Today's topics-

Common surgical procedures of Nose
&
paranasal sinuses.

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Common surgical procedures are

a) Proof puncture (Antral irrigation)
b) Intranasal antrostomy.
c) Cald well-Luc operation.
d) SMR / Septoplasty operation.
e) Diagnostic nasal endoscopy.
f) Endoscopic sinus surgery.

Proof puncture

This procedure involve puncturing the medial wall of the maxillary sinus in the region of inferior meatus and irrigating the sinus.

Antral puncture (Proof puncture)

Indications:

a) Chronic and sub acute maxillary sinusitis to confirm the diagnosis and washing out the sinus.

b) To collect the specimen of the antral contents for culture and sensitivity or cytological examination to exclude malignancy.

Antral puncture

Contraindication :

Acute maxillary sinusitis- fear of osteomyelitis.

Anesthesia:

In adult- local anaesthesia. A pack of 4% lignocaine with adrenaline is kept in inferior meatus for 10 to 15 minutes.

In children- general anaesthesia.

Technique

- ✓ The inferior meatus is punctured with Licht witz trocar and cannula at a point 1.5- 2.0 cm from anterior end of inferior turbinate.
- ✓ Here, the bone is very thin and can be easily pierced.
- ✓ Trocar and cannula are directed towards the homolateral ear.
- ✓ The nasoantral wall pierces with a carak.
- ✓ Now remove the trocar and advance the cannula.
- ✓ The antrum can be irrigated with normal saline at body temperature by Hagginson's syringe.
- ✓ Syringing is continued till return is clear.
- ✓ After the puncture is over, cannula is removed and a pac kept in the inferior meatus.

Post operative care

1. **Pack is removed after one hour.**
2. **Antibiotics for 7 days.**
3. **Analgesics to relive pain.**
4. **Antihistamine**
5. **Nasal decongestant drop for 10 days.**

Complications:

1. Swelling of check- due to faulty technique.
2. Mispuncture or double puncture.
3. Orbital injury and cellulites.
4. Haemorrhage.
5. Air embolism.
6. Vasovagal shock.

Intranasal antrostomy

Intranasal inferior meatal antrostomy is a process of making an opening in the nasoantral wall of the inferior meatus by intranasal route.

Indications:

Chronic purulent maxillary sinusitis.

Contraindications :

1. Irreversible change in sinus mucosa.
2. Presence of ostitis.
3. Suspicion of malignancy.

Anasesthesia :

Local or general anaesthesia.

Technique

- Inferior turbinate is fractured medially and upwards with a large periosteal elevator.
- Nasoantral wall of inferior meatus is perforated with a curved haemostat and then this opening is enlarged, forwards with kerrisons bone- forceps and backwards with lucs or side-biting ring forceps.
- Opening should be 1.5 to 2 cm in diameter and as close to the floor of nose as possible.
- Intrasinus pus/debris is removed by suction.
- Packing into the sinus and nose may be required.

Intranasal antrostomy (cont.)

Post-operative care:

Intrasinus and nasal pack is removed in 24-48 hours.

Antibiotics

Analgesic

Complications:

Post-operative bleeding.

Injury to nasolacrimal duct.

Caldwell-Luc operation

Cald well–Luc operation is a process of opening the maxillary antrum through canine fossa by sublabial approach and dealing with the pathology inside the antrum.

Caldwell Luc operation

Indications:

1.Chronic maxillary sinusitis with irreversible changes in the sinus mucosa.

2. Antrochoanal polyp /Recurrent antrochoanal polyp

3.Removal of FB.

4.Dental cyst/ Dentigerous cyst

5.Oroantral fistula

6.Reduction of blow out fractures of the orbit.

7.To take biopsy.

8. Ligation of maxillary artery

9.Vedian neurectomy.

Contraindications:

Below 17 years of age.

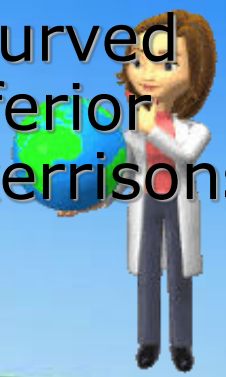
Anaesthesia:

Usually general anaesthesia.

Can be done under local anaesthesia.

Technique

1) Incision – a horizontal incision is made below the gingivolabial sulcus, from lateral incisor to the 2nd molar.
2) Elevation of flap- the mucoperiosteal flap is raised from the canine fossa to the infraorbital nerve,
3) Opening the antrum- a hole is made in the antrum by using cutting burr or gouge and hammer.opening is enlarged using kerrison's punch.
4) Dealing with pathology-diseased antral mucosa can be removed with elevators, curettes and forceps.
5) Making nasoantral window- by pushing a curved artery forceps into the antrum from the inferior meatus and the opening is enlarged with kerrisons forceps to make a window.

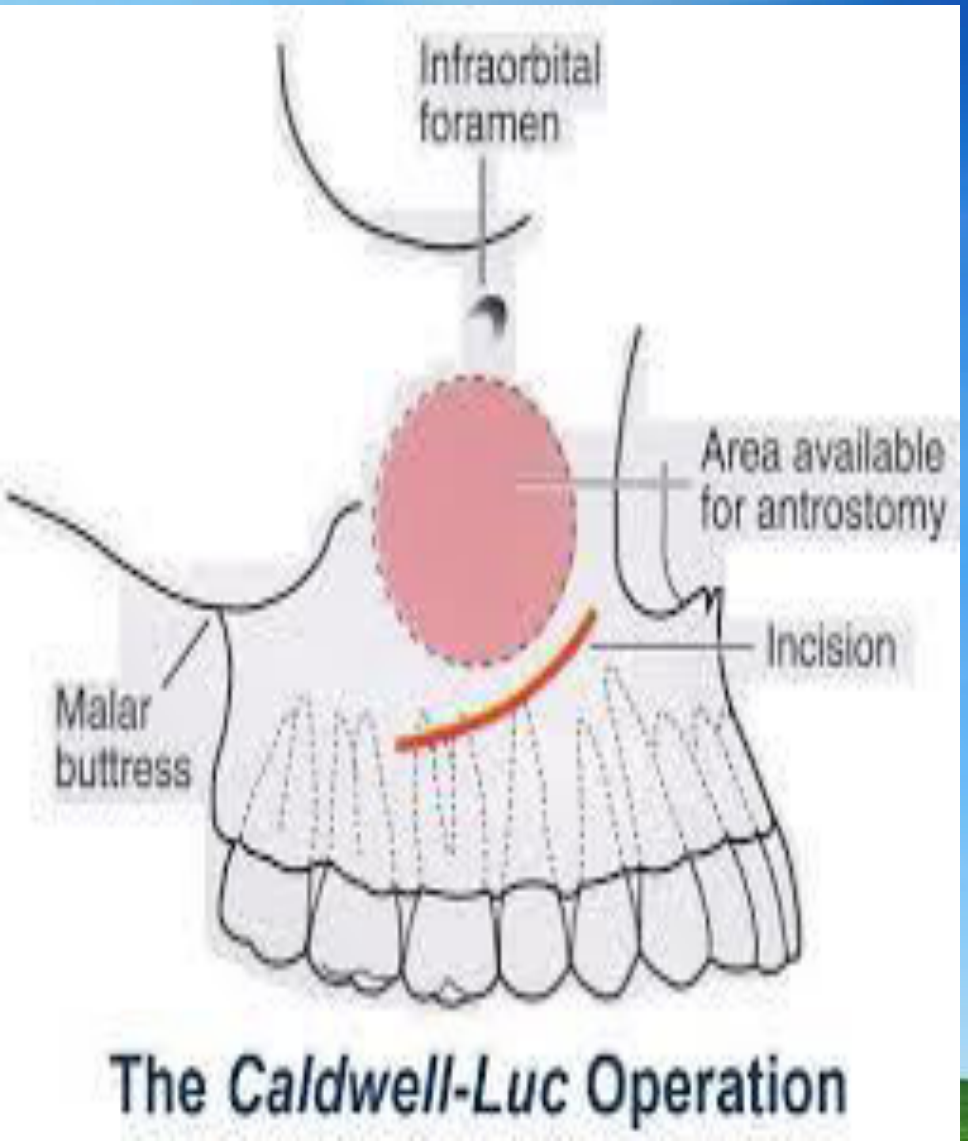


Technique (cont.)

6) Packing the antrum- Ribbon gauze, impregnated with liquid paraffine or ointment can be packed in the antrum and its end brought out from the nasoantral window into the nose. Pack is also kept in the nose.

7) Closure of wound- sublabial incision is closed with catgut sutures.

Cald well-Luc operation



Post-operative care

1. Ice packs over the check in the first 24 hours-to prevent oedema, haematoma and discomfort.
2. Pack can be removed in 24-48 hours,
3. Antibiotics for 5-7 days.
4. Should avoid blowing nose for 2 weeks to avoid surgical emphysema.

Complications

a) Post-operative bleeding.
b) Anaesthesia of the cheek.
c) Anaesthesia of teeth.
d) Injury to nasolacrimal duct.
e) Injury to orbital contents.
f) Sublabial fistula.
g) Osteomyelitis of maxilla.

SMR operation

Indications:

- DNS causing symptoms
- As a part of septorhinoplasty.
- Septal cartilage takes as a graft material.
- To repair septal perforation.
- To approach other operation-

Trans septal hypophysectomy.

Vedian neurectomy.

SMR operation

Contraindications :

- Below 17 years of age.
- Acute episode of respiratory infection.
- Bleeding disorders.
- Untreated diabetes or hypertension.

Anesthesia :

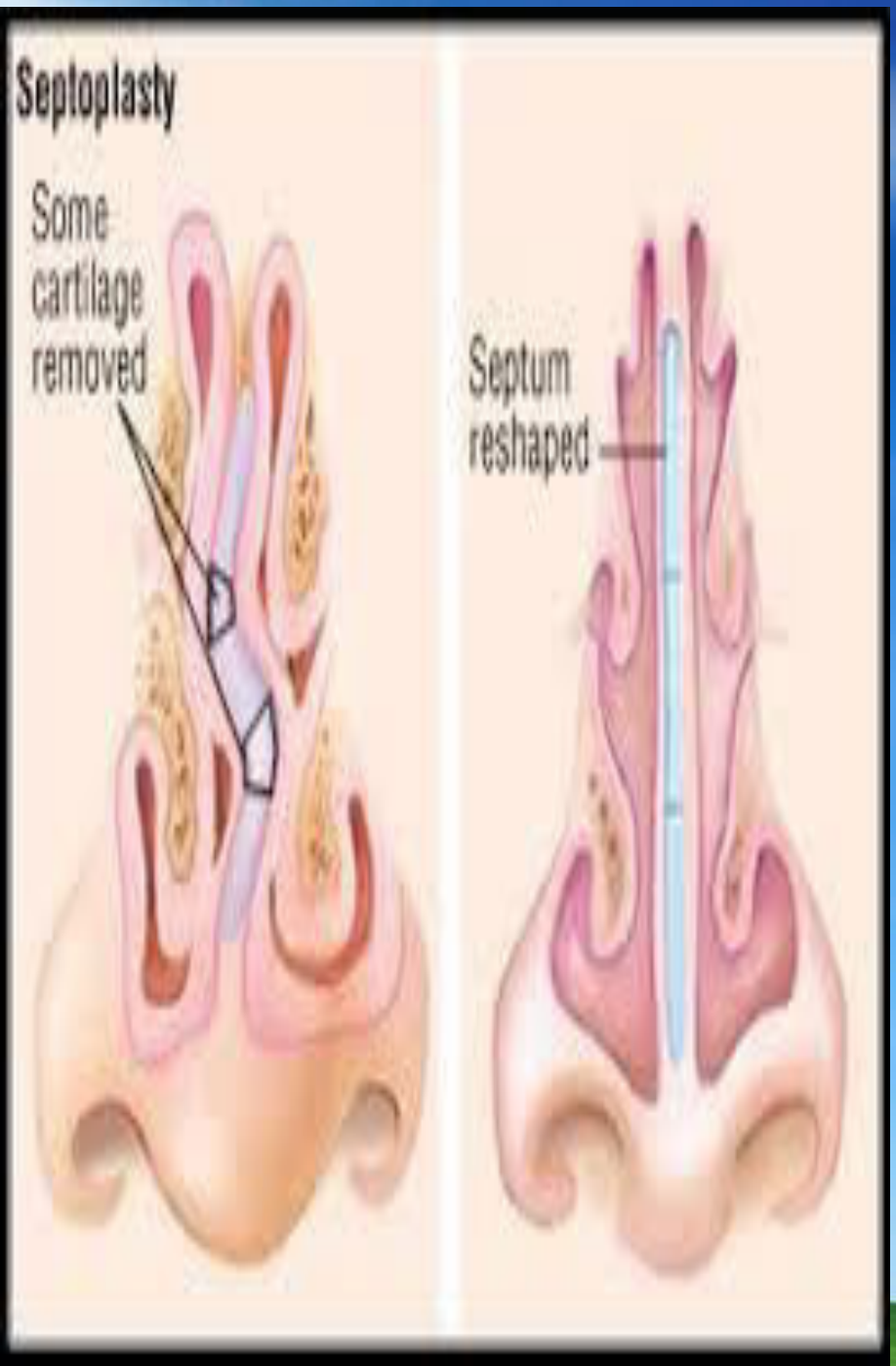
Local anesthesia or GA.

Steps of operation

1. Infiltration of nasal septum- with 2% xylocaine and 1:50,000 adrenaline in its subperichondrial planes.
2. Incision – an incision is made at the mucocutaneous junction on the left side.
3. Elevation of mucoperichondrium and periosteal flap.
4. Incision of the cartilage- cartilage is incised just posterior to the first incision.
5. Elevation of opposite mucoperichondrium and periosteum.
6. Removal of cartilage and bone.
7. Stiching in the initial mucoperichondrial incision.
8. Packing – ribbon gauze smeared with antibiotic ointment ,is packed in each nasal cavity. Nasal dressing is applied.

Post operative care.

1. Patient is placed in semi-sitting position. Outer nasal dressing is changed if necessary.
2. Antibiotic for 5-6 days.
3. Analgesics to control pain.
4. Soft diet after 6 hours for first 2 days.
5. Nasal packs are gently removed after 24 hours.
6. Nasal decongestant drops and steam inhalations are given daily for 10-15 days.
7. Stitch, if any is removed on 5^{th} or 6^{th} day.
8. Should avoid trauma to the nose for 3 months.


Septoplasty
Some cartilage removed
Septum reshaped


Cartilage removed


Septum reshaped

Complications

1) Bleeding
2) Septal haematoma / septal abscess.
3) Perforation
4) Depression of bridge.
5) Retraction of columella.
6) Persistence of deviation.
7) Flapping of nasal septum.
8) Toxic shock syndrome.
9) Sychenia

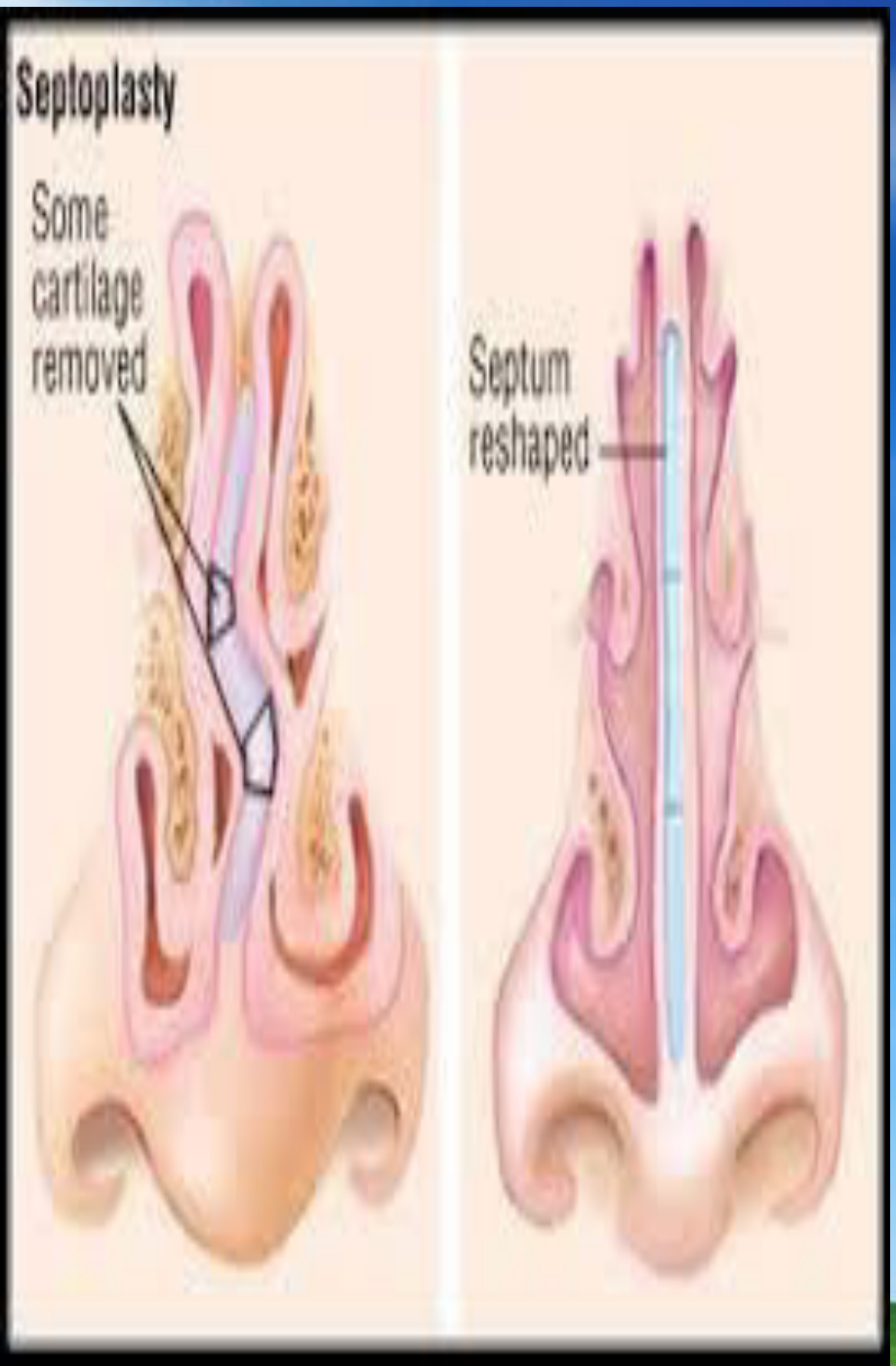
Septoplasty

- Septoplasty is a conservative septal surgery.
- As much of the septal framework as possible is retained.
- Muco-perichondrial / periosteal flap is raised only on one side.
- This operation has almost replaced the SMR operation.

Septoplasty (cont.)

Indications:

- Symptomatic deviated septum.
- As a part of Septorhinoplasty for cosmetic region.
- As an approach to hypophysectomy.
- Recurrent epistaxis due to septal spur.


Septoplasty
Some cartilage removed
Septum reshaped


Cartilage removed


Septum reshaped

Contraindications:

- ✓Acute nasal or sinus infection.
- ✓Untreated diabetes.
- ✓Uncontrolled hypertension.
- ✓Bleeding diathesis.

Anaesthesia:

Local or general.

Position :

Same as for SMR operation.

Septoplasty (cont.)

Technique:

1. Infiltrate the septum with 1% lignocaine with adrenaline, 1:100,000.
2. Make an incision on the concave side.
3. Raised mucoperichondrial /mucoperiosteal flap on one side only.
4. Separate septal cartilage from the vomer and ethmoid plate and raise mucoperiosteal flap on the opposite side of septum.

Septoplasty (cont.)

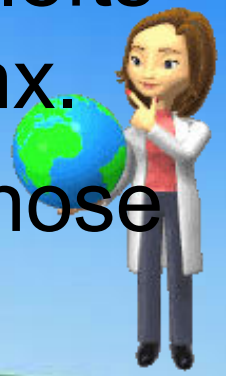
5. Remove maxillary crest to realign the septal cartilage.
6. Correct the bony septum by removing the deformed parts. Deformed septal cartilage is corrected by scoring on the concave side or cross-hatching or shaving or wedge excision.
7. trans-septal sutures are put to coapt mucoperichondrial flaps.
8. Nasal pack.

Post operative complications.

- Same as for SMR operation.
- Bleeding .
- Septal haematoma and abscess.
- Septal perforation.
- Persistence of septal deviation.
- External nasal deformity.

Diagnostic nasal endoscopy

- Like anterior and posterior rhinoscopy, endoscopy of nose and nasopharynx helps in the diagnosis of diseases of nose, PNS and nasopharynx.
- Because of the brighter illumination, magnification and angled view provided by the endoscope, it is possible to examine all clefts and crevices of the nose and nasopharynx.
- It is an important part of examination of nose and nasopharynx.



Nasal endoscopy

- To diagnose any disease in the nose and PNS.
- To diagnose source of bleeding in epistaxis.
- To asses response to medical or surgical treatment of the nose and PNS.
- To take a precise biopsy from nose and nasopharynx.

Nasal endoscopy

Anesthesia :

Topical anaesthesia a with 4% xylocaine and a vasoconstrictor , first as a nasal spray and then nasal packs.

Position :

Sitting or supine.

Instruments :

4 mm 30* endoscope, elevator with a suction channel, suction tips, biopsy forcep, antifog solutions.

Technique

- After nasal packs are removed, endoscopy is performed by three passes:
- First pass (Examination of nasopharynx and inferior meatus)
- Second pass (Examination of the sphenoidal recess, superior meatus and openings of sphenoid sinus and posterior ethmoidal cells)
- Third pass (Examination of the middle meatus in detail).

Endoscopic sinus surgery

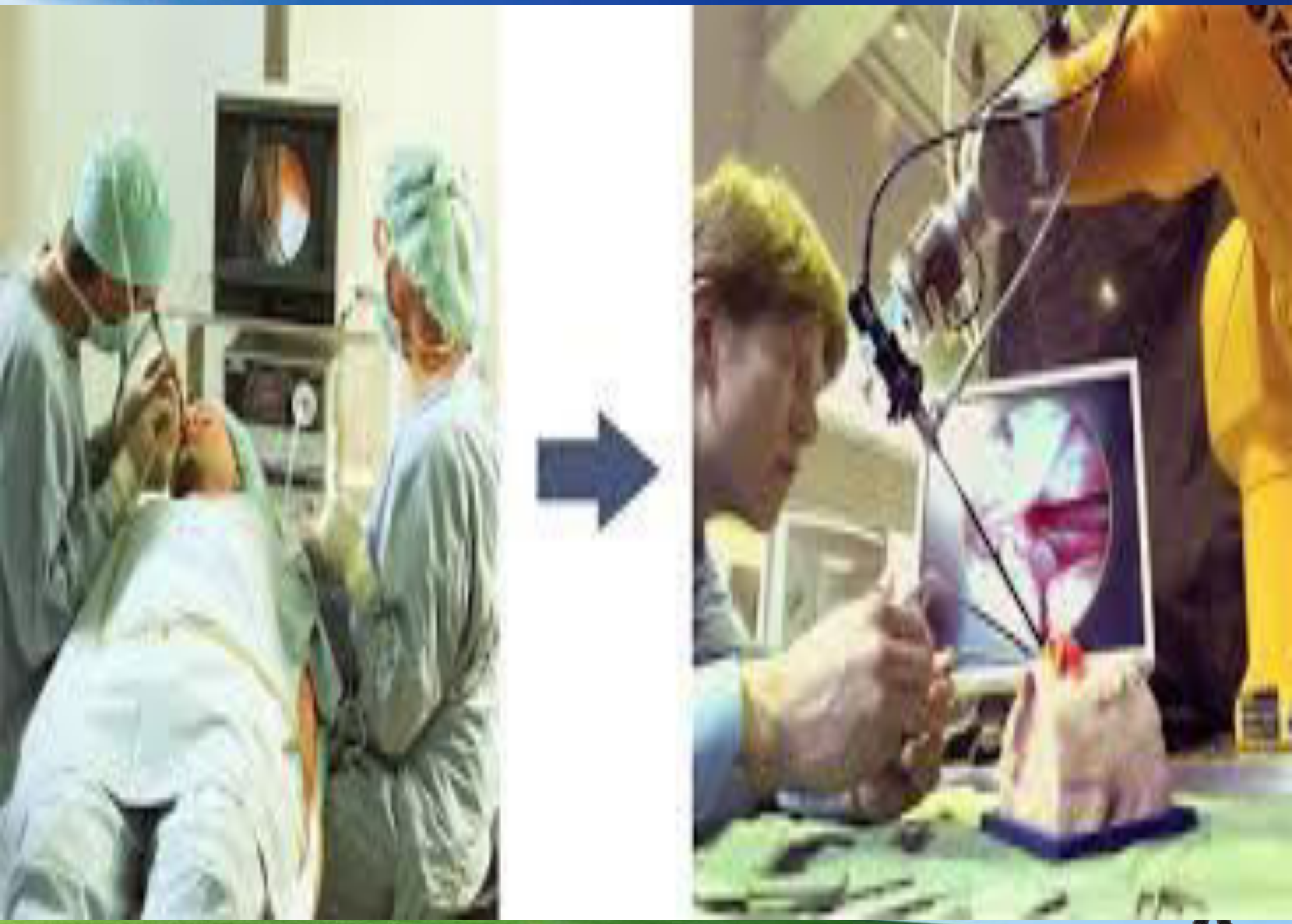
- Endoscopic surgery has made a great contribution towards management of sinus disease.

- Endoscopic surgery is minimally invasive surgery and does not required skin incision or removal of intervening bone to access the disease.

- In the sinuses, ventilation and drainage of the sinus is established preserving the nasal and sinus mucosa and its function of mucociliary clearance.

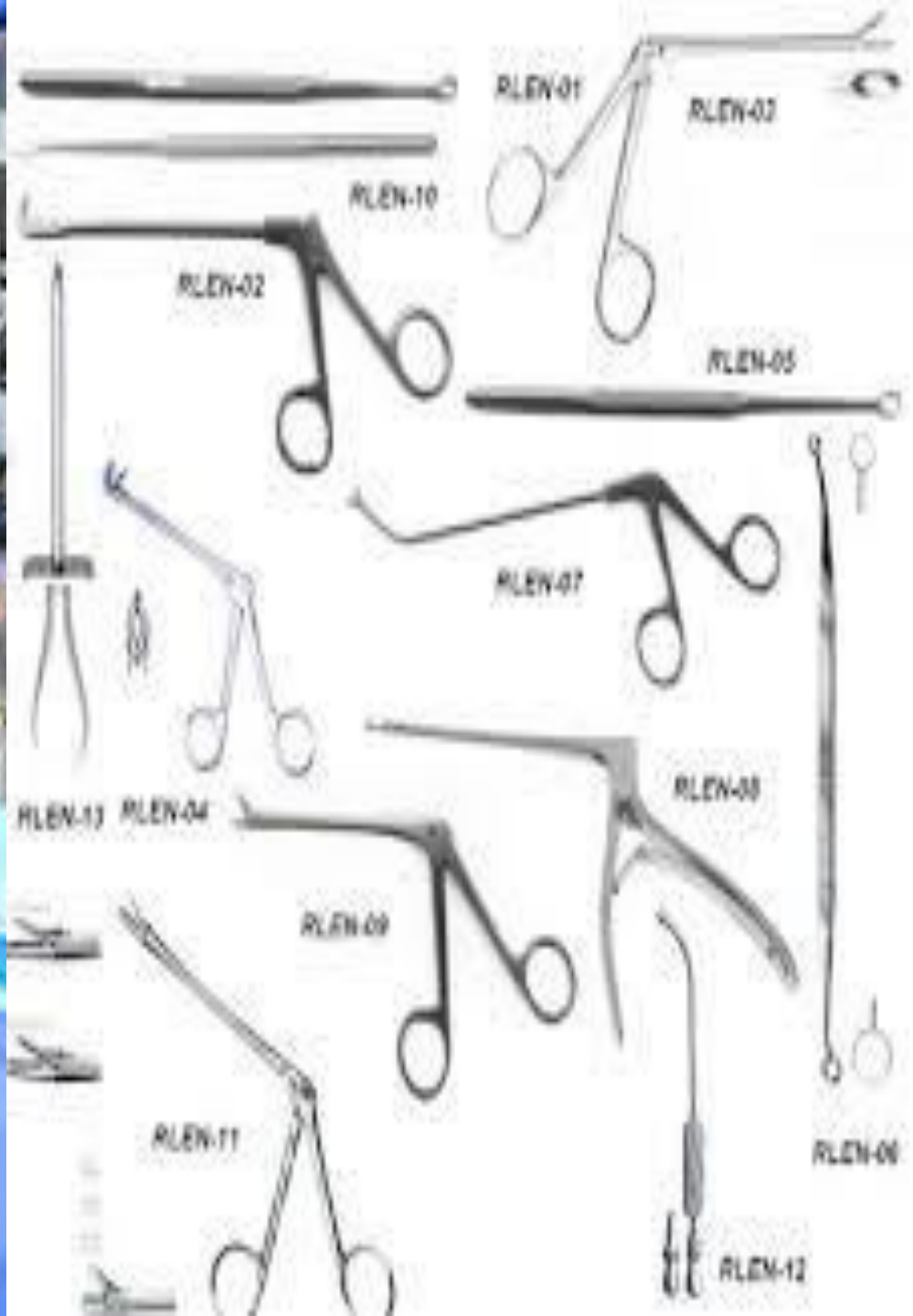
Indications

1. Chronic bacterial sinusitis unresponsive to adequate medical treatment.
2. Recurrent acute bacterial sinusitis.
3. Polypoid rhinosinusitis.
4. Fungal sinusitis.
5. Antrochoanal polyp.
6. Mucocele of frontoethmoidal or sphenoid sinus.
7. Control of epistaxis by endoscopiccautery.
8. Removal of FB from nose or sinus.
9. Endoscopic septoplasty.



Contraindications

1. Inexperience and lack of proper instrumentation.
2. Diseases inaccessible by endoscopic procedures.
3. Osteomyelitis
4. Threatened intracranial or intraorbital complication.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Complications

Major complications:

1. Orbital haemorrhage.
2. Loss of vision.
3. Diplopia
4. C S F leake
5. Meningitis
6. Brain abscess
7. Massive haemorrhage
8. Intracranial haemorrhage.
9. Anosmia
10. Death

Minor complications:

1. periorbital ecchymosis.
2. periorbital emphysema.
3. post operative epistaxis.
4. post operative infection.
5. adhesions.
6. stenosis of the sinus opening.
7. hyposmia.
8. dental pain.


Thank You
All