

# SINUSITIS

“CHANGING TRENDS IN THE MANAGEMENT”



**Dr Surinder K Singhal**

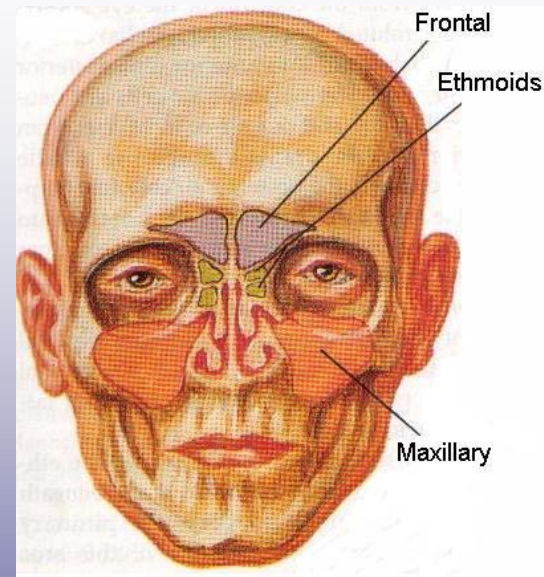
DLO, MS, DNB,DHM,MNAMS, FIMSA

# Changing Trends

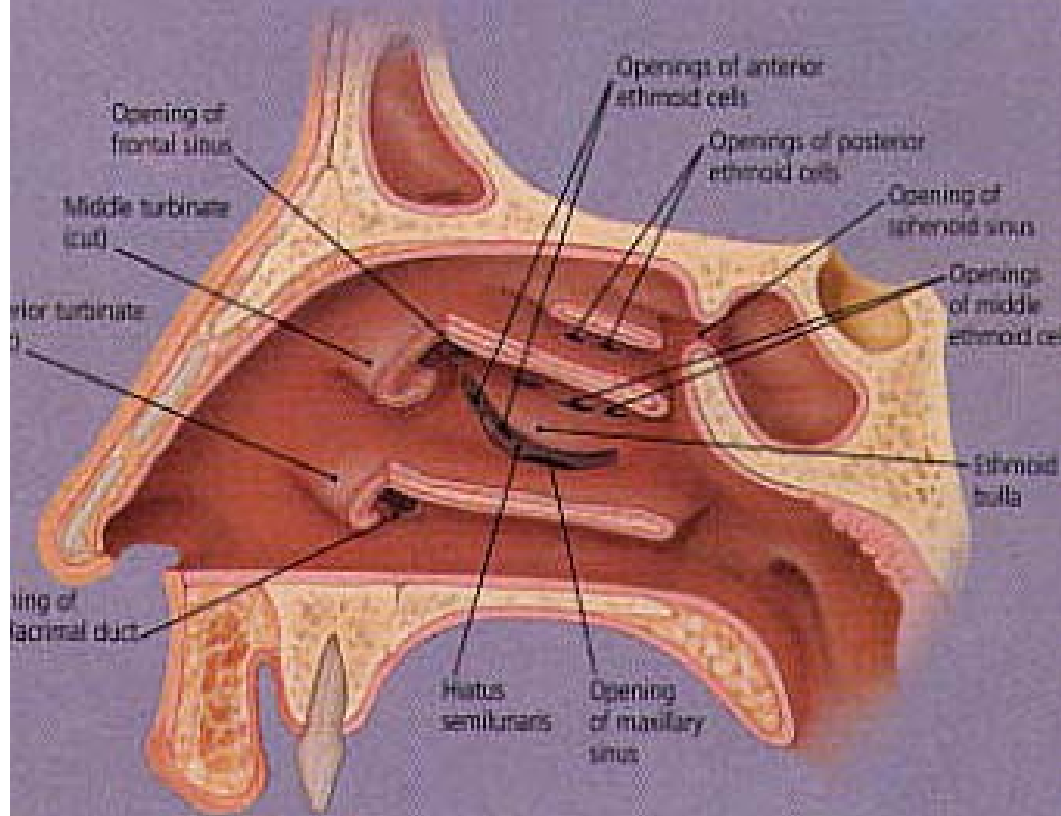
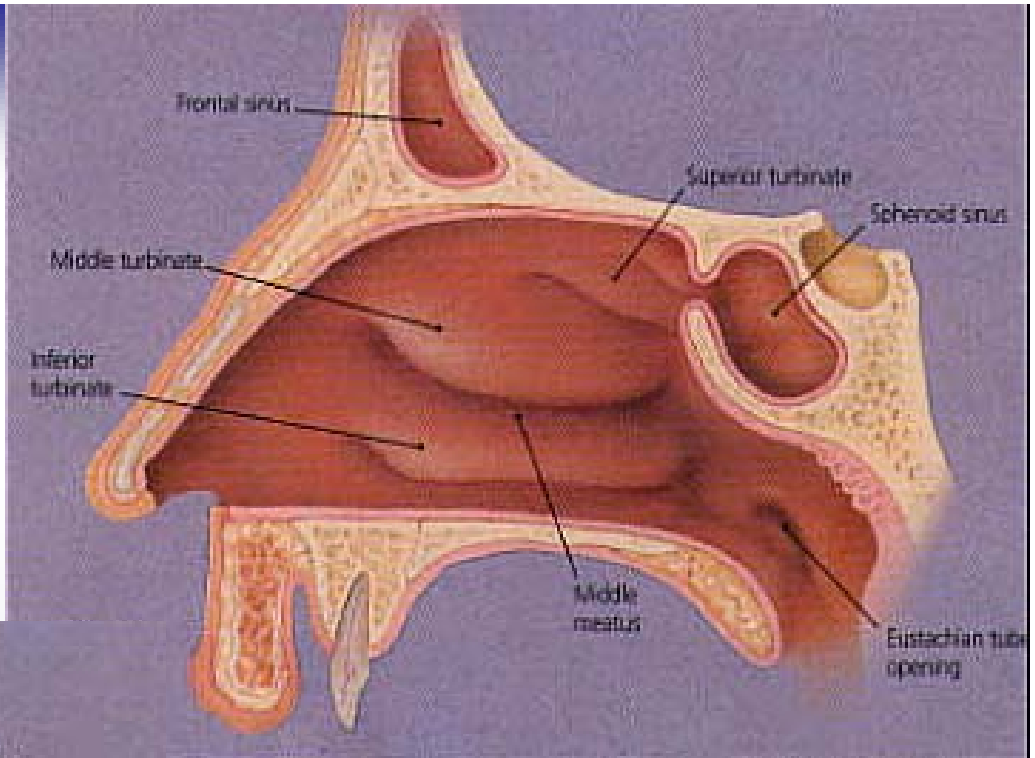
- Better understanding of
  - Anatomy
  - Physiology
  - Pathophysiology
- Changing bacteriology
- Changing clinical features
- Accurate diagnosis
- Better Medical Management
- Changing Surgical Management

# ANATOMY OF PARANASAL SINUSES

- **SINUSES ARE AIR FILLED BONY CAVITIES IN THE SKULL**
- **COMMUNICATE WITH THE NASAL CAVITIES VIA OSTIA**
- **HUMIDIFY , FILTER AND WARM THE INSPIRED AIR**
- **CONTRIBUTE TO THE RESONANCE OF VOICE.**



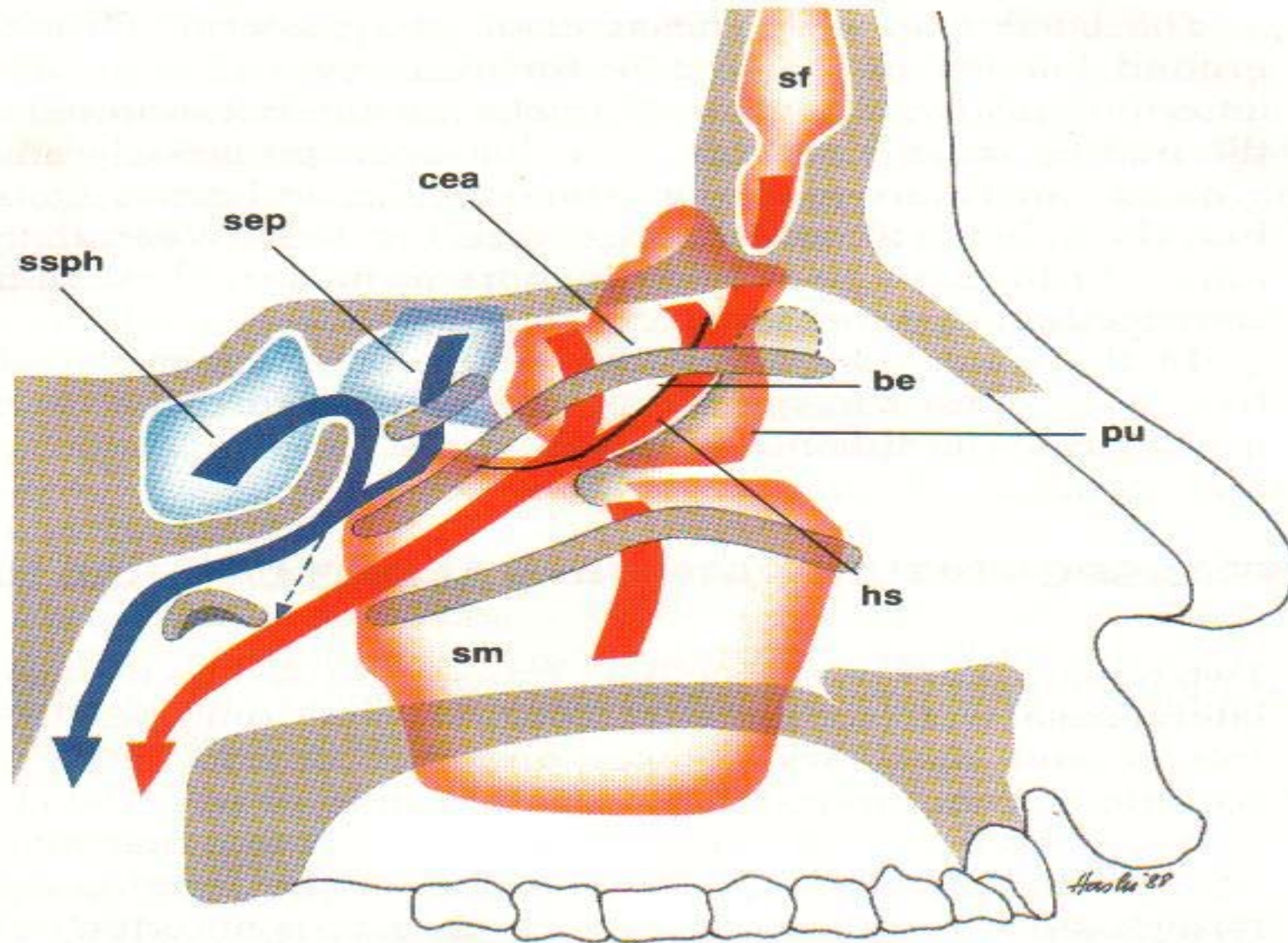
# Lateral wall of nose

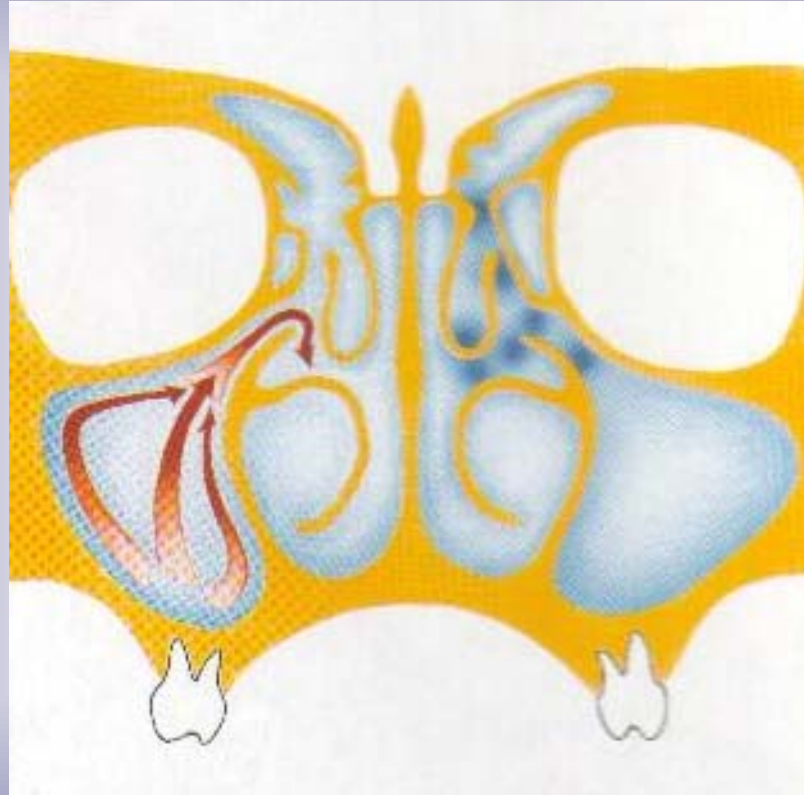


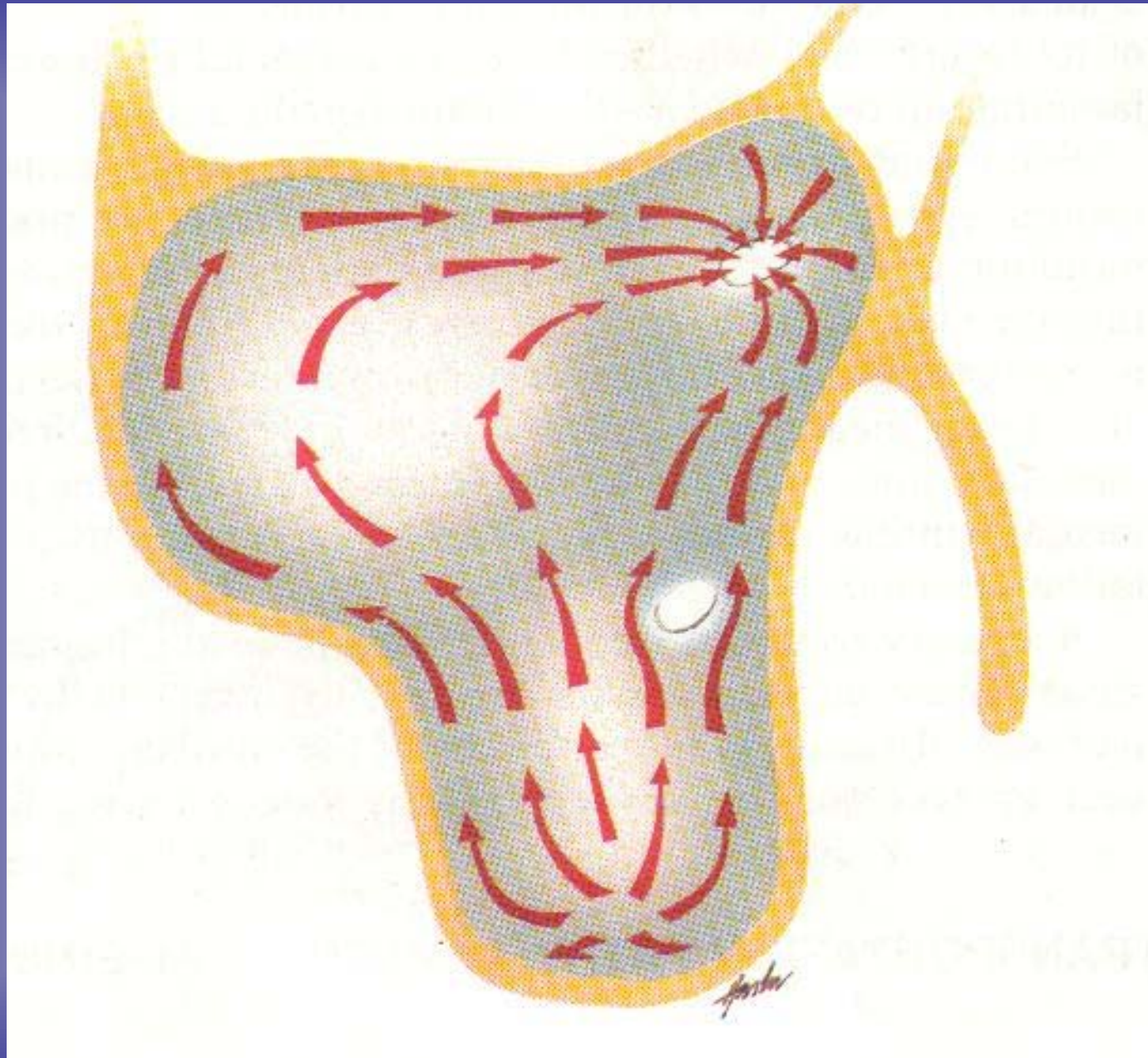
After removal of Middle turbinate

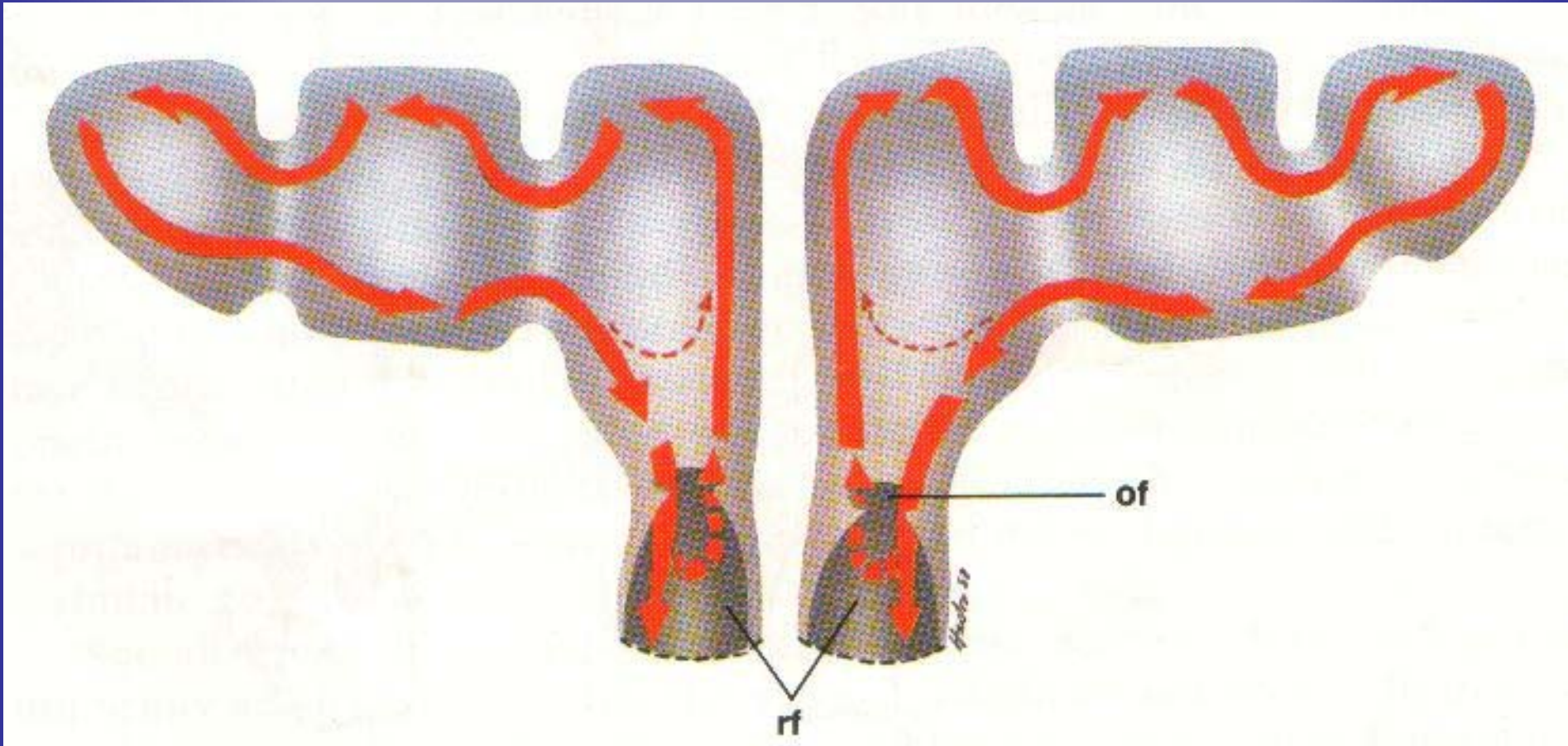


# Muco-ciliary Clearance











# Pathophysiology

**Obstruction to Sinus Ostium**



**Stagnation of Secretions**



**Decreased O<sub>2</sub> Tension**



**Decreased pH**

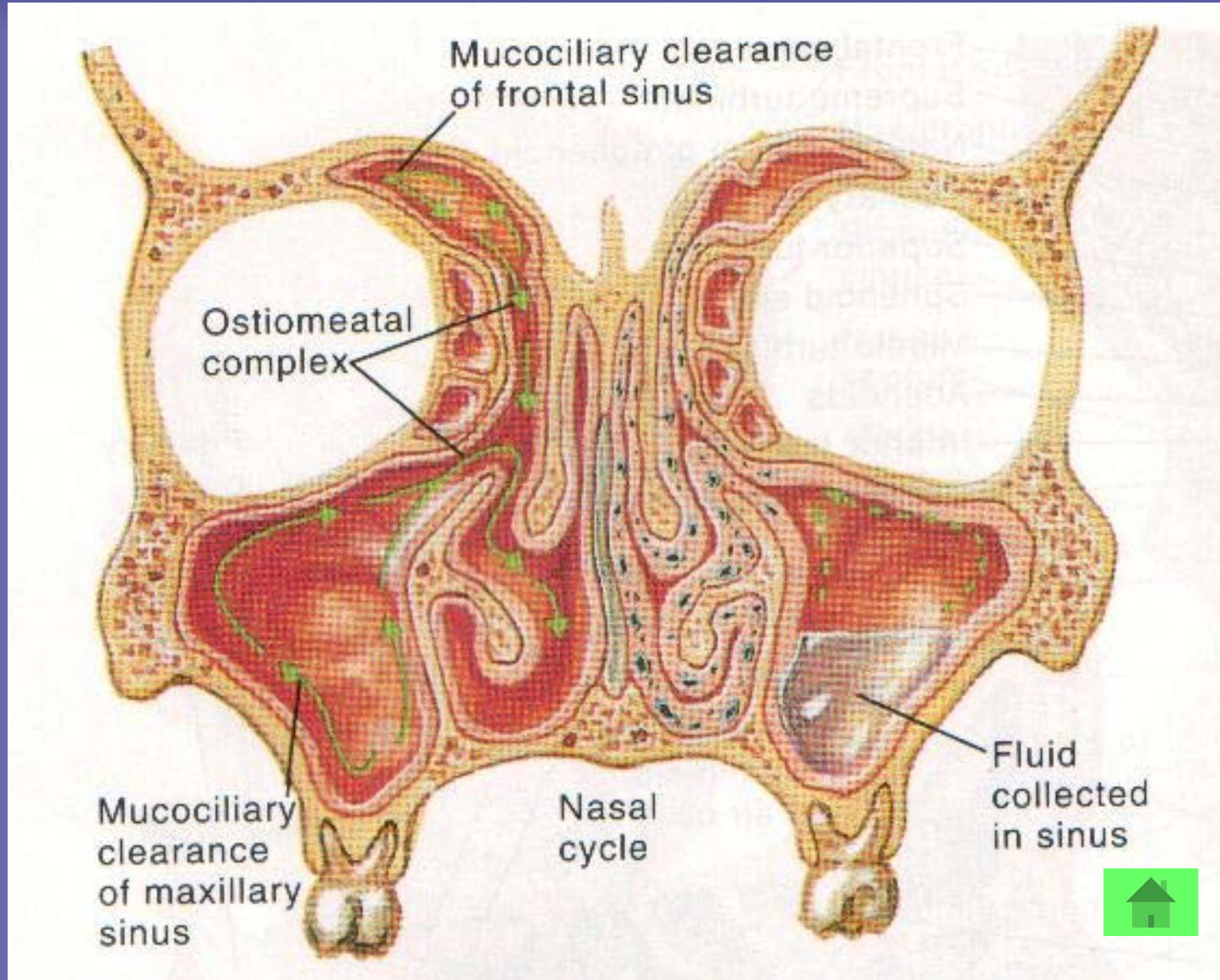


**Bacterial Growth**



**Sinusitis**





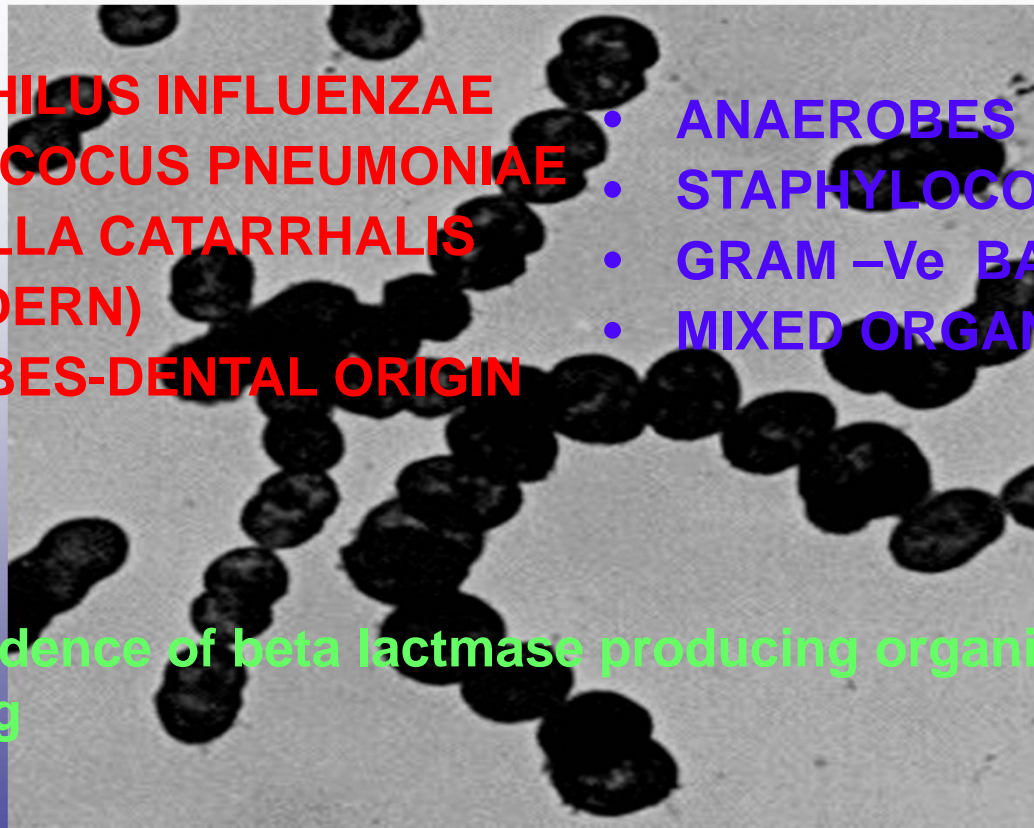
# SINUSITIS: BACTERIOLOGY

## ACUTE

- HAEMOPHILUS INFLUENZAE
- STREPTOCOCCUS PNEUMONIAE
- MORAXELLA CATARRHALIS  
(IN CHILDREN)
- ANAEROBES-DENTAL ORIGIN

## CHRONIC

- ANAEROBES
- STAPHYLOCOCCUS AUREUS
- GRAM -Ve BACTERIA
- MIXED ORGANISMS



Note: Incidence of beta lactmase producing organism is increasing



# CLINICAL PICTURE

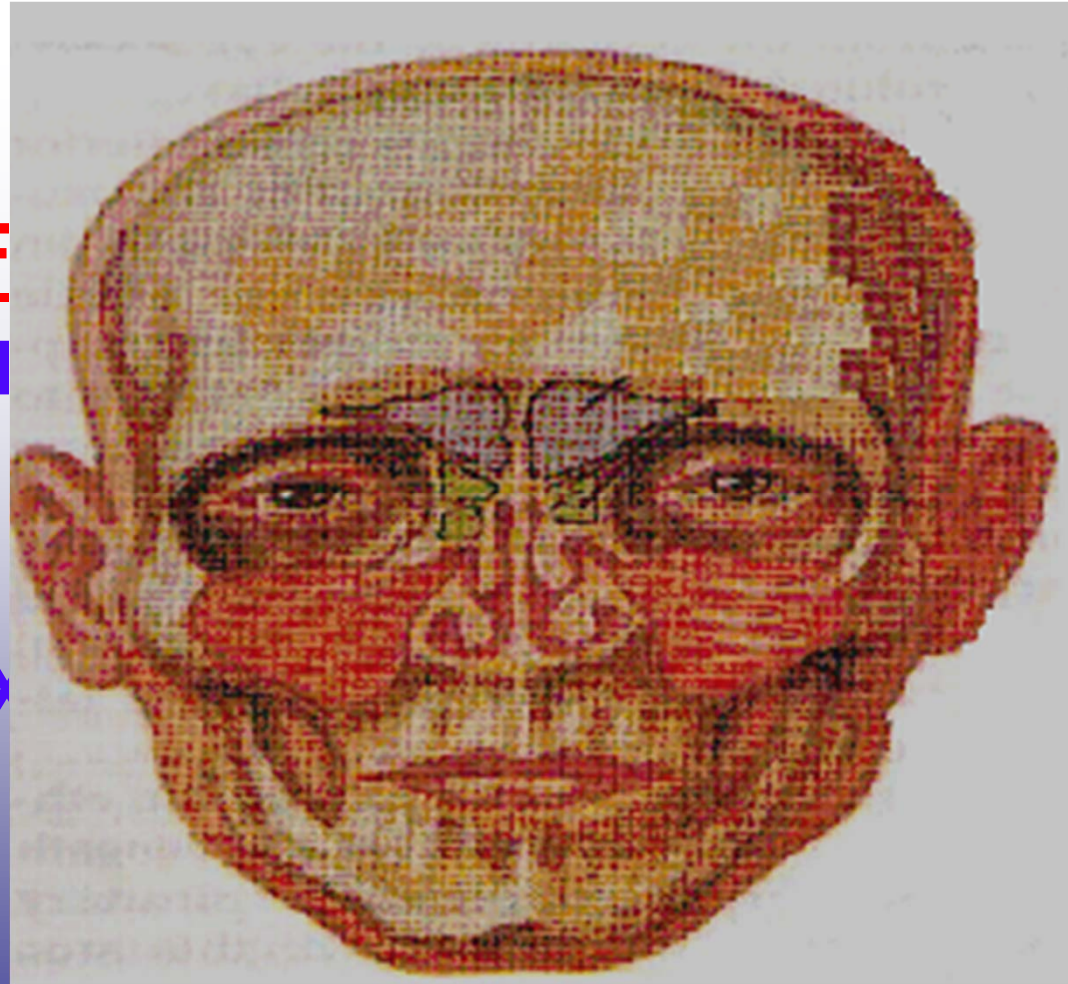
- POSTERIOR NASAL DISCHARGE
- NASAL BLOCKAGE
- HEADACHE
- ANOSMIA
- FEVER, MALAISE, LOSS OF APPETITE
- THROAT INFECTION



# CLINICAL PICTURE

## SITE OF

- FORE H
- NASAL
- CHEEK
- VERTEX



## D

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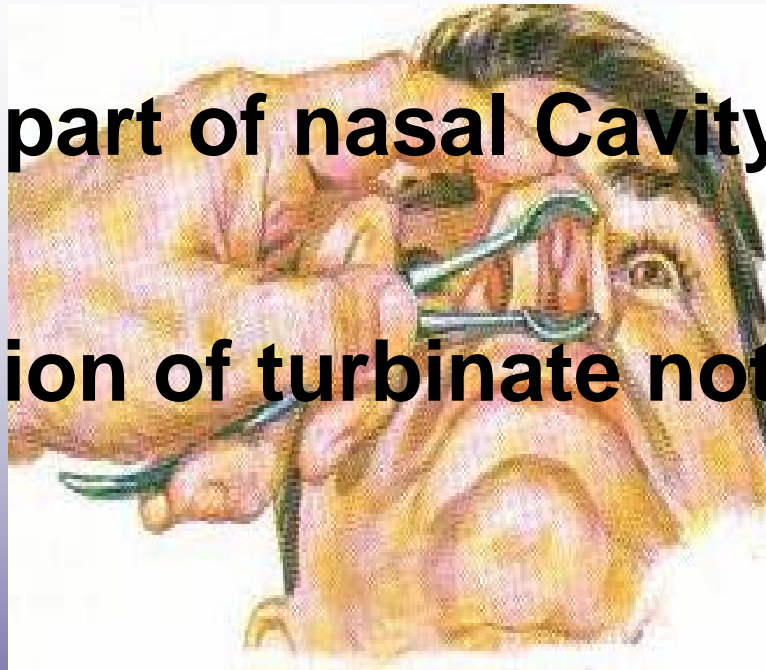


# DIAGNOSIS

- CLINICAL EXAMINATION
- X-RAY PARANASAL SINUSES
- CT SCAN
- NASAL AND SINUS ENDOSCOPY

# Traditional Examination

- Only Ant. part of nasal Cavity visualized.
- Painful
- Manipulation of turbinate not possible



# CLINICAL EXAMINATION

- **PURULENT DISCHARGE IN MIDDLE MEATUS**
- **CONGESTED NASAL MUCOSA ± OEDEMA**
- **LOOK FOR PREDISPOSING FACTORS**
  - DNS,
  - POLYP,
  - HYPERTROPHIC TURBINATE
- **EXAMINE THROAT AND NASOPHARYNX**
- **SINUS TENDERNESS**





# RADIOLOGICAL EXAMINATION

- **TRADITIONAL PLAIN FILMS**
- **ACCURACY VERY LESS**
- **RADIATION EXPOSURE**
- **DIFFICULT TO MAP EXTENT OF LESIONS**
- **LESS HELPFUL IN COMPLICATED CASES**

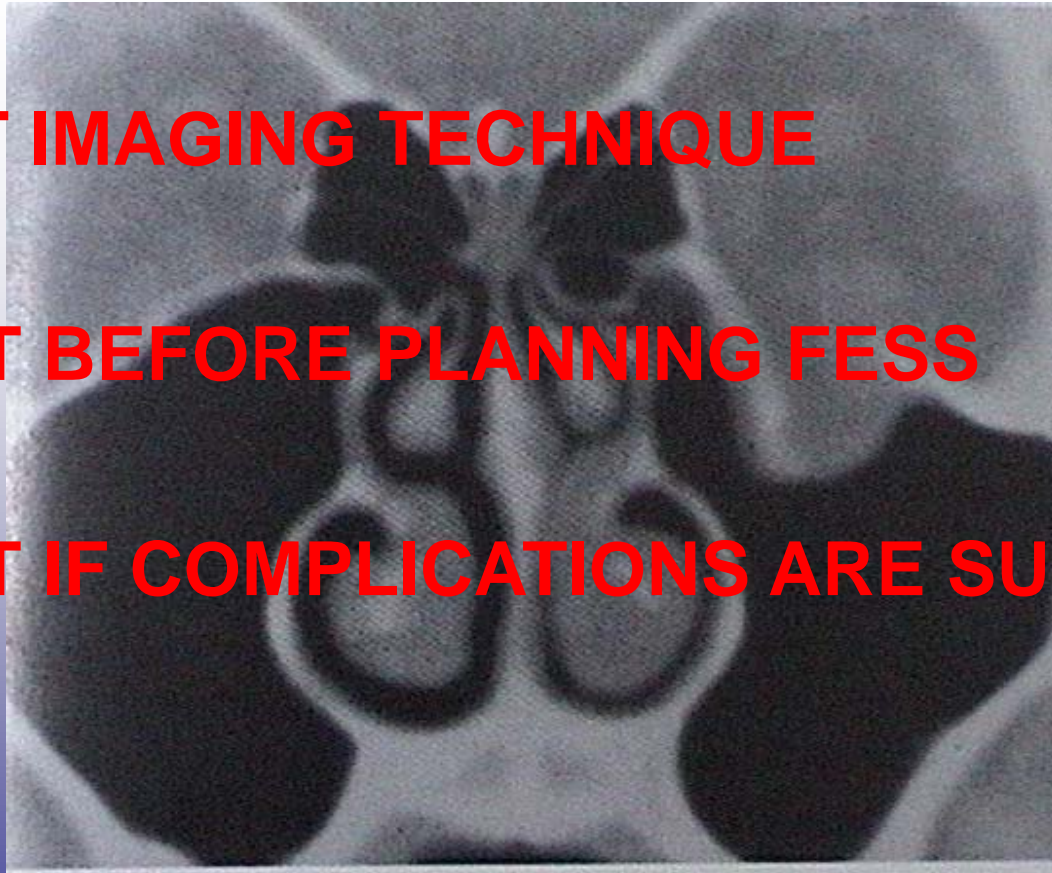


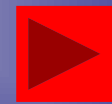
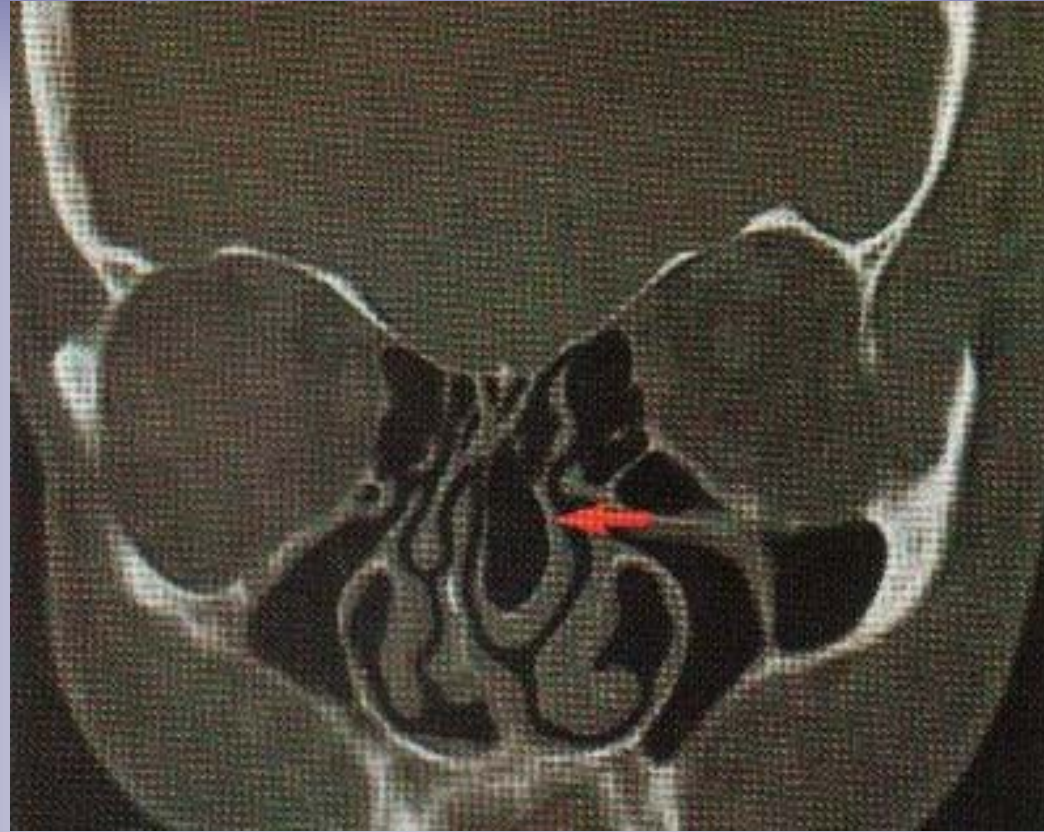
# Plain X-Ray

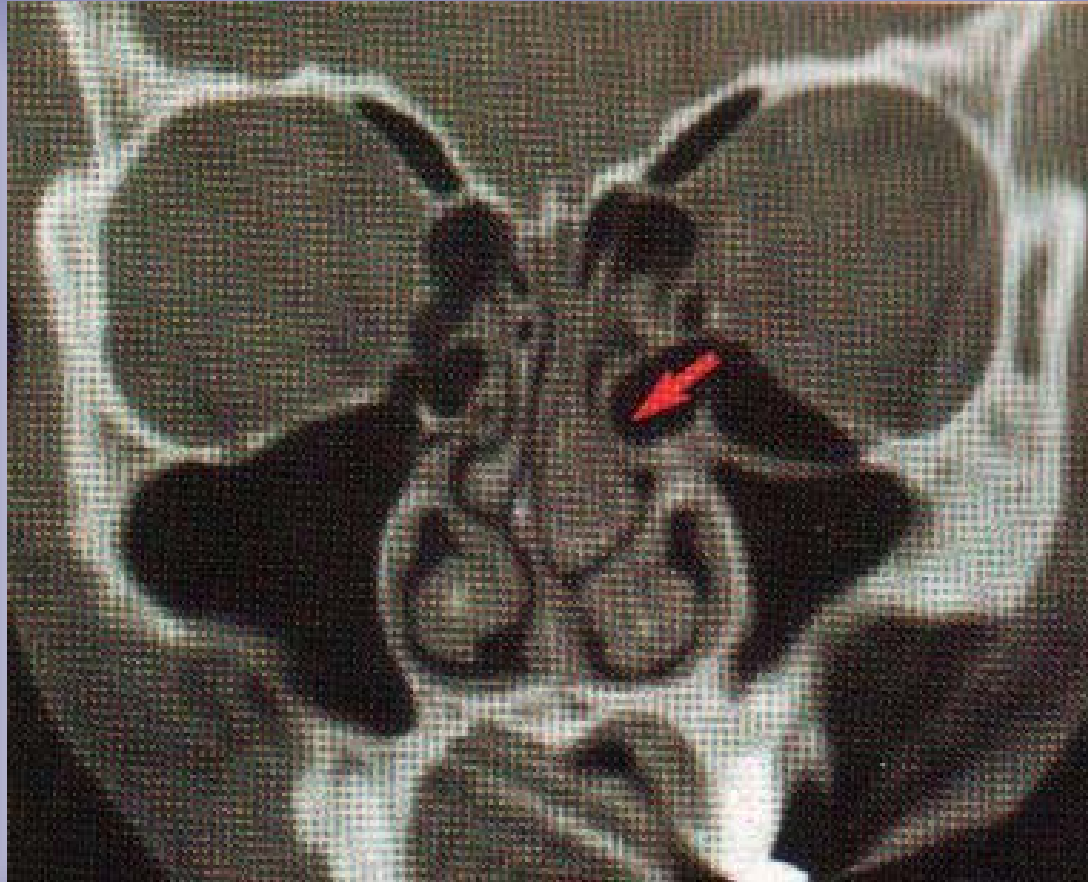


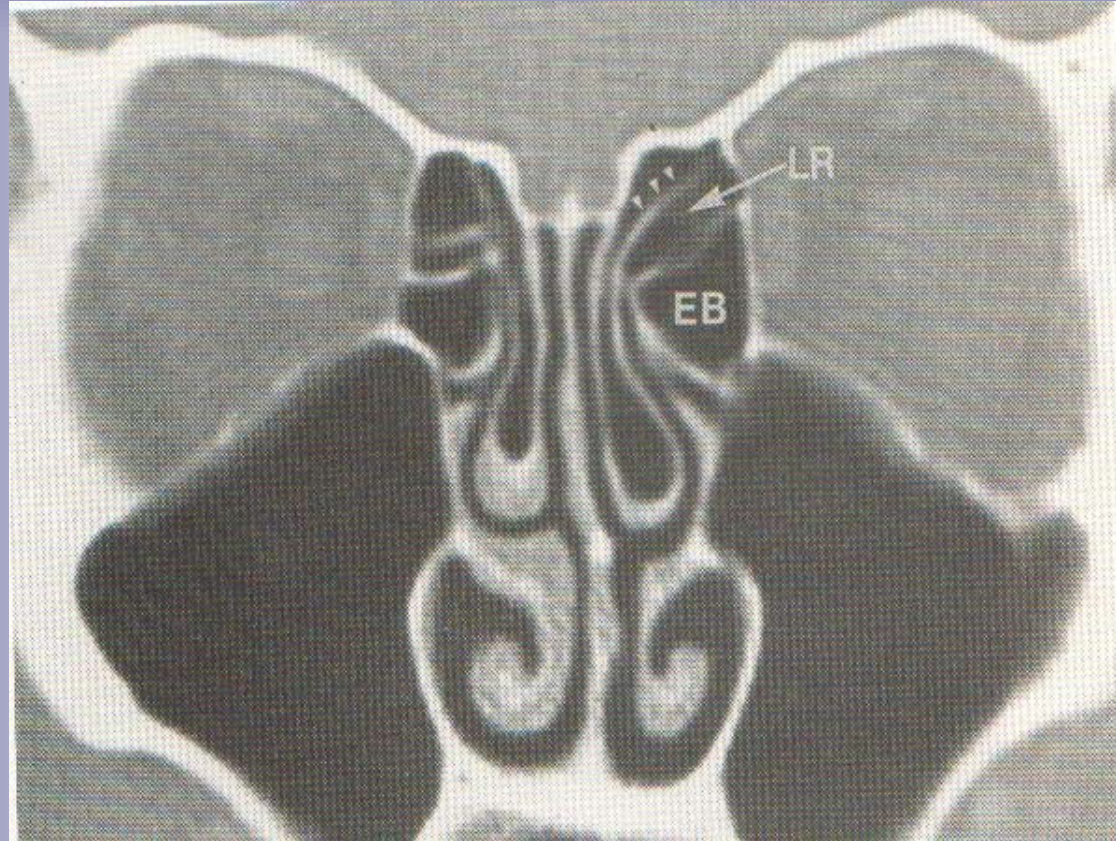
# CT Scans

- **BEST IMAGING TECHNIQUE**
- **MUST BEFORE PLANNING FESS**
- **MUST IF COMPLICATIONS ARE SUSPECTED**



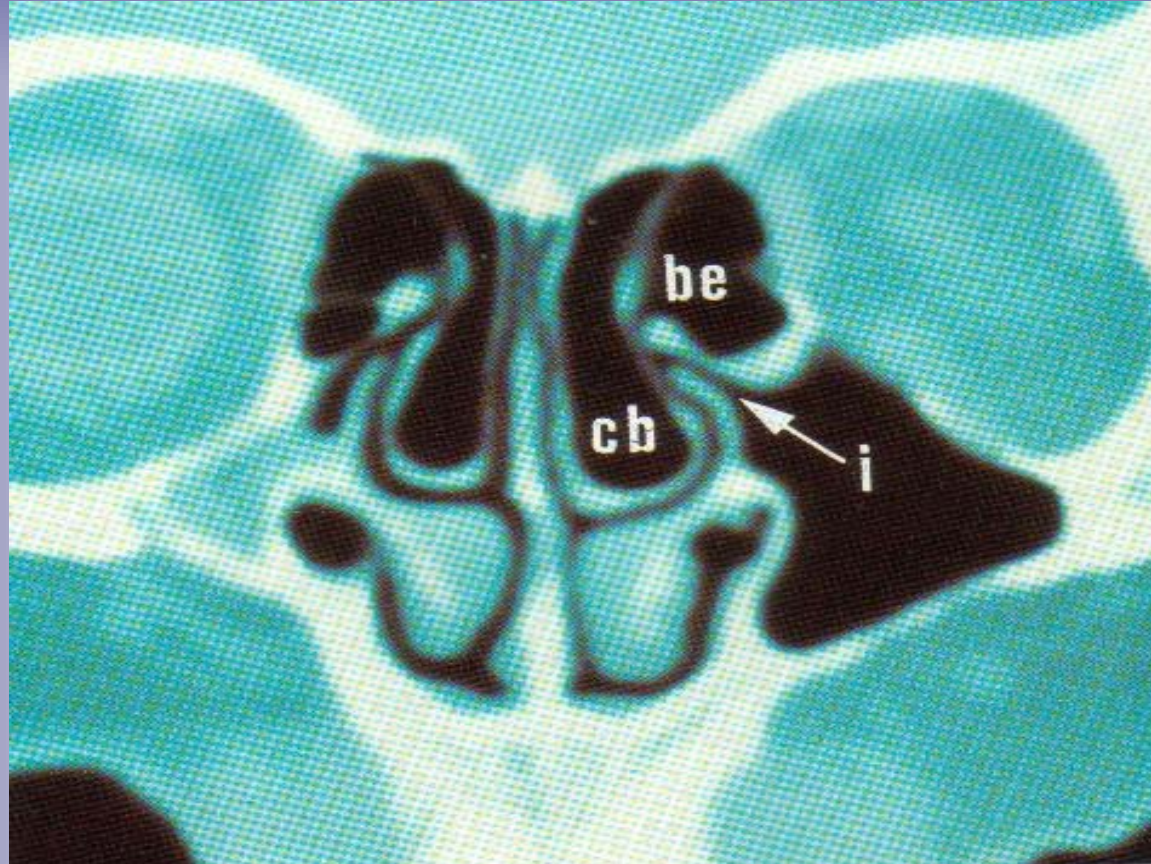






# Paradoxical Turbinate







# NASAL AND SINUS ENDOSCOPY

## NASAL ENDOSCOPY

- DIAGNOSTIC
- THERAPEUTIC

## SINUSCOPY

- DIAGNOSTIC
- THERAPEUTIC



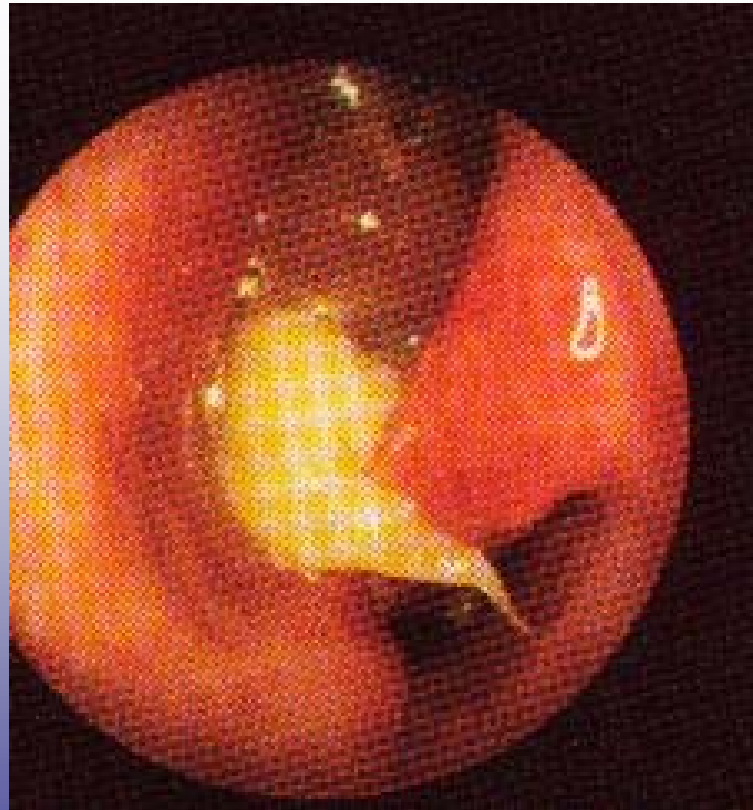
# Endoscopic Examination

- In depth Examination of Nasal cavity & Nasopharynx
- Manipulation of turbinate possible
- Less painful
- In depth analysis of lesion in terms of site of origin

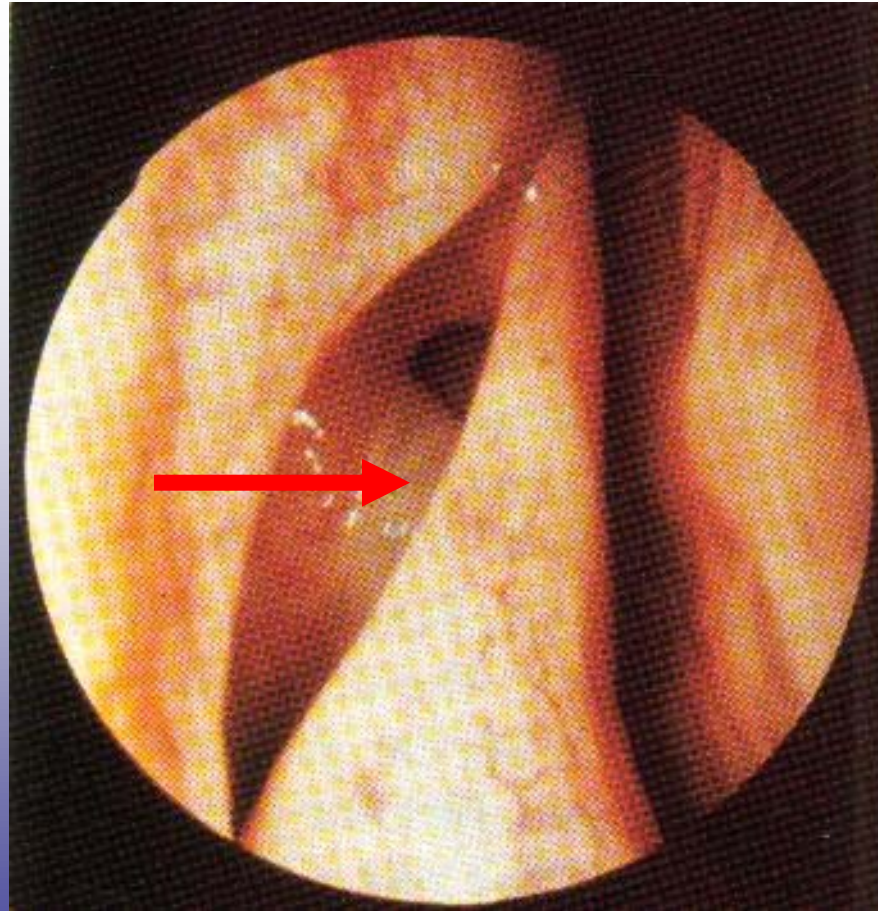




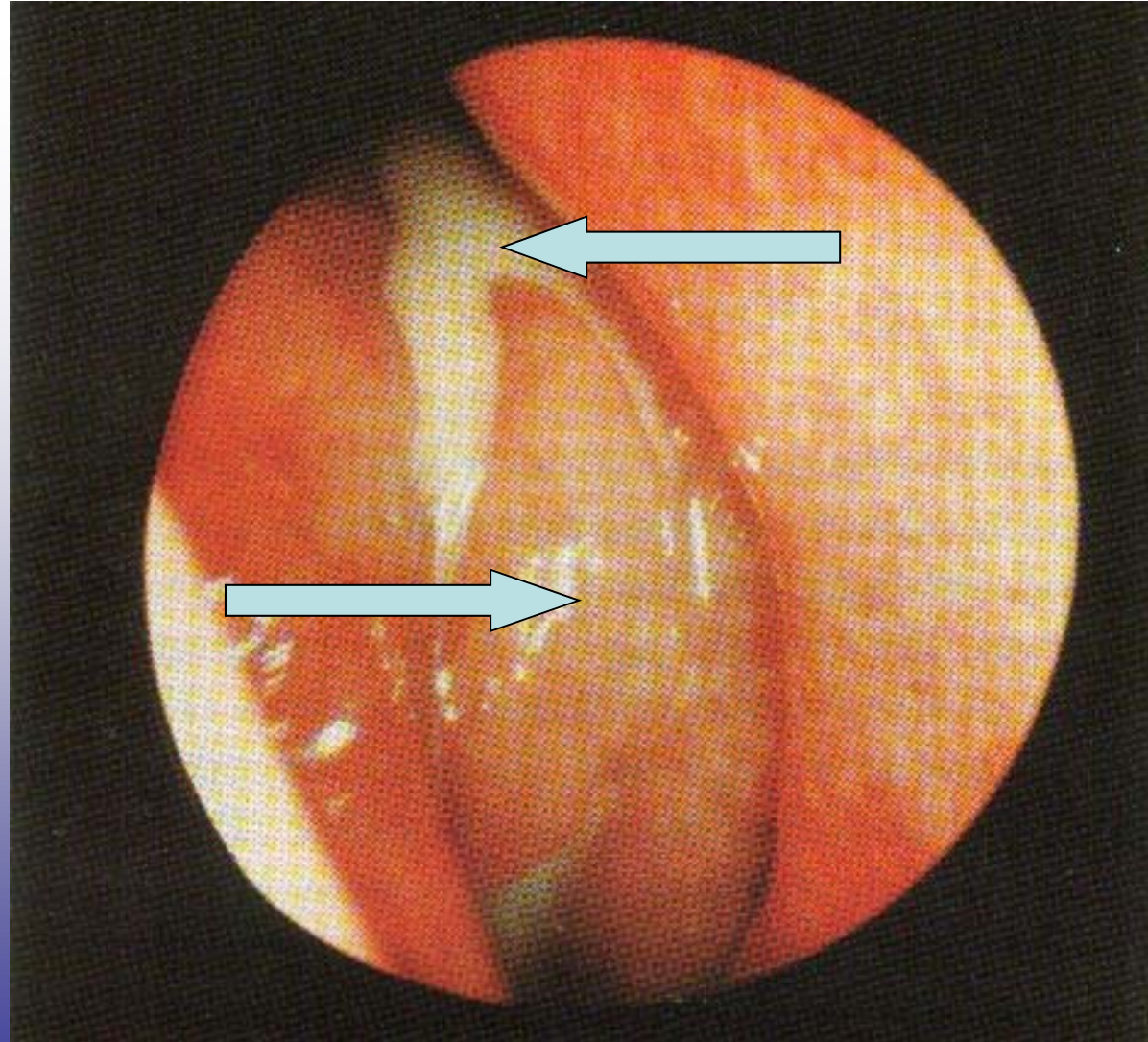
# Purulent Discharge



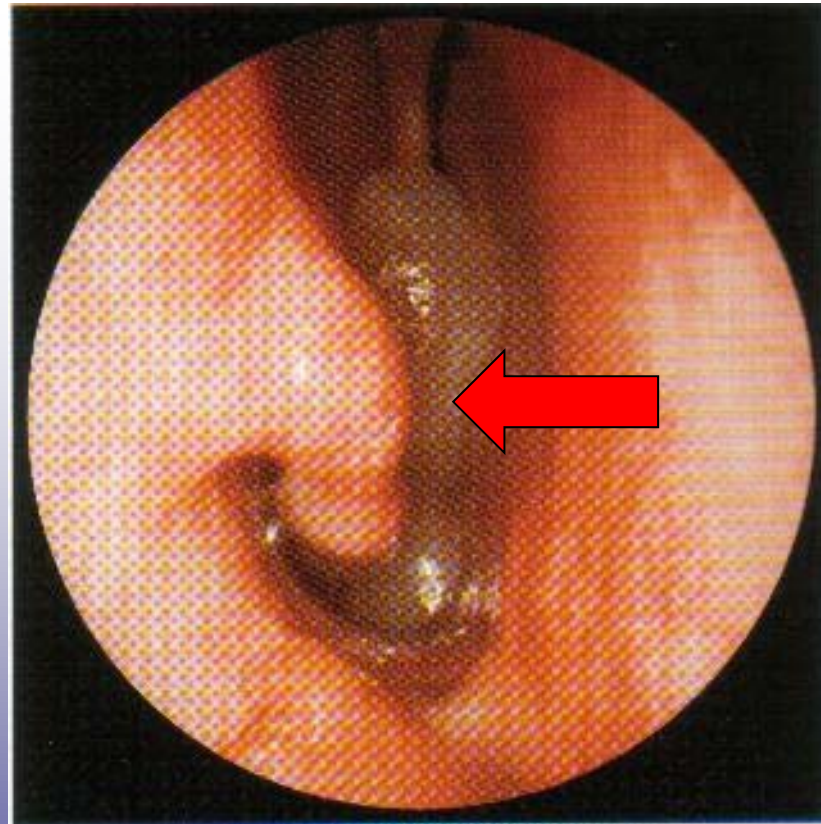
# Polyp



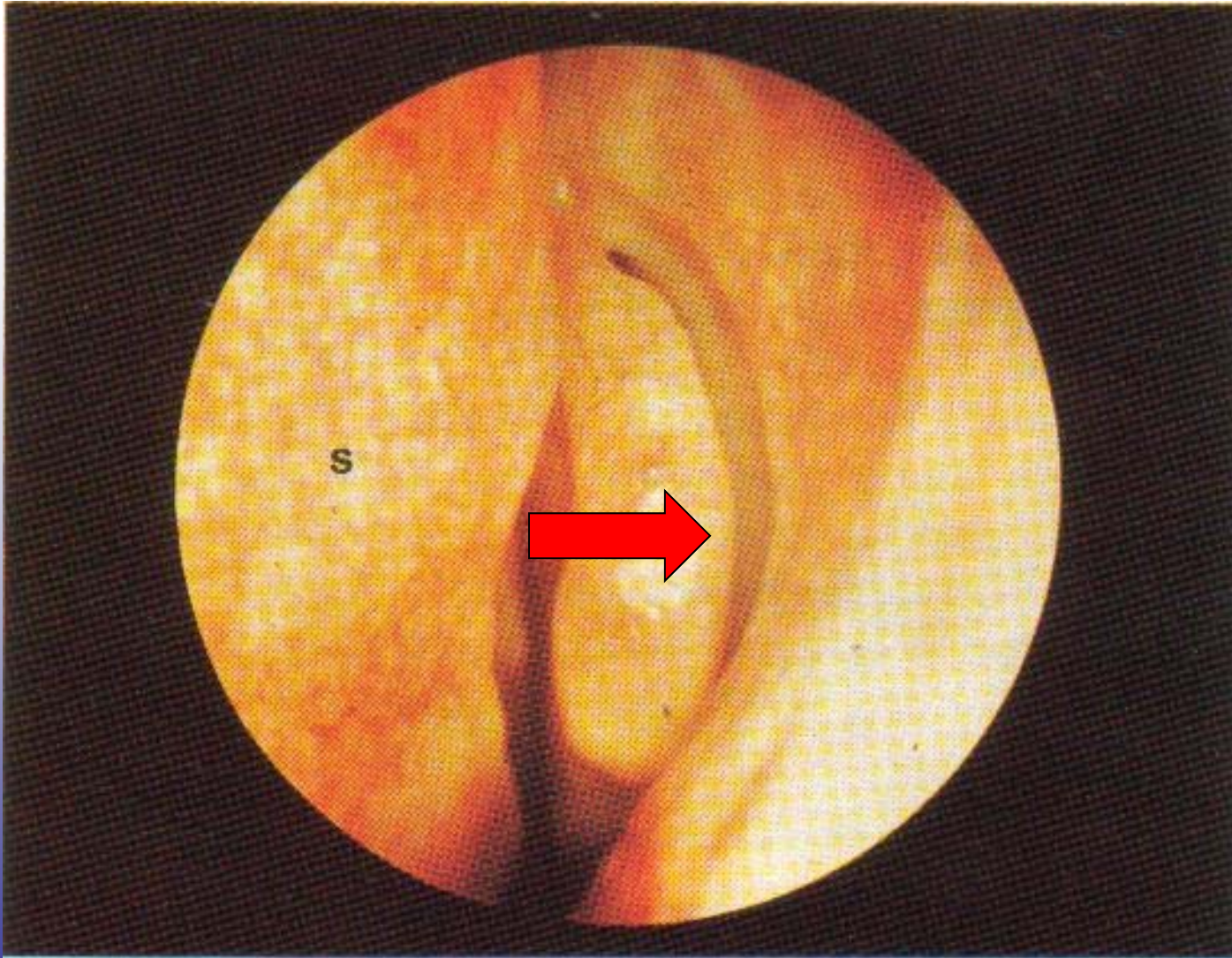
# Polyp & Discharge



# Choanal Polyp

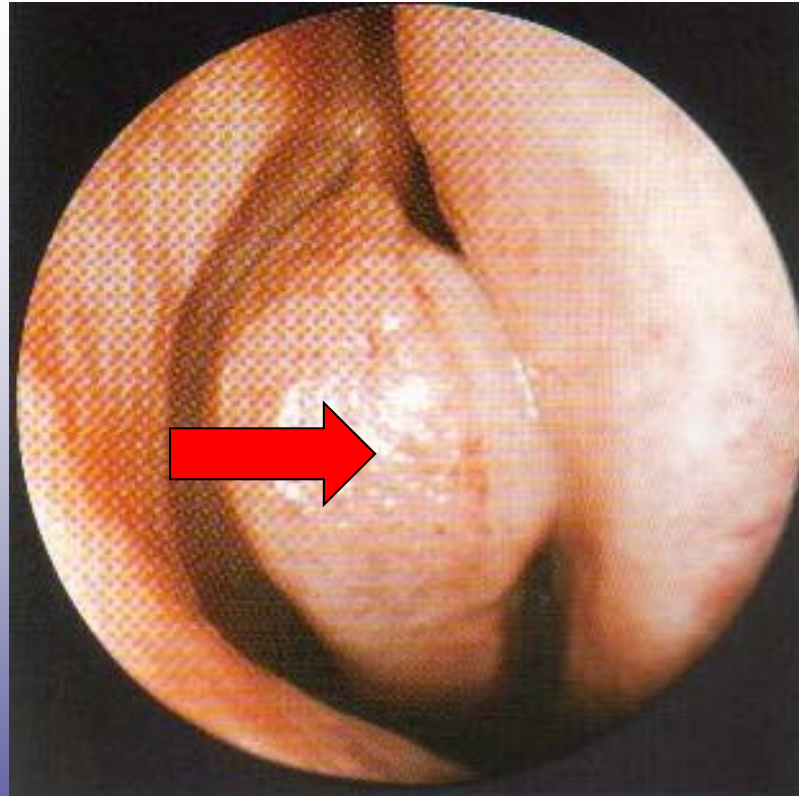


# Paradoxical Turbinate

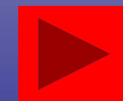
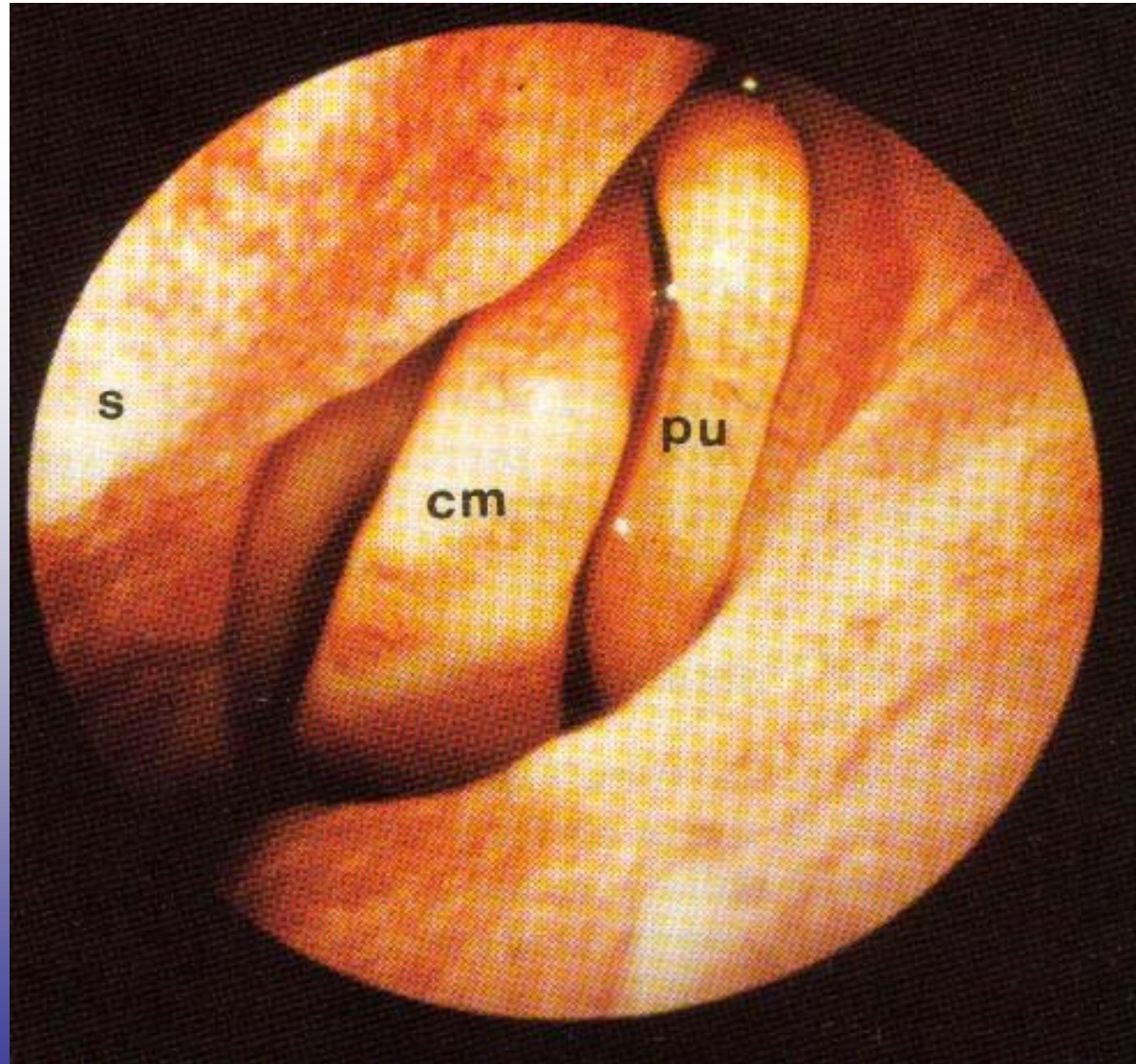




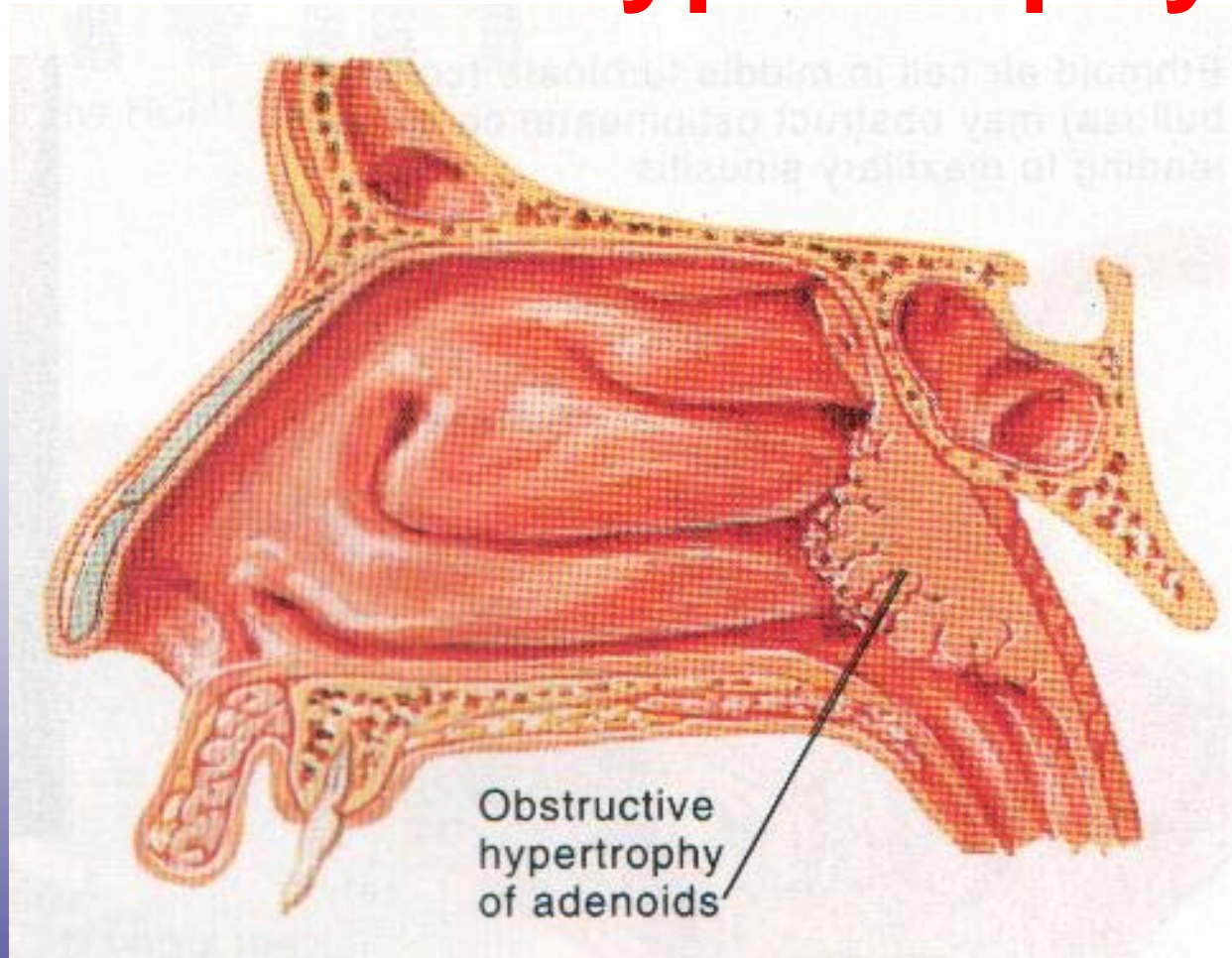
# Concha Bullosa



# Double Middle Turbinate

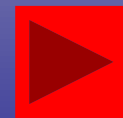


# Adenoid Hypertrophy



# MEDICAL MANAGEMENT

- AGGRESSIVENESS PAYS
- ANTIBIOTICS IN ADEQUATE DOSE
- FOR ADEQUATE PERIOD.
- LOCAL AND SYSTEMIC DECONGESTANT
- ANALGESICS AND ANTI-INFLAMMATORY DRUGS
- STEAM INHALATION AND HOT FOMENTATION



# ANTI MICROBIALS IN SINUSITIS

## ACUTE

- AMOXYCILLIN/AMPCILLIN
- WITH OR WITHOUT CLOXACILLIN
- CO-TRIMOXAZOLE
- CEPHALOSPORIN
- CO-AMOXICLAV
- MACROLIDES

## CHRONIC

- CO-AMOXICLAV
- CLINDAMYCIN
- TINIDAZOLE/  
METRONIDAZOLE
- ROVAMYCIN



# **SINUSITIS – SURGERY**

## **ACUTE SINUSITIS**

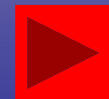
- **NO RESPONSE TO MEDICAL Rx – 48 HOURS**
- **IMPENDING / ESTABLISHED COMPLICATIONS**
- **ASSOCIATED WITH SEVERE PAIN**

## **CHRONIC SINUSITIS**

- **NO RESPONSE TO MEDICAL TREATMENT**
- **TO REMOVE OBSTRUCTION FROM OSTIUM**
- **TO REMOVE IRREVERSIBLY DAMAGED MUCOSA**
- **TO FACILITATE DRAINAGE**



# TRADITIONAL SURGERY



# TRADITIONAL SURGERY





# TRADITIONAL SURGERY



# TRADITIONAL SURGERY



# ENDOSCOPIC SINUS SURGERY

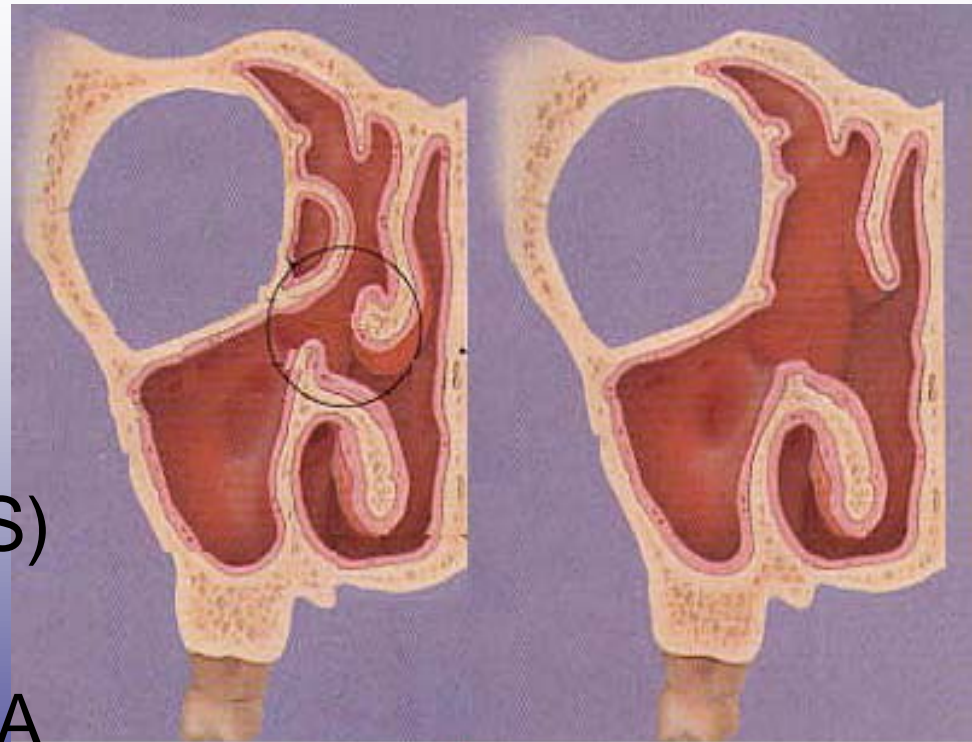
- HAS REVOLUTIONISED THE TREATMENT OF SINUSITIS
- TAILORED TO THE NEED OF THE CASE
- PHYSIOLOGICAL
- LESS MORBIDITY, LESS HOSPITAL STAY
- GOOD RESULTS , NO SCAR MARK
- MINIMAL COMPLICATIONS

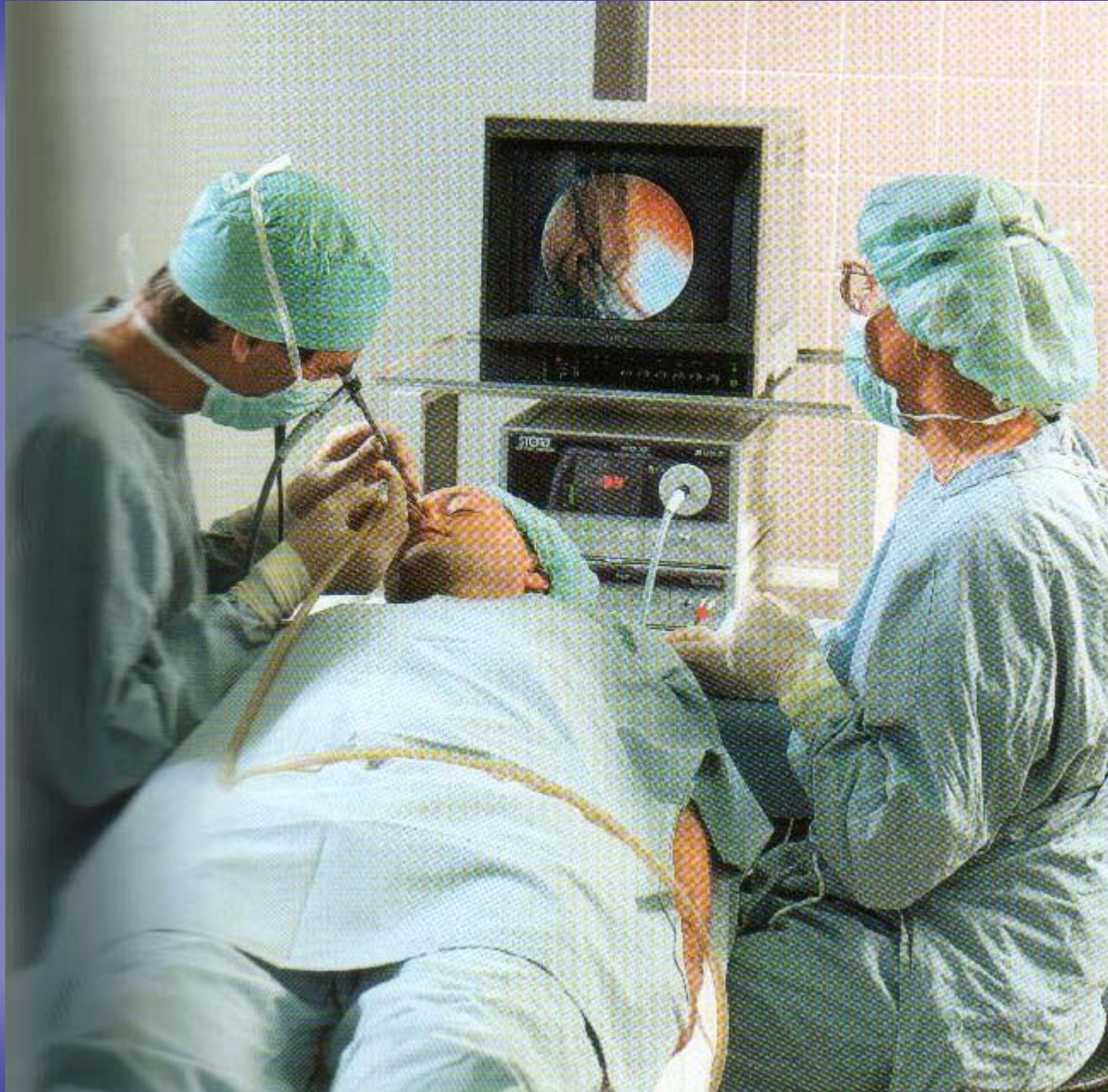


# FESS

## AIMS

- REMOVAL OF STENOTIC AREA
- RE-ESTABLISH DRAINAGE
- VENTILATION (OF DEPENDANT SINUS)
- RECOVERY OF DISEASED MUCOSA



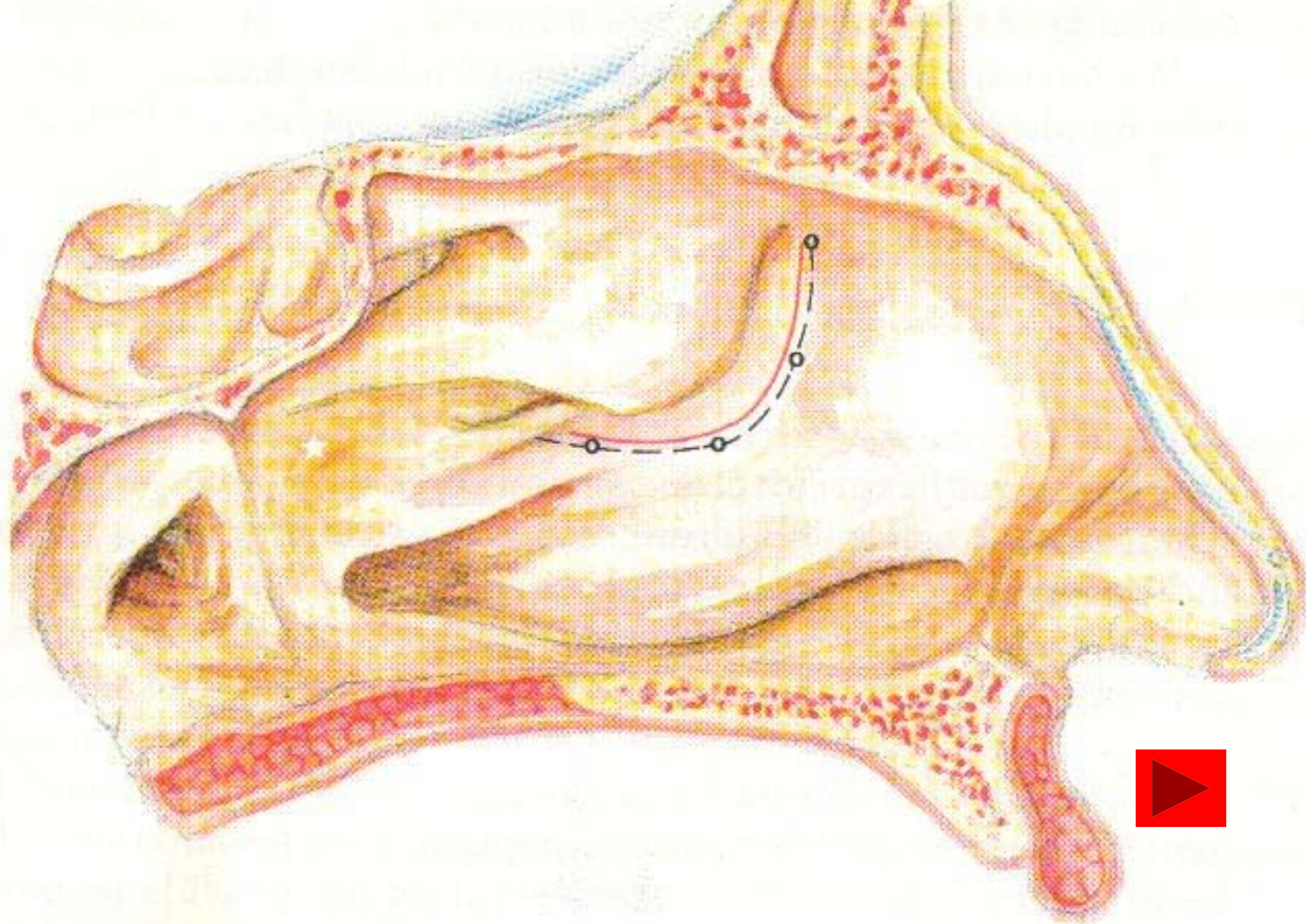


# ANAESTHESIA

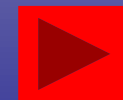
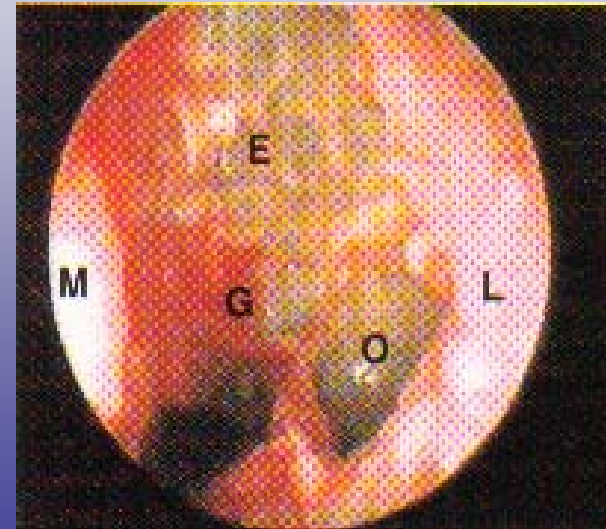
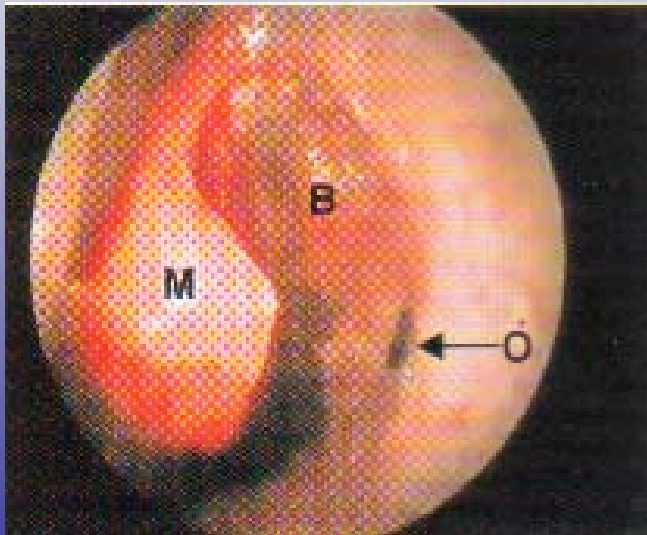
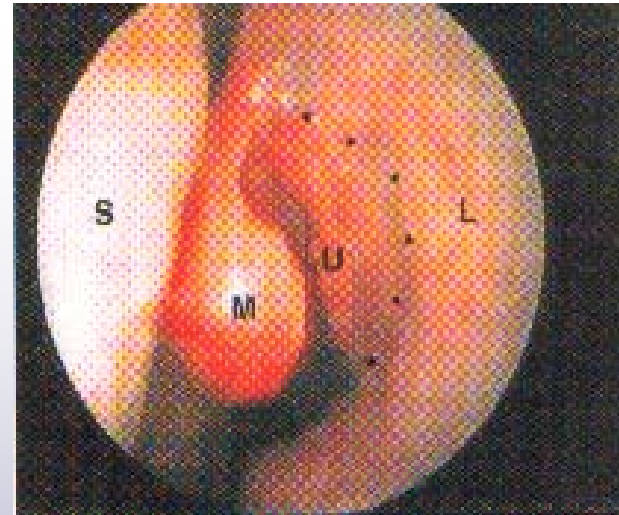
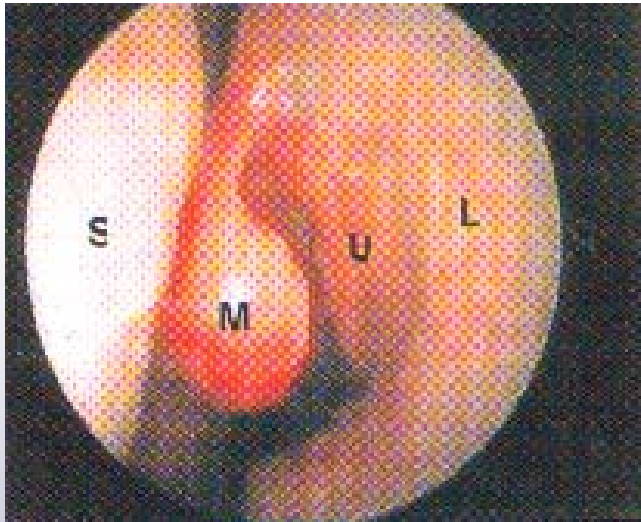
- LOCAL
  - 1% XYLOCAINE WITH 1: 100000 Adr
- GENERAL ANESTHESIA
  - WITH HYPOTENSION



# Local Anesthesia



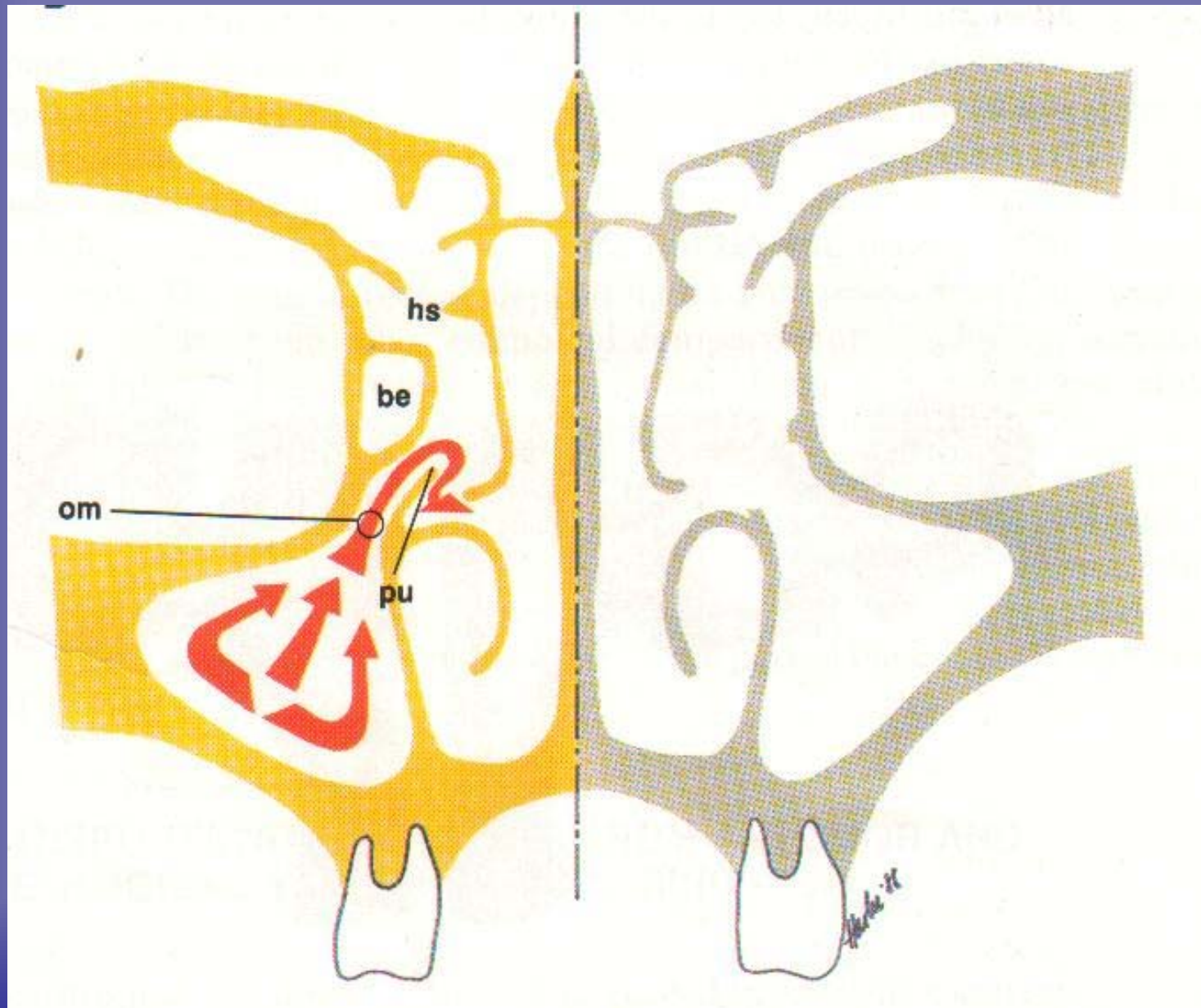
# FESS





Before

After



# COMPLICATIONS

- **INCIDENCE 2-17%**

- **INTRA –OPERATIVE**

- HAEMORRHAGE
- BLINDNESS
  - TEMPORARY
  - PERMANENT
- ORBITAL HAEMATOMA
- DIPLOPIA
- SUBCUTANEOUS ORBITAL EMPHYSEMA
- CSF LEAK

- **POST OPERATIVE**

- SYNECHIAE
- STENOSIS

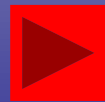


# Failures

- Allergy
- Immune Status
- Ciliary disorders
- Aspirin Hypersensitivity
- Fungal Granuloma



# Procedure



# CONCLUSION

- Very effective Procedure.
- Promising results
- Not devoid of complications
- Training must on cadavers first.
- Initially under supervision.



THANKS