing Aid Model _____
 Recommended _____
 General Remarks _____

**Audiogram showing
Rt Sided Normal Hearing**

**Lt side- Sensory neural HL
Mild SNHL**

SPEECH AND HEARING CENTRE, DEPARTMENT OF E.N.T.
V.S.S.I.M.S.A.R, BURLA(SAMBALPUR)

AUDIOGRAM



FREQUENCY IN HERTZ

	Right	Left	Aid or Ear	
			Rt	Lt
3 Frequency average				
S.R.T				
Duration P.D. Max				

WEBER TEST

Test	Lt	Rt	C
250			
500			
1k			
2k			
4k			

SPECIAL TESTS

	Right Ear				Left Ear			
	500	1000	2000	4000	500	1000	2000	4000
SISI								
ARLB								
STENGER								
I.D.T								

Interpretation

Hearing Aid Model
Recommended
General Remarks

Speech Pathologist & Audiologist

Audiogram showing
Lt Sided Normal Hearing

Rt side- No air bone gap, Notch at 4000 Hz

ie- Boilers Notch seen in NIHL (Noise induced Hearing loss)

Mild

SPEECH AND HEARING CENTRE, DEPARTMENT OF E.N.T.
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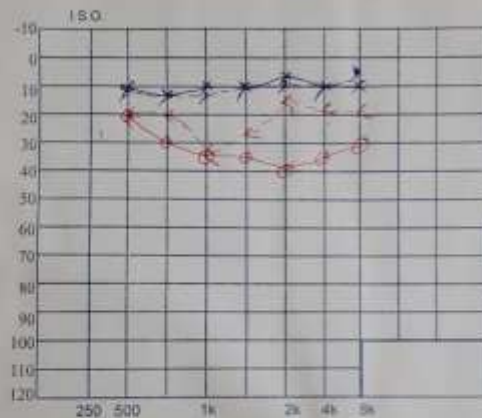
AUDIOGRAM

Name _____
Age _____

Case No. _____
Sex _____

Date _____

Test No. _____



AC
Unmasked
Masked
B.C.
Unmasked
Masked
A.C. not heard
B.C. not heard
Audiometer used - GRAMENSCO
Procedure
Stimulus
Audiometry

- FREQUENCY IN HERTZ -

	Right	Left	Aid in Ear	
			Rt	Lt
3 Frequency average				
S.R.T				
Charmin P.B. Max				

WEBER TEST

Test	Lt	Rt	C.
250			
500			
1k			
2k			
4k			

SPECIAL TESTS

	Right Ear				Left Ear			
	500	1000	2000	4000	500	1000	2000	4000
SISI								
ABLB								
STENGER								
T.D.T								

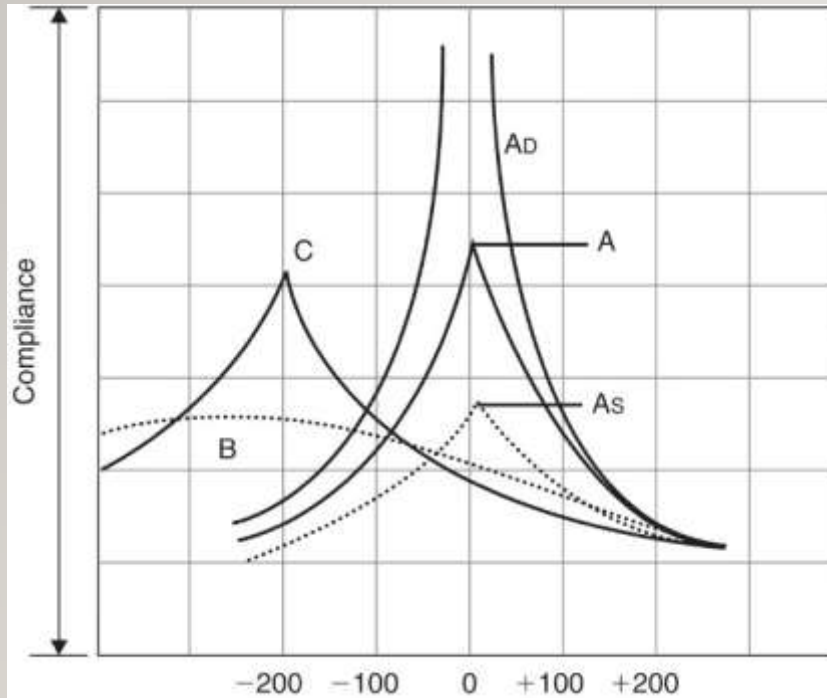
Interpretations

Hearing Aid Model
Recommended

Audiogram showing
Lt Sided Normal hearing

Rt side- Mixed Hearing Loss
avg= 32 dB - Mild

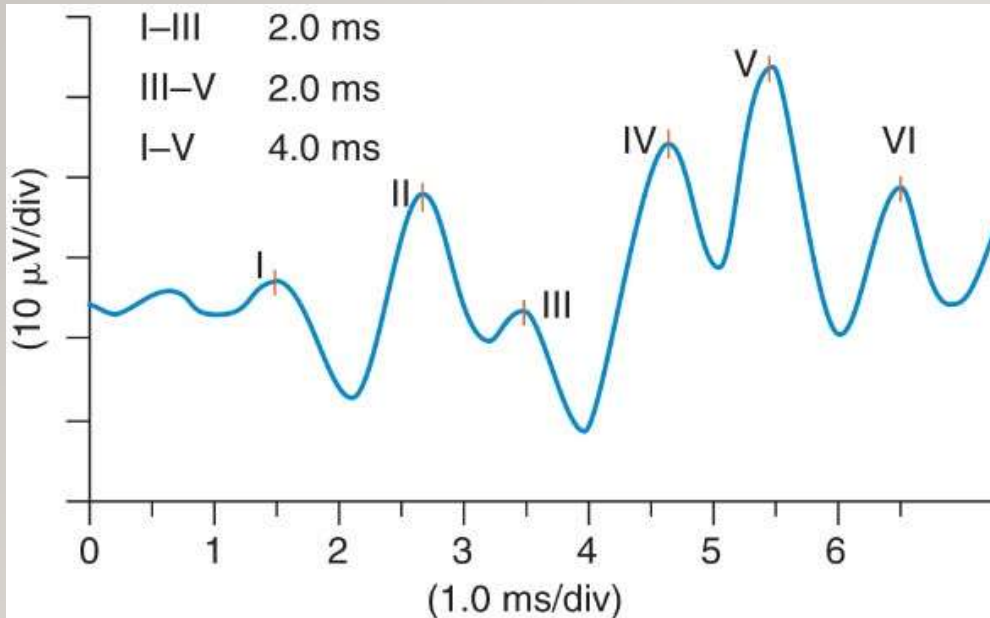
TYMPANOGRAM



Tympanogram type	Condition	Cause
A	Intact tympanic membrane	Normal middle ear function
Ad	Excessively high compliance	Compliant system from ossicle disarticulation or loss of elastic fibres in the tympanic membrane
As	Reduced compliance	Stiff system from thickened (scarred) tympanic membrane or otosclerosis*
B	Reduced compliance with no discernible point of maximal compliance	Middle ear fluid (otitis media), tympanic membrane perforation or debris in the external ear canal
C	Intact tympanic membrane with negative middle ear pressure	Auditory tube dysfunction and/or middle ear fluid

*Not reported in dogs or cats.⁹

BERA



Wave	Site of Neural Generator
I	Cochlear nerve (distal end)
II	Cochlear nerve (proximal end)
III	Cochlear nucleus
IV	Superior Olivary Complex
V	Lateral Leminiscus & Inferior Colliculus
VI & VII	Not definitely known

A decorative graphic on the left side of the page consisting of three vertical, wavy lines. The outermost line is a light cream color, the middle line is a vibrant green, and the innermost line is a slightly darker green. These lines are set against a solid black background.

MISCELLANEOUS

Common OT INSTRUMENTS

1. Peritonsillar abscess forcep (St. Clair Thomson)
2. Sinus forcep
3. Alli's tissue holding forcep
4. Babcock's forcep
5. Artery forcep (curved & Straight)
6. Sponge holder
7. Needle holder
8. Joseph's skin hook
9. Cheatele's forcep
10. Laryngoscope
11. Tooth alligator forcep
12. Towel clip
13. BP Handle
14. Suction
15. -----probe

PERITONSILLAR ABSCESS FORCEP (ST. CLAIR THOMSON'S)



PERI-TONSILLAR ABSCESS

1. How do you decide the drainage is needed?
2. Where do you incise?
3. Is anaesthesia needed? Which type is used if needed?
4. What are the post drainage instructions?
5. What are complications of drainage of PTA?

ACUTE RETROPHARYNGEAL ABSCESS:

1. How does it differ from drainage of chronic type?
2. What are precautions needed during the drainage of acute retropharyngeal abscess?
3. Where is the site for the drainage of the acute retropharyngeal abscess?

SUBMANDIBULAR SALIVARY GLAND EXCISION:

1. Which artery comes across during its removal?
2. What are those three nerves that can be damaged during its removal?
3. What are the indications for the removal of the gland?

SINUS FORCEP



ALLIS' TISSUE HOLDING FORCEP



BABCOCK'S FORCEP



ARTERY FORCEP(CURVE & STRAIGHT)



This forceps is available in various sizes and may be straight or gently curved. The inner surface of the tip is transverse serrated for better grip. There is also a ratchet for locking.

SPONGE HOLDER



NEEDLE HOLDER



It has two blades and a long handle with finger grip and a ratchet. The ratio of length of handle to blade is 4:1. The blade has crisscross serrations (or groove) on the inner aspect to grip the needle.

JOSEPH'S SKIN HOOK



CHEATLE'S FORCEP



DIRECT LARYNGOSCOPE



- a. For examination of larynx, hypopharynx, crico-pharynx and upper esophagus
- b. Removal of foreign bodies from the above regions
- c. For biopsy from tumors
- d. For excision of tumors or nodules from the glottis or supraglottis
- e. To assess the extent of laryngeal growth before laryngectomy.

BRONCHOSCOPE



This is a hollow rigid tube with a beveled end. The adult bronchoscope is about 40 to 45 cm long. It has **vents on the side** for ventilation of the other bronchus when they remain above the level of carina when inserted into the major bronchus and hence differs from esophagoscope.

Uses:

Diagnostic:

- a. For examination of tracheobronchial tree for pathology—growth, ulcer, stricture, etc.
- b. Biopsy from a suspicious growth or ulcer
- c. Bronchial lavage from secretions
- d. Bronchography
- e. Autofluorescence and photodynamic diagnosis.

Therapeutic:

- a. Foreign body removal
- b. Tracheobronchia
- l stenting
- c. Aspiration of secretions
- d. Removal of tumors.

OESOPHAGOSCOPE



It is a long rigid hollow tube of 40 to 45 cm length and 16 to 20 mm diameter. It is available as Negus and Jackson type. The Negus type generally has double proximal illumination, tapers distally and has markings on it. The Jackson type has single distal illumination and has no markings and does not taper distally.

Uses:

Diagnostic

- a. Malignancy
- b. Foreign body examination
- c. Cardio spasm
- d. Tracheoesophageal fistula
- e. Stricture.

Therapeutic

- a. Removal of foreign body
- b. To guide bougies through esophageal strictures
- c. Esophageal stenting
- d. Sclerosing agent injection into esophageal varices

TOOTH ALLIGATOR FORCEP



This instrument is available as straight (A), downturned (B) or upturned (C) forceps. If tip has cups, teeth or scissors then they are known as Wullstein cupped/toothed alligator forceps and micro-ear scissors respectively.

Uses:

1. To hold graft materials like temporalis fascia and transfer it from one place to another
2. To hold and transfer gel foam and cotton pledgets
3. To hold and transfer ossicles, Teflon piston, grommet or TORP/PORP
4. The upturned and downturned types are used to reach crevices and inaccessible areas in the middle ear and mastoid for the above purposes.
5. FB removal, oral packing, nasal packing

TOWEL CLIP



used for grasping tissue,
securing **towels** or drapes,

Q. Why there is gap?
- No injury to ear, hair etc.

BP HANDLE

BARD PARKER HANDLE

Used to attach blades of various numbers for surgical incisions. Commonly used blades are No. 10,11,12,15. (No. 12 blade may be used for tonsillectomy)



SUCTION CANULA

Suction Tube

Used to provide suction and remove unwanted blood, fluid and debris from the operative field

This instrument is used for all oral and oropharyngeal surgeries including adenotonsillectomy besides maxillectomy, laryngectomy and other neck surgeries.



JOBSON HORNE PROBE



- ❑ Curette loop at one end and threaded section at the other end for holding cotton wool.
- ❑ Wax Removal
- ❑ FB removal
- ❑ Dry mopping with cotton.

A decorative wavy line in green and cream colors runs vertically along the left side of the slide.

PICTURES FOR SPOT DIAGNOSIS



PREAURICULAR SINUS with Pus

PSEUDOCYST OF PINNA/ AURICULAR SEROMA



T/t- aspiration and mastoid
bandage----- incision and
drainage

PERICHONDritis OF EAR



M/CC – infection of surgical or traumatic wound by
Pseudomonas

T/t- Antibiotic –
Antipseudomonal – cipro,
cefoperazone

Debridement, I & D if Abscess,
pressure bandage

OTOSCOPIC PICTURE OF EAC SHOWING FURUNCULOSIS



Mcc- staphylococcus – hair follicle
infection

OTOMYCOSIS



Fig. 21.9 Otomycosis due to *Aspergillus* species. Dots, representing fungal spores, are scattered across the deep canal. The stalks and fruiting heads (conidiophores) of the mature fungus can be discerned.

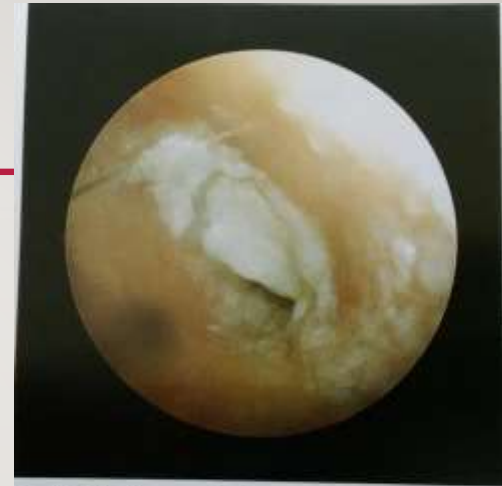


Fig. 21.10 Otomycosis due to *Candida* species. The white curd-like material coats the ear canal.

Aspergillus niger- **wet newspaper appearance** (when mixed with discharge)

Candida- **Cotton ball appearance**

T/t- Ear toileting (**dry mopping and suction clearance, not syringing**)

Topical antifungal ear drops- NYSTATIN, CLOTRIMAZOLE



Fig. 5.2 Otitis media with effusion. Fluid appears behind an intact tympanic membrane. Gas bubbles can be seen anterior to the malleus.

Otoscopic picture of Tympanic membrane showing

- Cone of light with air bubbles, TM intact but congested
- Diag- **Otitis Media with effusion / Glue Ear**

Q. What are the synonyms of glue ear ?

Glue ear/ Serous Otitis media/ mucoid otitis media/ secretory otitis media

(Don't say mucopurulent)



Fig. 5.1 Acute otitis media. A purulent exudate is visible behind an intact tympanic membrane.

-
- Otoscopic picture of ear showing
- Congested tm
 - Whitish pus collected, slight bulging of TM
 - Cone of light is distorted, perimalleolar congestion
 - Diag- **AOM in Exudative phase**
 - (don't say ASOM)

Side Q

What are the stages of AOM ?

I. Stage of **tubal occlusion**/ hyperemia

II. Stage of presuppurative/ **exudation**

III. Stage of **suppuration**

IV. Stage of **Resolution** - → **Light House sign**- pus coming out constantly ->

Light is reflected back

V. Stage of **complications**

Q. What are the Complications of ASOM ?

I. Acute mastoiditis

Battle sign- hematoma over mastoid due to # of mcf

Griseinger sign- Pitting edema & REDNESS over mastoid
d/t sigmoid sinus thrombosis

2. Coalescent mastoiditis

TYMPANIC MEMBRANE PERFORATION

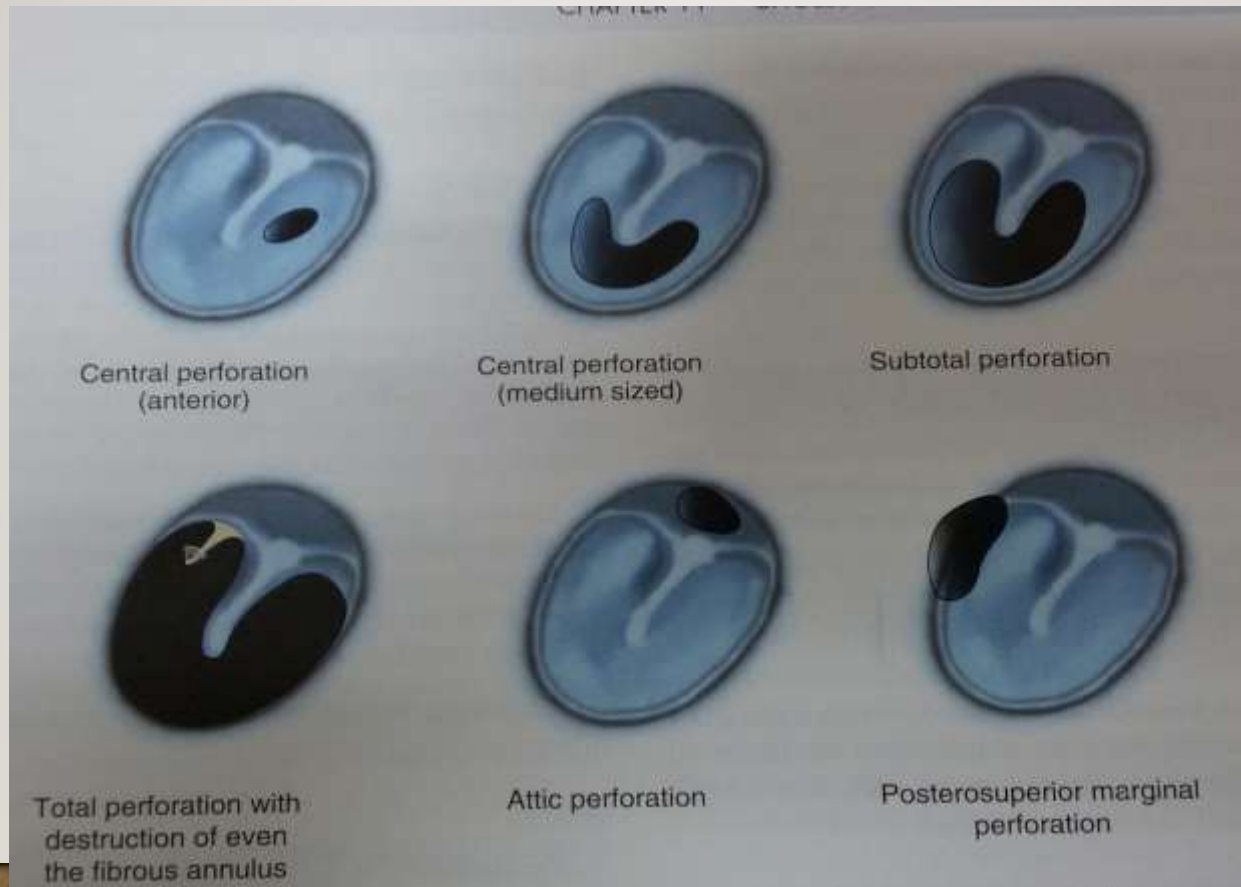




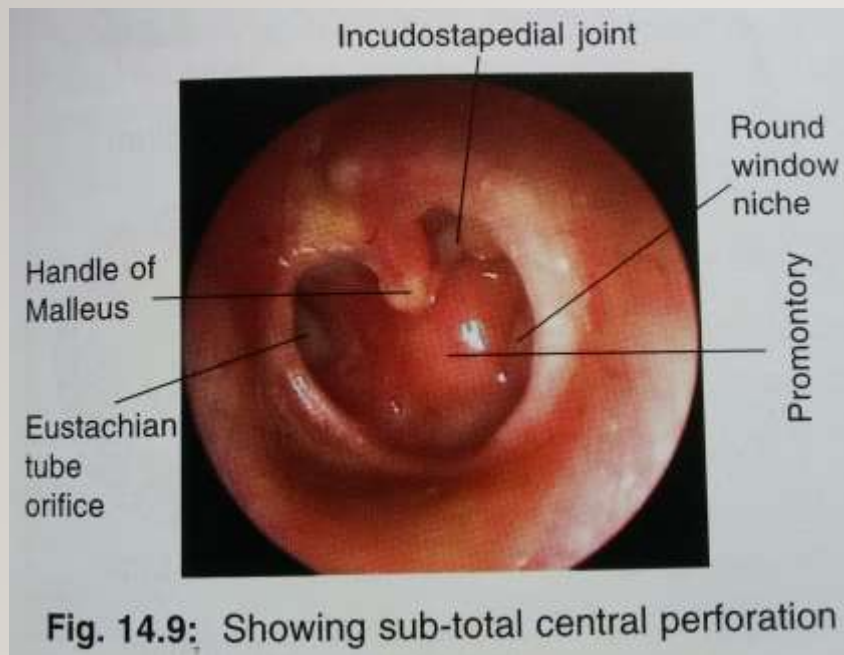
Fig. 16.5 Suppurating perforation. Right ear granulating anterior-superior pars tensa perforation with purulent drainage.

Central Perforation with
congestion

Seen in Tubo tympanic/ safe, mucosal CSOM



Perforation of medium sized



- Sub Total Central perforation



Fig. 27.3 Marginal perforation of the right tympanic membrane.



Fig. 27.4 Attic perforation of right tympanic membrane.

Marginal perforation-
seen in pars tensa

Attic Perforation- seen in
Pars flaccida

Seen in Atticoantral / unsafe, squamous CSOM

RHINOSPORIDIOSIS IN LEFT NASAL CAVITY



Q. Cause- **Rhinosporidium seberi** (aquatic protozoa)

Q- **Mulberry/ strawberry like nasal mass** with white dots



Acute Catarrhal/ superficial
Tonsillitis



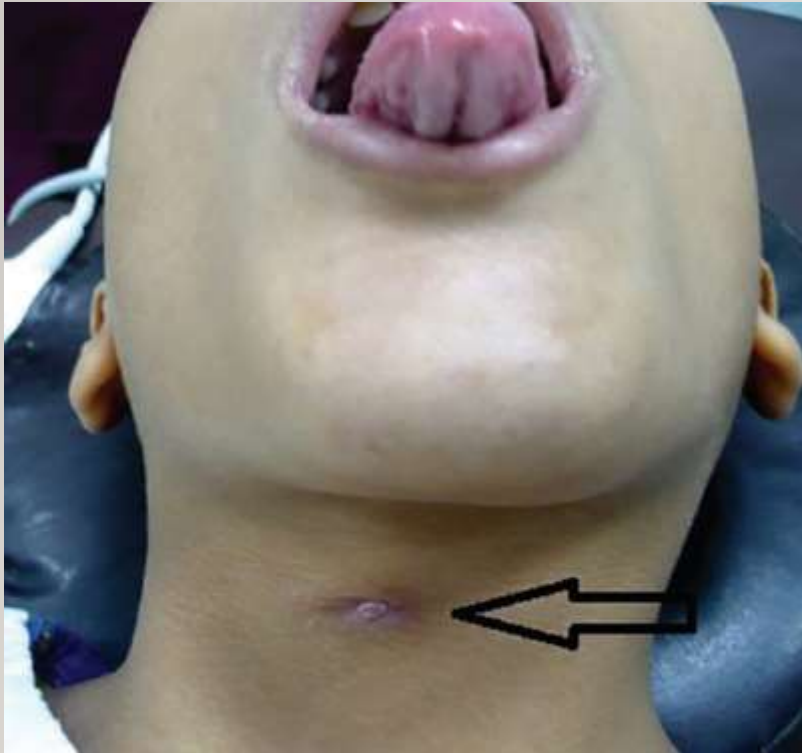
**Acute Parenchymatous
Tonsillitis- Bilateral**

with grade 3 hypertrophy
(coming beyond anterior
pillar)



Acute Follicular Tonsillitis B/L

With grade 4 Hypertrophy-
touching uvula
- Infection spreads into the
crypts which are filled with
purulent material → yellow
spots seen



Thyroglossaal Fistula-

Always acquired

Hood Sign- puckering of skin
with protrusion of tongue



RANULA

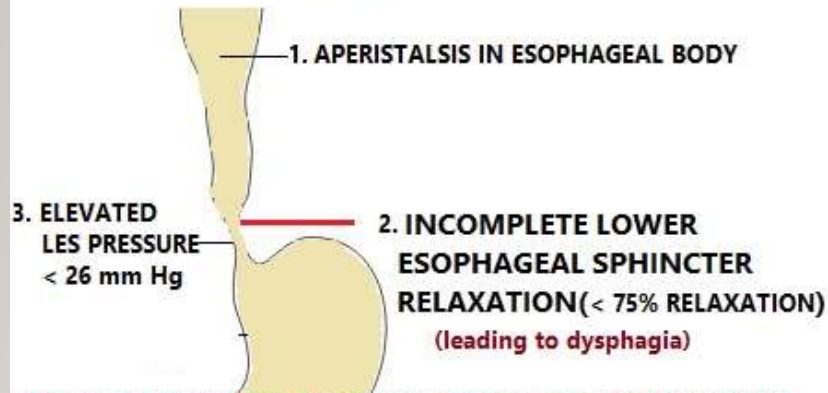
- Bluish cystic translucent swelling in floor of mouth
- Cause- d/t obstruction of Sublingual duct
- T/t- Surgical excision & Marsupialization



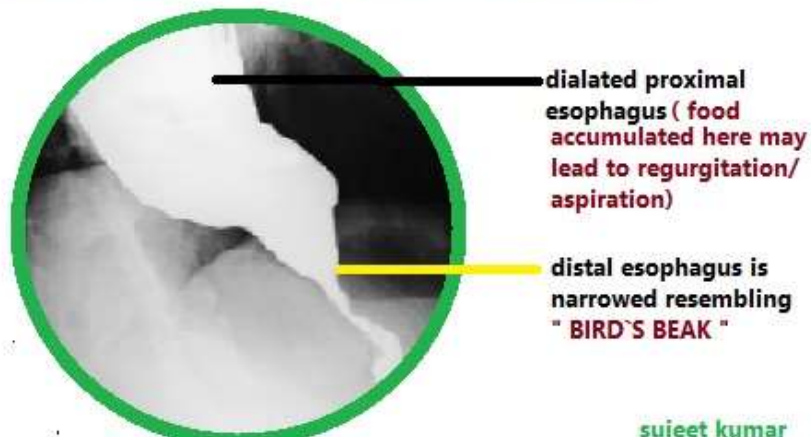
Gluck Sorensen incision

- Given in Total Laryngectomy
U shaped
- Highest limit is mastoid process on both sides
- Horizontal limb encircles tracheostome

ACHALASIA CARDIA



NOTE : ELEVATED LES PRESSURE { HYPERTENSIVE LES } IS PRIMARY PATHOLOGY IN ACHALASIA. IT FURTHER LEADS TO INCOMPLETE RELAXATION AND DILATION OF PROXIMAL ESOPHAGUS



Bird Beak Sign of Esophagus (barium swallow picture)

- Seen in **Achalasia cardia**
- Dilated proximal esophagus & Narrowed distal esophagus
- Q. **Procedure done- Heller's Myotomy**



CLINICAL CASE PRESENTATION

1. CSOM
2. Tonsillitis
3. DNS
4. Nasal Polyp
5. Rhinosporidiosis

LOCAL EXAMINATION

A. EAR

- i) Auricle
 - Deformity
 - Injury
 - Haematoma
 - Abscess
 - Ulcer
 - Eczema
 - Fistula
- ii) Retroauricular groove :
 - Filled or not
 - Ulcer
 - Sinus
- iii) Mastoid Process
 - Oedema
 - Abscess
 - Sinus
 - Tenderness

(iv) External Auditory Meatus

- Deformity
- Foreign body
- Wax
- Eczema
- Swelling
- Ulcer
- Discharge
- Granulation
- Polypus

(v) Tympanic membrane

- Congestion
- Retraction
- Thickening
- Perforation
- Granulation
- Polypus
- Discharge

(vi) Condition of Ossicles

ii) Tuning fork Test

Rinne

Weber

Schwabach

Absolute Bone Conduction

(viii) Vestibular Function Tests

- i) Spontaneous Nystagmus
- ii) Spontaneous Pointing
- iii) Romberg
- iv) Fistula Test

B. NOSE & PARANASAL AIR SINUSES

i) External Nose

Deformity

Injury

Ulcer

Eczema

ii) Vestibule -

Deformity

Ulcer

Crusts

Furuncle

iii) Anterior Rhinoscopy -

a) Nasal cavity

iii) Anterior Rhinoscopy -

a) Nasal cavity

(d) Inferior meatus

Pus

Crusts

(e) Inferior Turbinate

Congestion/pallor

Hypertrophy

Atrophy

Ulcer

Crusts

(f) Middle Meatus

Pus

It's reappearance
on cleaning

(g) Middle Turbinate

Congestion

Hypertrophy

Atrophy

(iv) Post Rhinoscopy

(a) Root of Nasopharynx

(b) Adenoid

(c) Growth

(d) Secretion

(e) Choana

Deformity

Secretion

(f) Lateral wall

Growth

Mouth of Eustachian tube

(v) SPECIAL EXAMINATIONS :

Transillumination

Radiography

Proof Puncture

C. THROAT

(i) Mouth cavity

Gum

Teeth

Tongue

Vestibule

Floor

(ii) Palate

(a) Soft Palate

Congestion

Ulcer

Displacement

Movement

(b) Hard Palate

(iii) Pillar of the fauces

Congestion

Ulcer

Membrane

Growths

(iv) Tonsils

Size

Crypts

(v) Supratonsillar fossa

Congestion

Ulcer

Membrane

1. What are the symptoms of ear disease?
2. What are the cardinal symptoms of CSOM?
3. Describe the discharge in Tubo tympanic type of CSOM.
4. Describe the discharge in AAD.
5. What are the causes for foul smell in the discharge in AAD?
6. Enumerate a few conditions which can present with bloody ear discharge.
7. What is the cause for blood stained ear discharge in AAD?
8. What are the symptoms which suggest impending complications in a case of CSOM?
9. What are the important points in the past history you would elicit in a case of Ear disease?
10. What is the importance of general examination in CSOM?
11. What is tragal tenderness and what is its significance?
12. What is the importance of position of pinna in ear disease ?
13. What are the points you will look for in the examination of post auricular region?
14. What is the importance of obliteration of post auricular sulcus?
15. What are the signs of sub periosteal abscess?
16. Where all would you elicit mastoid tenderness?
17. What will you look for in the examination of EAC?
18. What is the length of EAC ?
19. What is the importance of posterior superior meatal wall?

- What is preauricular sinus?
- What is call aural fistula?
- Bat ear?
- Parts of pinna? Tell its nerve supply
- Macewan's triangle?

21. What are the signs of retraction of TM?
22. What are the types of perforations?
23. What is a central perforation?
24. What is a marginal perforation?
25. What criterion is used for grading central perforations?
26. While mentioning the grade of perforation, can you tell the size of perforation as well ?
27. What is tympanosclerosis?
28. How can you clinically assess the Eustachian tube function?
29. What are the interpretations of Rinne's test?
30. What is meant by pars flaccida?
31. Why is it called pars flaccida?
32. What is Valsalva Maneuver?
33. What are the interpretations of Valsalva maneuver?
34. What is Seigalisation? How is it useful?
35. What is Weber's test?
36. What are the interpretations of Weber's test?
37. What are the interpretations of ABC?
38. How sensitive is Rinne's test?
39. How sensitive is Weber's test?
40. Can you determine the degree of deafness by performing tuning fork tests?

41. What the types of deafness?
42. What is fistula test? How do you perform fistula test?
43. What are the interpretations of Fistula test?
44. What is nystagmus?
45. What are the characters of vestibular nystagmus?
46. What is the importance of examination of Facial nerve in CSOM?
47. What is the importance of examination of nose and throat in CSOM?
48. What specific investigations would you carryout in a case of CSOM?
49. What are the common infective organisms isolated in ASOM and CSOM?
50. What is the importance of otomicroscopy in CSOM?
51. What is the importance of PTA in CSOM
52. What is the usual view taken for radiological examination of mastoids?
53. What are the aims of treatment of a case of safe CSOM?
54. What are the aims of treatment of a case of CSOM?
55. What is the surgical treatment of safe CSOM?
56. What is tympanolasty?
57. What is myringoplasty?
58. What are the various approaches for ear surgery?
59. What are the various graft material s used for grafting the TM?
60. Why is temporalis fascia the preferred graft material?

S.M.R.	Septoplasty
Radical surgery	Conservative
Not done below 17 yr	Done after 4 yr
Killian's incision	Freer's incision
Cannot correct anterior DNS	Can correct
B/L mucoperichondrium elevated	One side only
Radical removal of cartilage	Only inferior strip
Rhinoplasty incision can't combine	Can
Revision surgery difficult	Relatively easy
Cartilage graft can be harvested	No
Complications common	Rare

COMPLICATIONS OF SMR operation & SEPTOPLASTY:

1. Bleeding.
2. Septal haematoma and abscess.
3. Septal perforation.
4. Supratip depression.
5. Saddle nose deformity.
6. Columellar retraction.
7. Persistence of septal deviation, or external nasal deformity.
8. Cerebrospinal fluid rhinorrhoea (rare) occurs if perpendicular plate of ethmoid is avulsed.
9. Toxic shock syndrome.

Q. **What is Rhinosporodiosis?**

It is a granulomatous disease of nose characterized by polyp or wart like lesions primarily affecting nasal & nasopharyngeal mucosa & less often the conjunctiva.

Q. **Which is the causative Organism?*****

Rhinosporidium seberi- an aquatic protozoa (previously thought to be a fungi)

Q. Some consider it to be a fish parasite belonging to DRIP Clade. What do you mean by DRIP Clade?
Dermocystidium, Rosette agent, Ichthyophonus and Sporospermum.

Q. **What is the mode of infection?**

- Through contaminated water of ponds also frequented by animals.

Q. **What are the sites affected**

Nose & nasopharynx

Other sites- lip, palate, conjunctiva, epiglottis, larynx, trachea, bronchi, skin, vulva, vagina

Q. What are the stages of life cycle of the causative organism?

Trophic stage, Development of sporangium, Production of endospores.

Q. What are the types of sporangium you may see in histology?

Mature, Immature, Empty sporangium

Q. **Describe a sporangium.**

It is 100-350 micro meter in diameter, containing 12,000-16,000 endospores, diameter of spore- 7-9 micro meter, thickened, rounded, eosinophilic walls, **It has thick wall consisting of 2 layers- outer chitinous and inner germinal layer.**

Q. How to diagnose?

Biopsy- histology

Q. Can you culture it---No

Q. How will you treat?

Complete excision of mass with diathermy knife and cauterization of its base. Recurrence may occur.

Q. Is there any drug, which is effective?---Dapsone may be effective

Q. What is the organism causing Rhinosporodiosis?
NEW

- *microcystis aeruginosa* (cyanobacteria)

ALL THE BEST....