RADIOLOGY
for ENT students

Department of ENT
KSHEMA

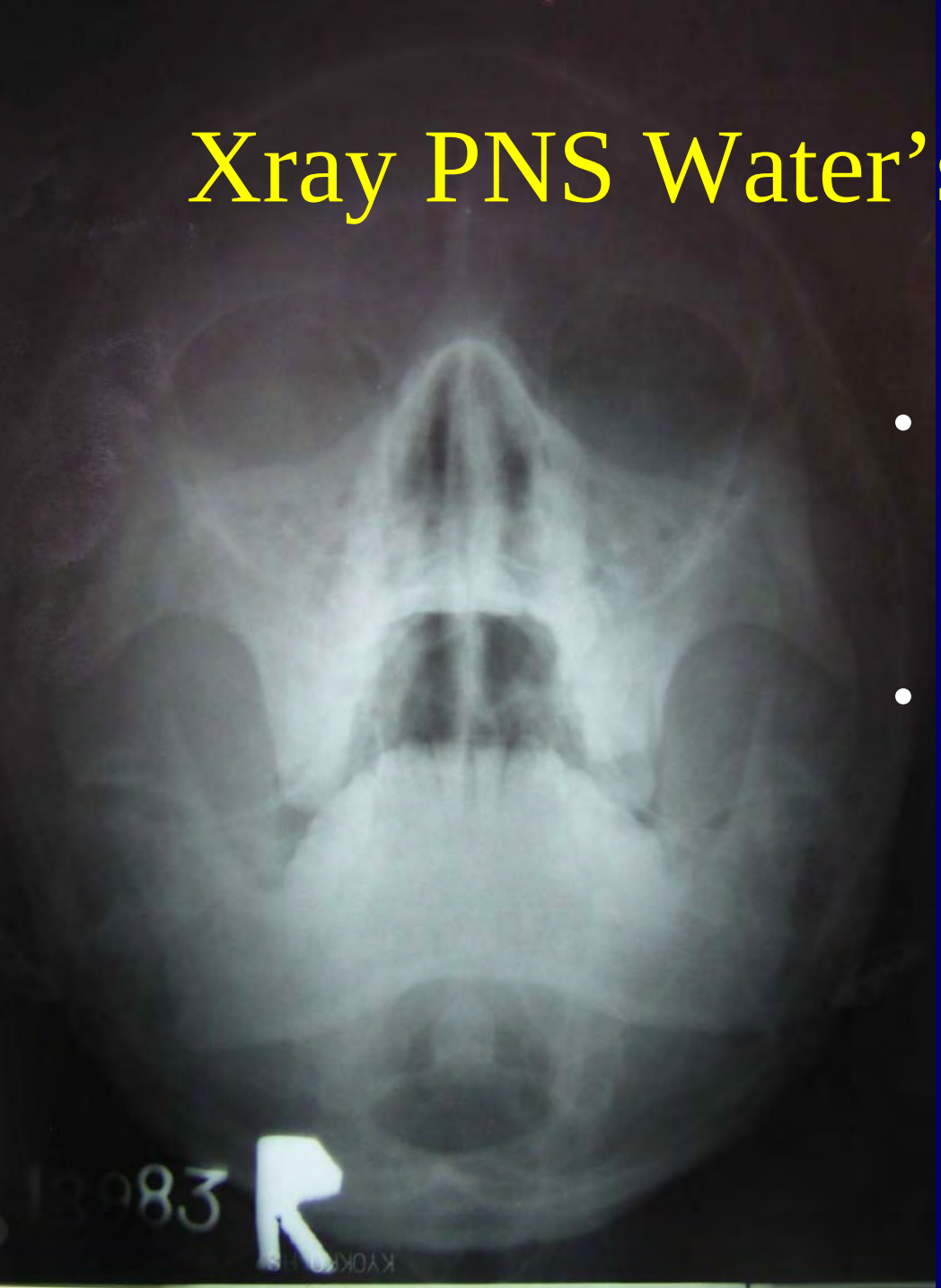
PARANASAL SINUSES

NASAL BONE FRACTURE
NASOPHARYNX
MASTOIDS
SOFT TISSUE NECK
FB
BARIUM SWALLOW

PARANASAL SINUSES

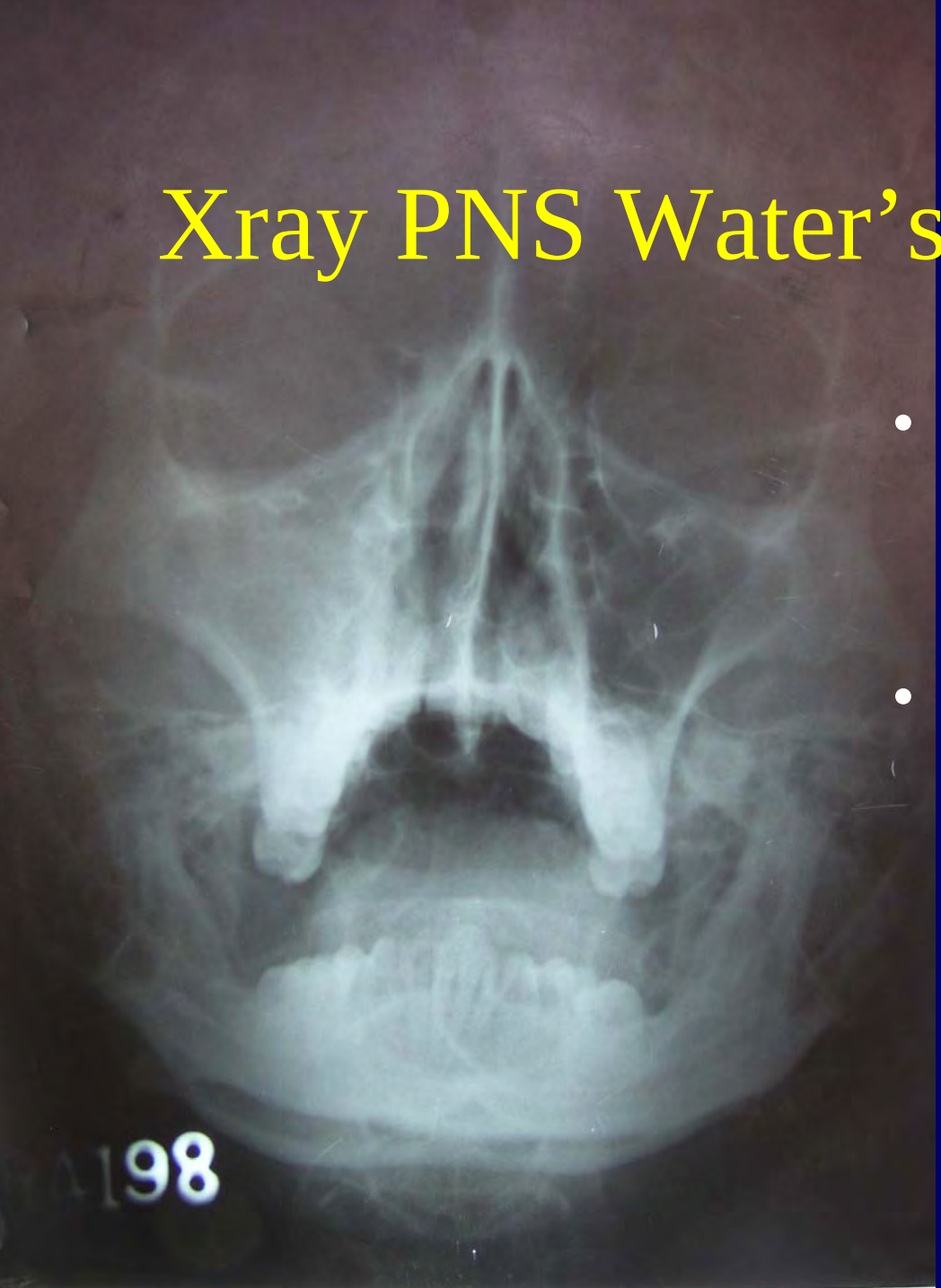

L

Xray PNS Water's view showing



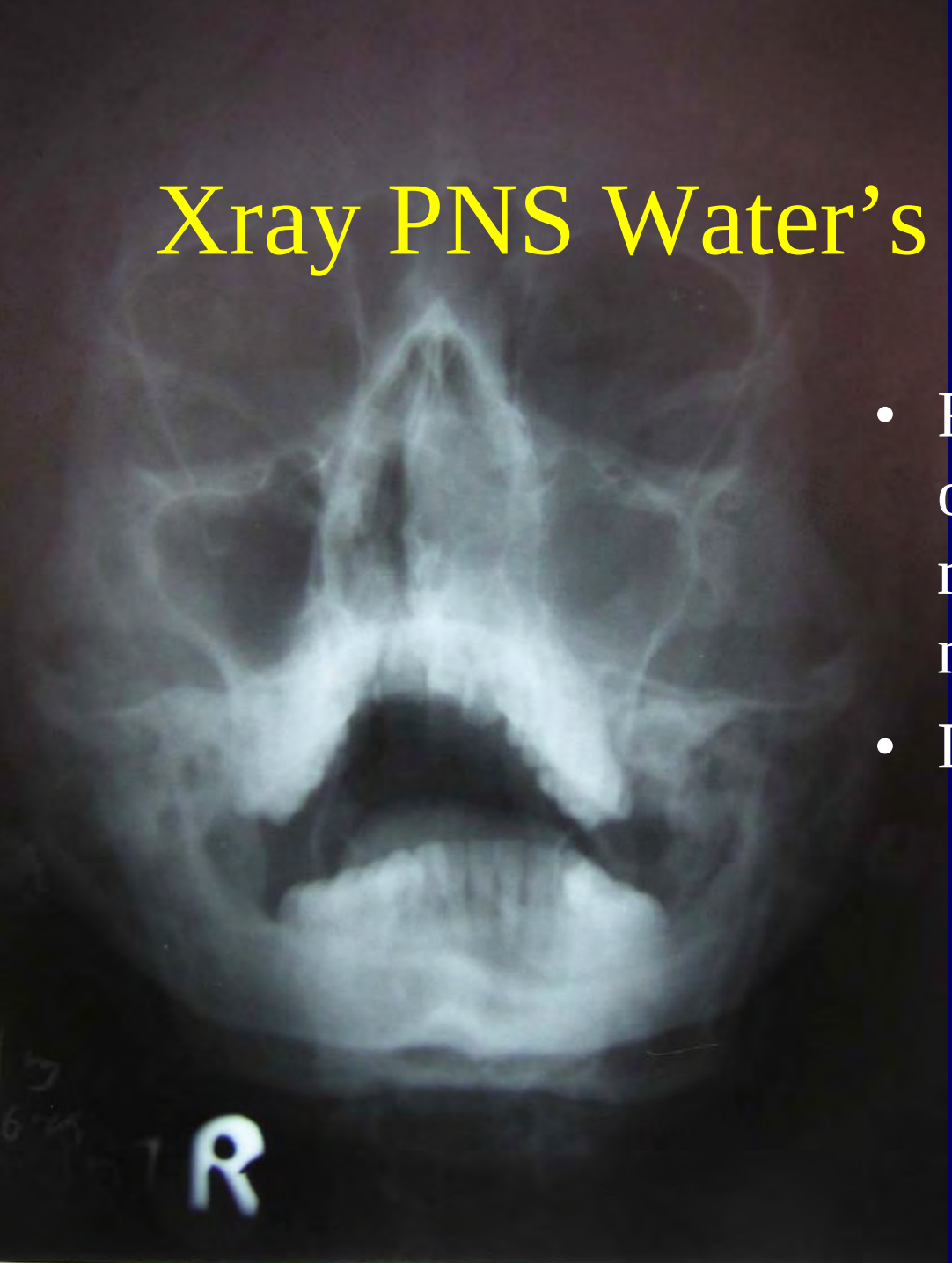
- Opacity in B/L maxillary sinuses
- Diagnosis:
  - B/L Maxillary sinusitis

Xray PNS Water's view showing



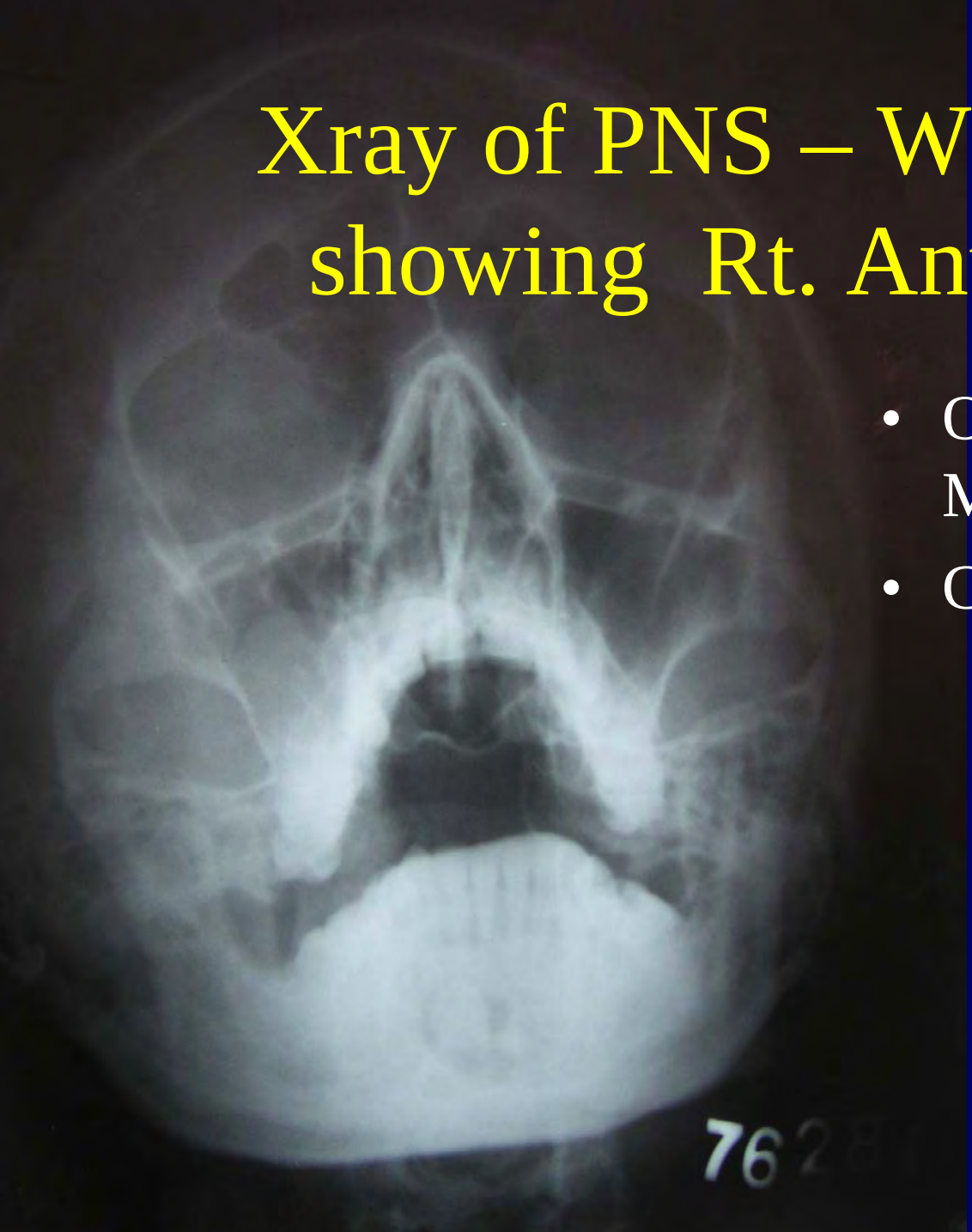
- Opacity in Right maxillary sinus
- Diagnosis:
  - Rt. Maxillary sinusitis

Xray PNS Water's view showing



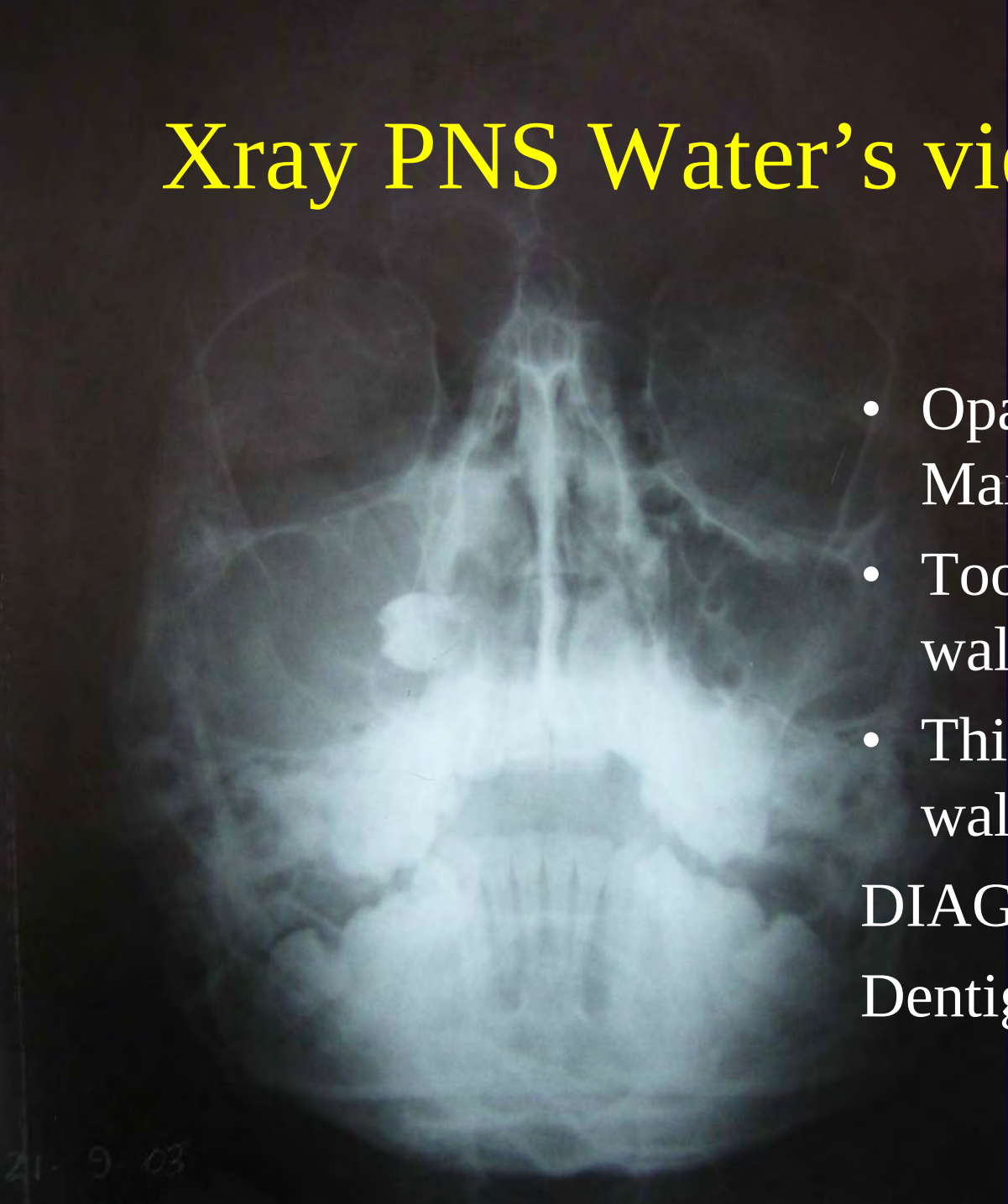
- Radiodense lesion / opacity in Left maxillary sinus & Left nasal cavity
- Diagnosis:
  - Lt. AntroChoanal Polyp

Xray of PNS – Water's view showing Rt. Antral Polyp



- Opacity seen in Rt. Maxillary sinus
- Convexity upwards

Xray PNS Water's view showing

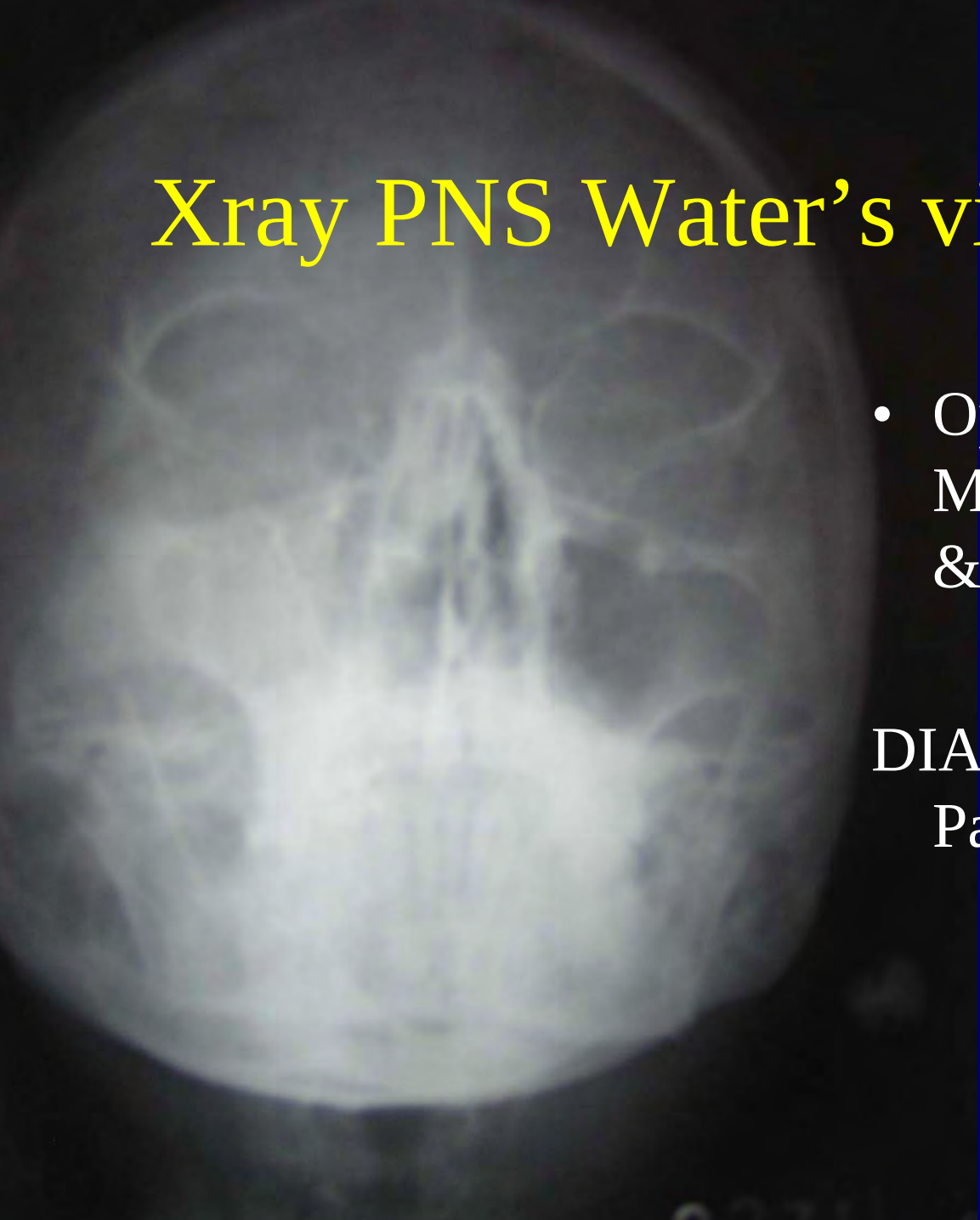


- Opacity seen in Rt. Maxillary sinus
- Tooth on the medial wall
- Thinned out Sinus walls

DIAGNOSIS:

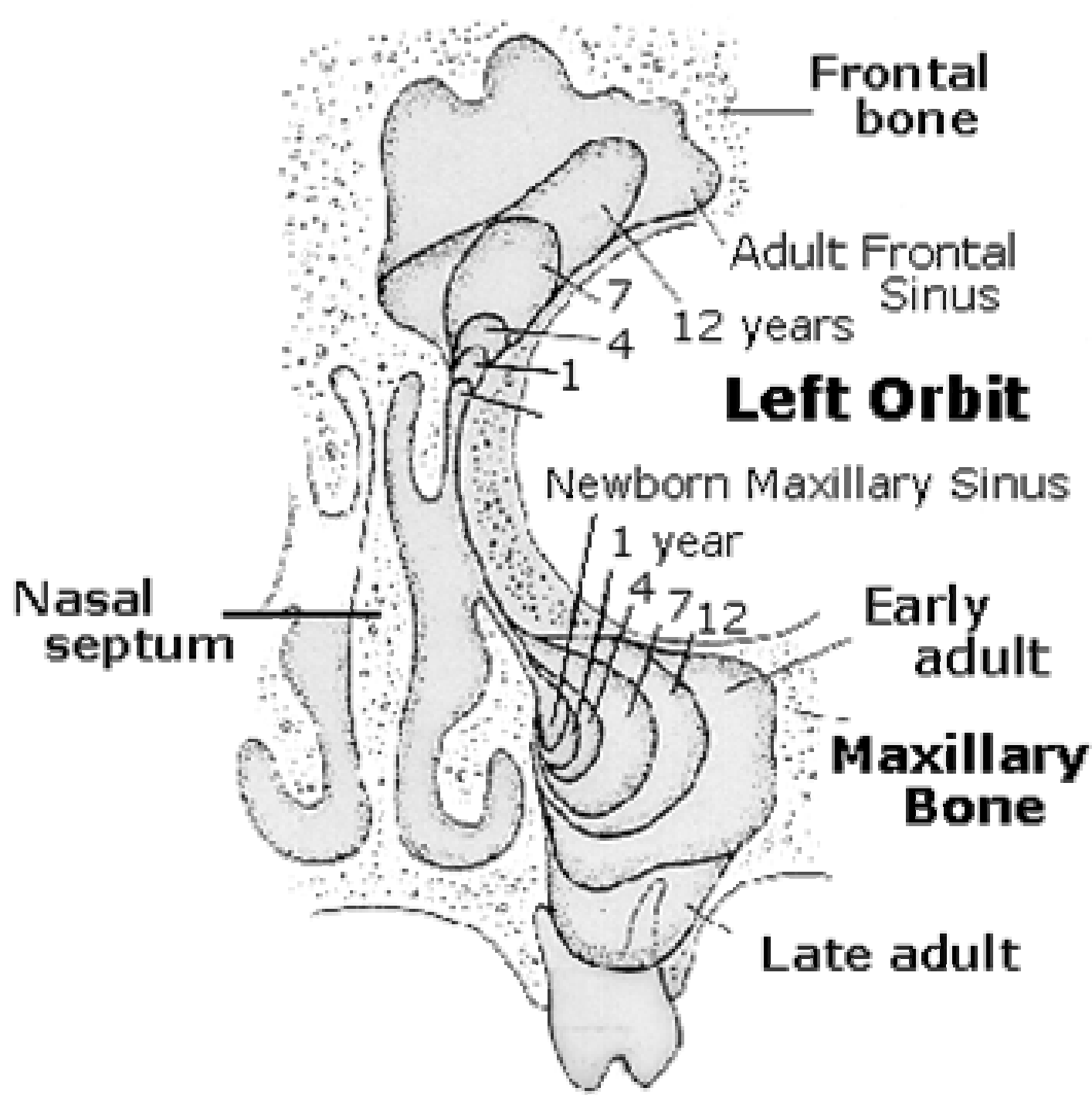
Dentigerous cyst

Xray PNS Water's view showing



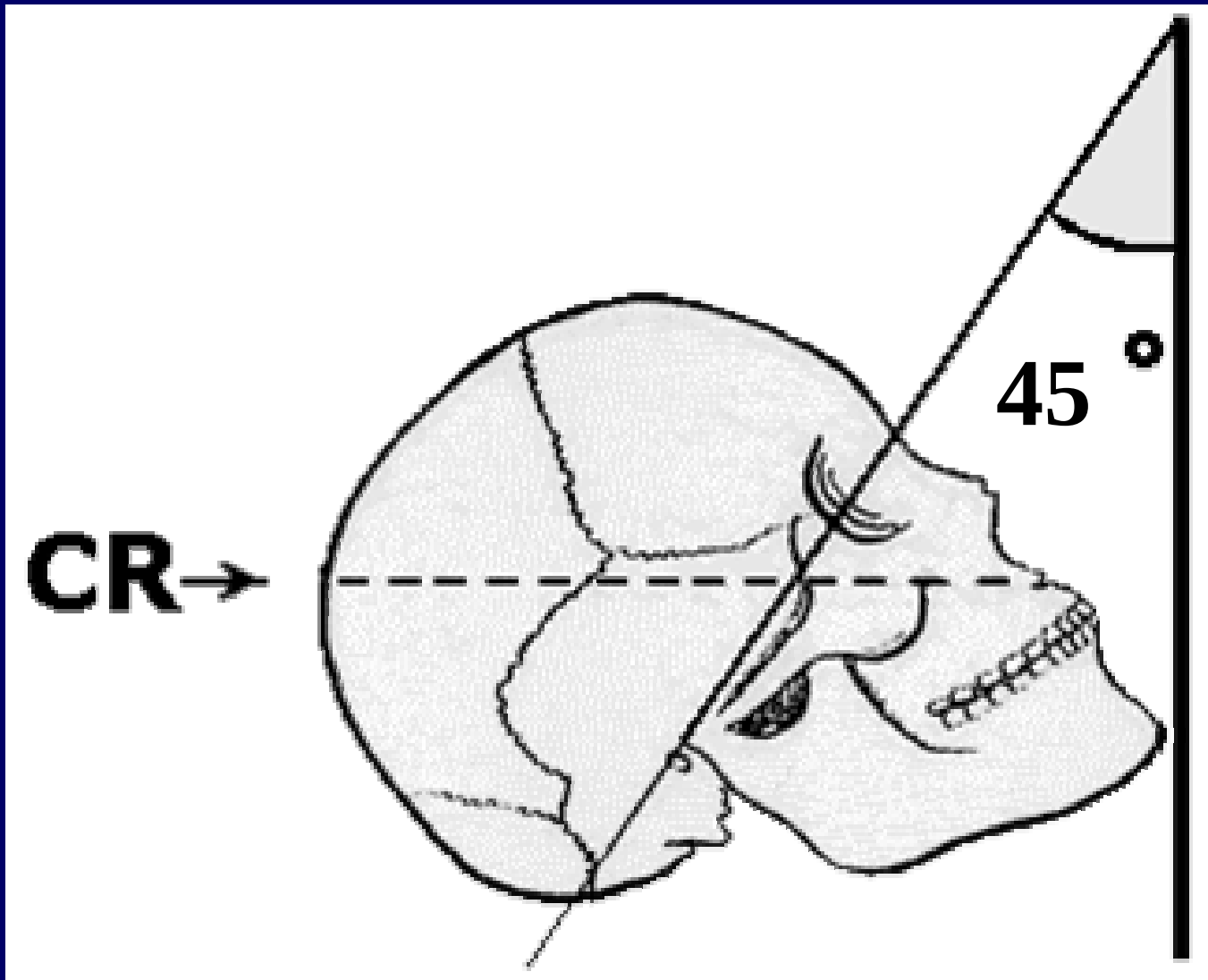
- Opacity seen in Rt. Maxillary, ethmoidal & Frontal sinuses

DIAGNOSIS:Rt. Pansinusitis


Frontal bone
Adult Frontal Sinus
7
12 years
4
1
Left Orbit
Newborn Maxillary Sinus
1 year
4
7
12
Nasal septum
Early adult
Maxillary Bone
Late adult

Water's - best for maxillary sinus

(Ethmoids and frontals too far from film)

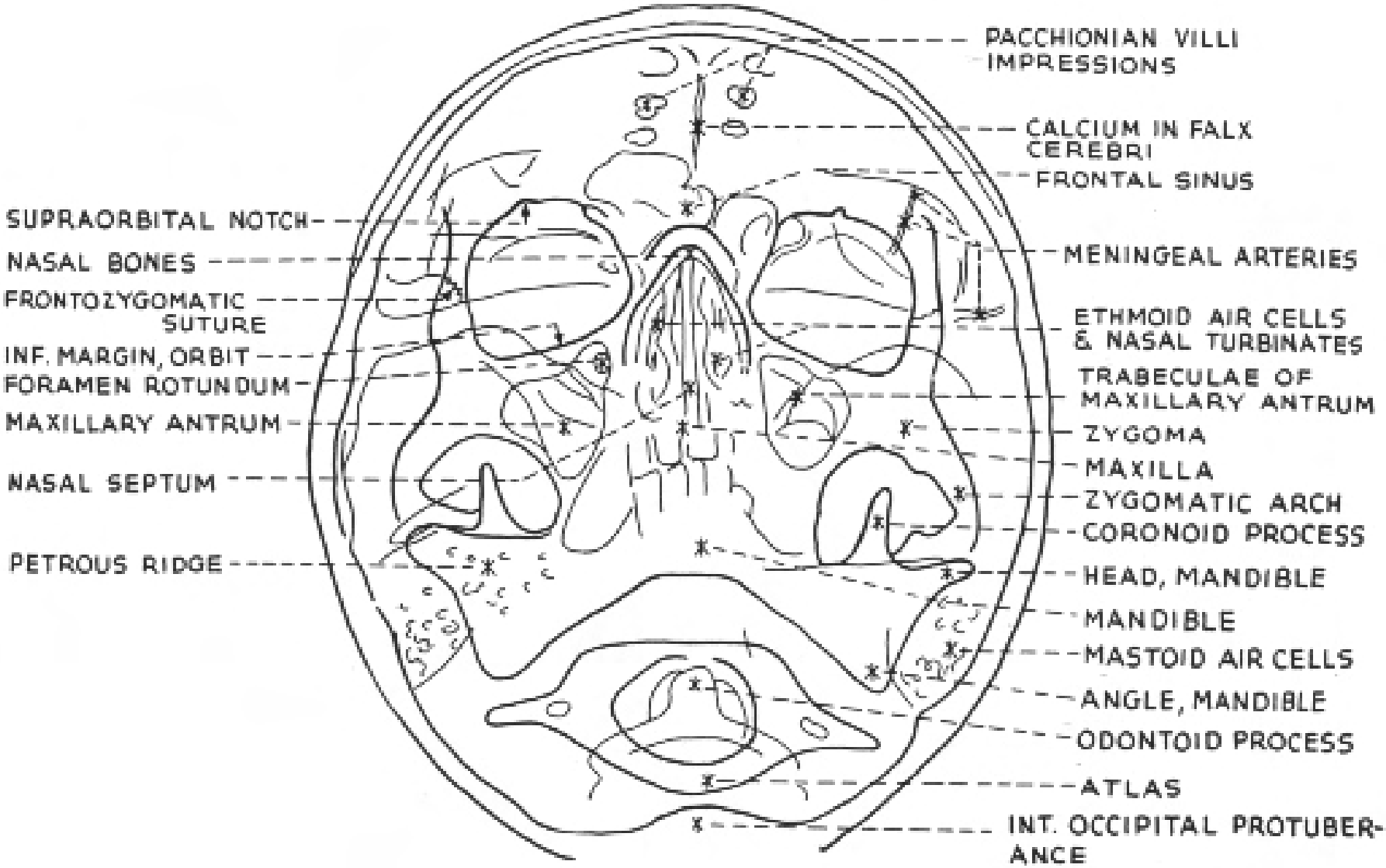


Basic Patient Position

The patient sits erect facing the bucky, midsagittal plane in the midline of the film, coronal plane parallel to the film interpupillary line parallel to the floor. The chin is raised to bring the orbital meatal line at 45 degrees to the film.
In some centers the patient is imaged mouth open to demonstrate the sphenoid sinuses.

Central Ray

The horizontal central ray is centered in the midline of the occiput so that the emergent ray exits the patient in the midline at the level of the anterior nasal spine at the upper border of the maxilla. Note the projection requires an angle of 45 degrees between the OM line and the central ray if the patient is unable to raise the chin sufficiently then the central ray may need to be angled caudally to maintain the 45 degree angle.



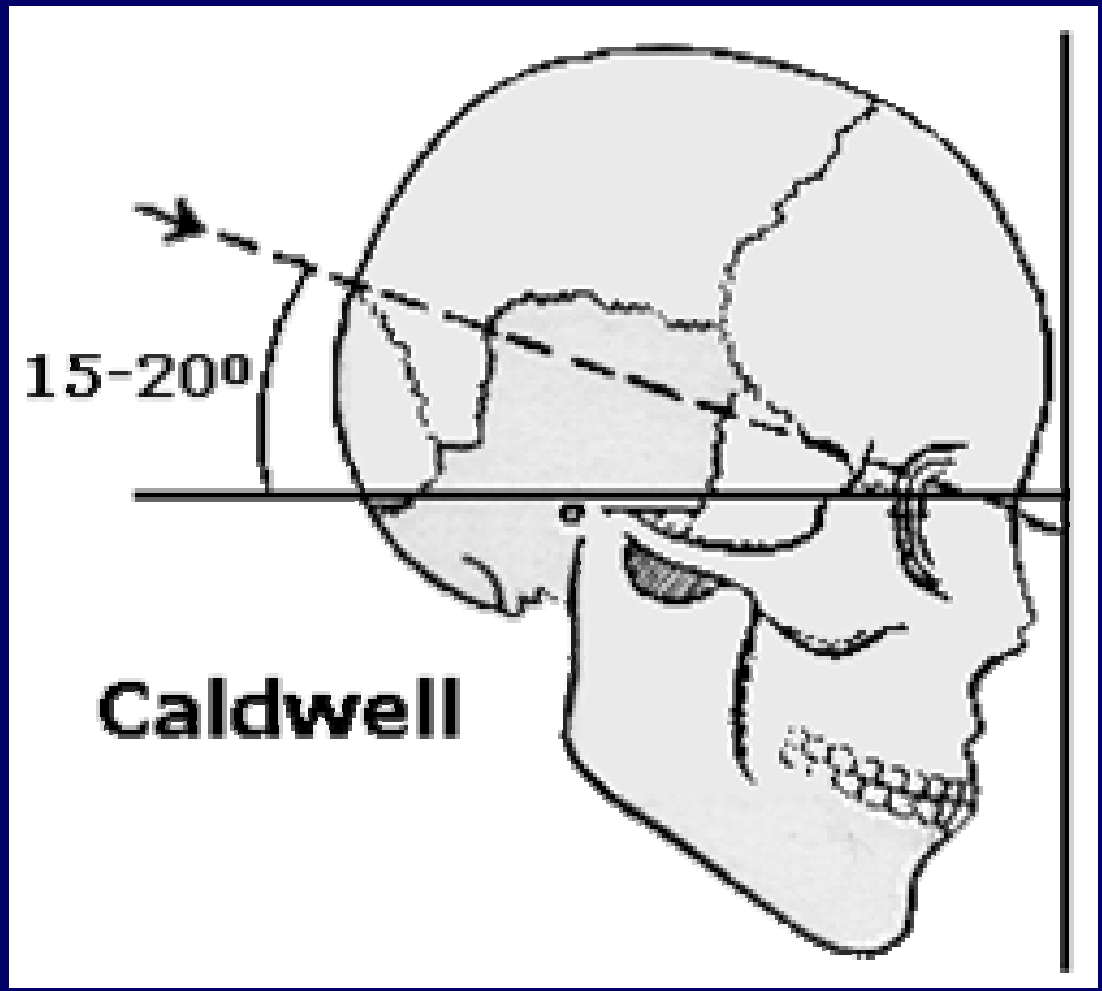
Facial Bones OM Anatomy

Meschan, I. 1955 *An Atlas of Normal Radiographic Anatomy* Saunders, London

Caldwell

best for ethmoids and frontal sinus

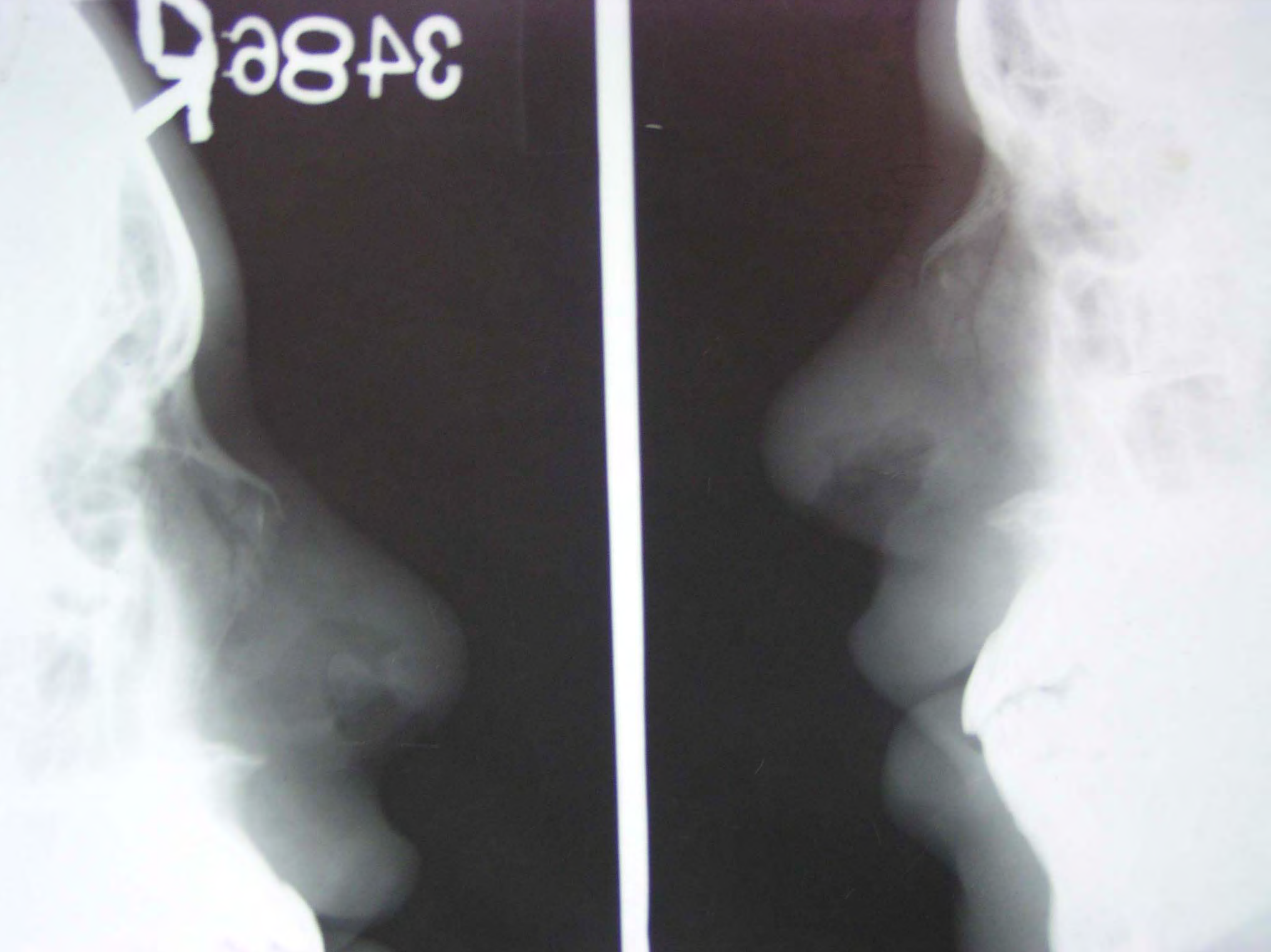
(Temporal bones overlie maxillary)



Common radiologic abnormalities:

- **Air-fluid levels** suggest an acute process
- **Opacification** = secretions, polyps, etc.
- (Ethmoids should be slightly darker than orbits)
- **Thickened mucosa** (check lateral maxillary wall):
  Suggests chronic inflammation
- **Maxillary sinus retention cysts**
  - Very frequent finding
  - Harmless unless symptomatic
- **Frontal sinus mucocele**
  - Nasofrontal duct obstruction (head injury?)
  - Potentially serious problem
  - Look for loss of scalloped edge

NASAL BONE FRACTURE



Fracture Nasal bones

- If displacement +
- No edema- reduced immediately
- If edema +
  - Symptomatic treatment till edema subsides for 5-7 days
  - Fracture reduced after edema has subsided
  - May be combined with septorhinoplasty at a later date

Nasopharynx

Xray Nasopharynx – lateral view

Look for

- Look for radio-dense lesion
- Nasopharynx air shadow
- In Adenoids – anteroinferiorly
- In Antro-choanal polyp- postero-superiorly
  - Called as “ crescent sign”

MASTOIDS

What to look for:

1. TMJ
2. EAC
3. Sinus plate
4. Dural plate
5. Sino-dural angle

Importance

- Anatomical variations like:
  - Low lying dural plate
  - Forward lying sinus plate
- Bony erosions
- Extent of pneumatization- Pattern:
  - Cellular
  - Diploic
  - Sclerotic

Various views for mastoid

- **LAW's view**- lateral Oblique view
- Owen's
- **Schuller's view**
- Towne's

- Meyer's
- Stenver's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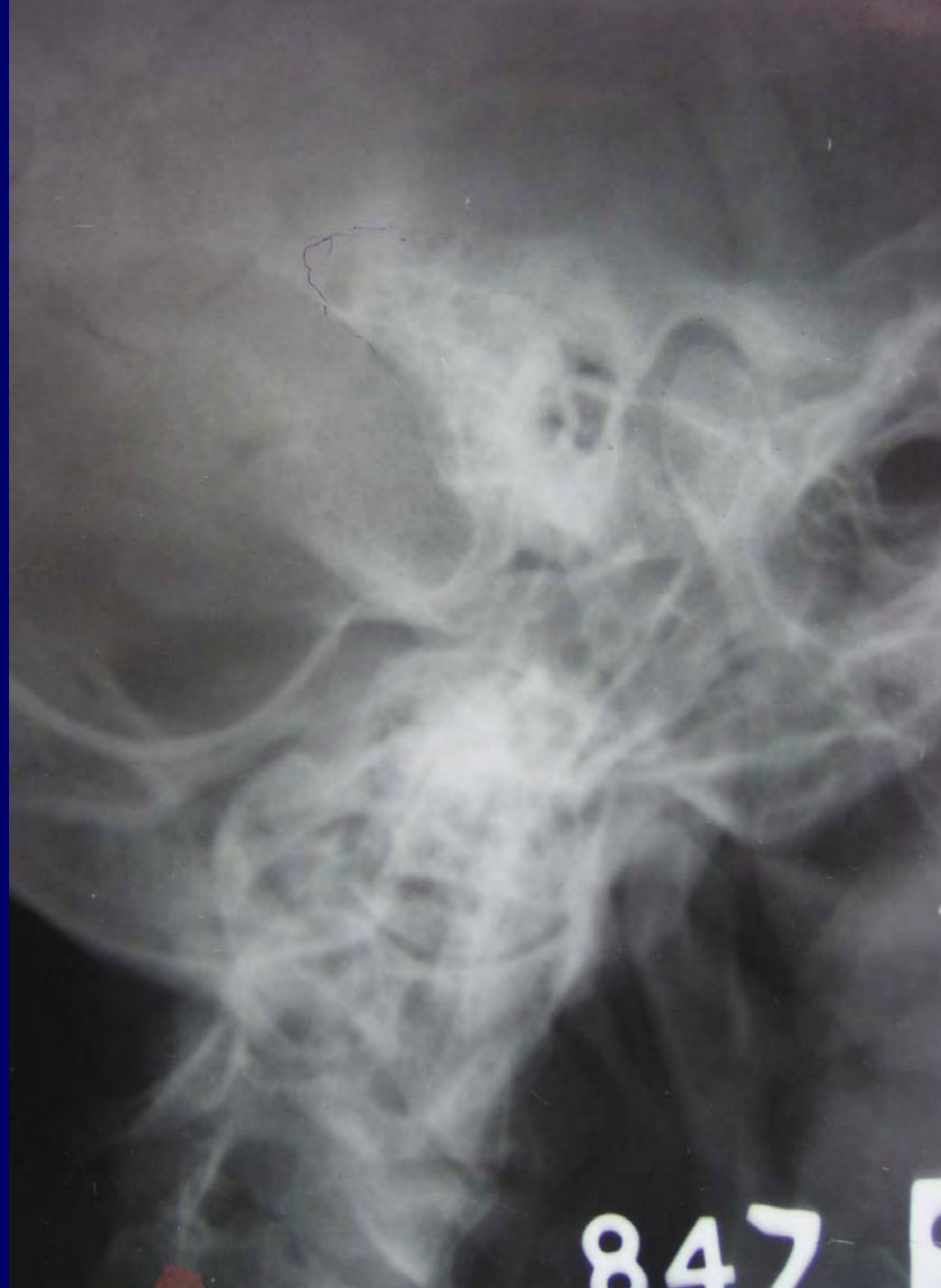
303

Citelli’s angle

- Acute – in primary sclerosis
- Obtuse- in secondary sclerosis (due to CSOM)



DD for cavity

1. Cholesteatoma
2. Large antrum
3. Post-op cavity
4. Eosinophilic granuloma
5. TB mastoiditis

To differentiate operated cavity from cholesteatoma

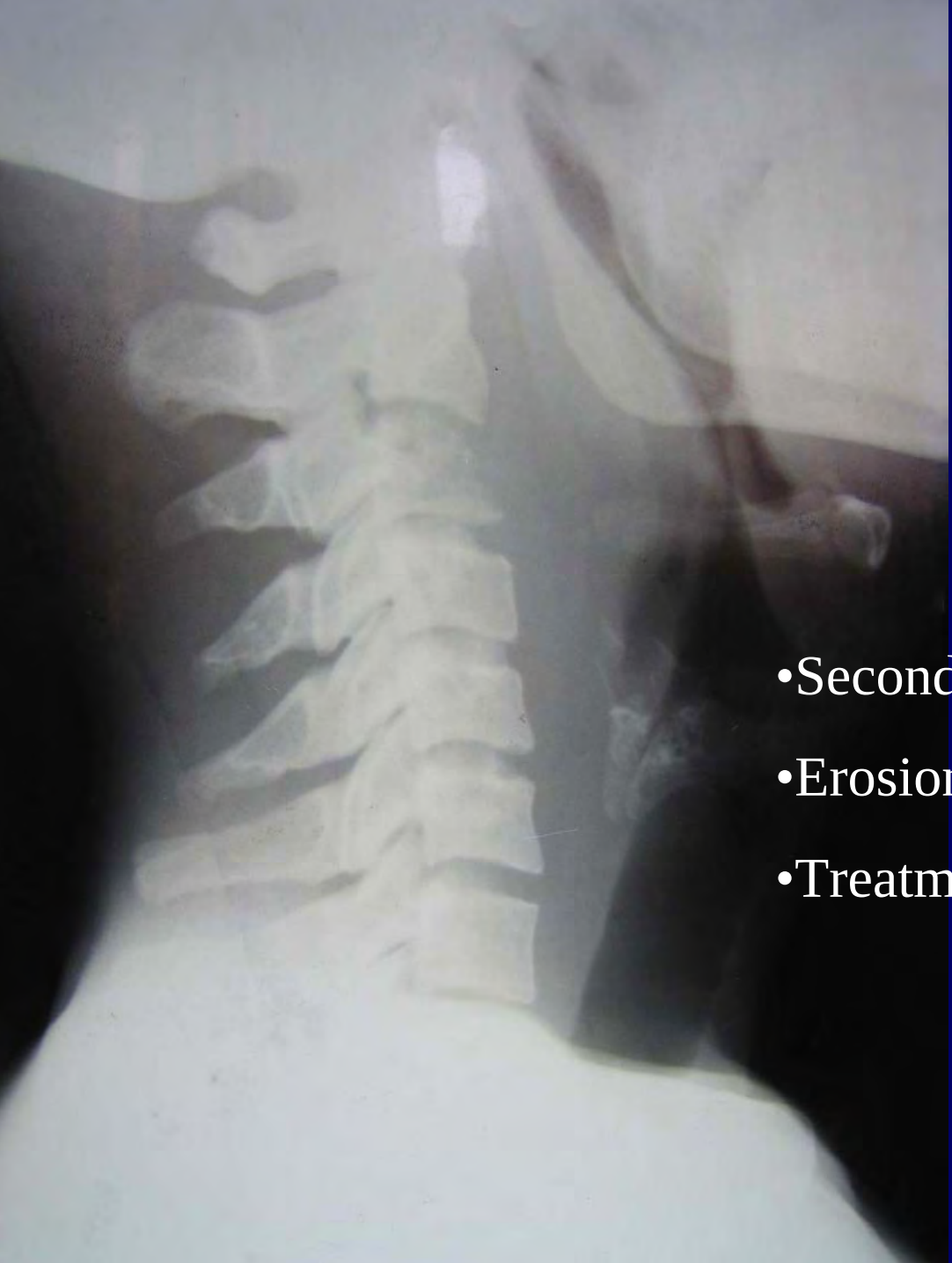
- Margins - irregular due to osteogenesis
- Appearance - Homogenous
- ME & Mastoid area
- Sclerosis absent

- Smooth
- Cotton wool appearance
- Only in mastoid area
- Present

RETROPHARYNGEAL ABSCESS

Look for

1. Cervical vertebrae
   - Erosion of vertebral bodies- No.
   - Loss of cervical Lordosis – due to prevertebral muscle spasm
2. Pre-vertebral soft tissue shadow
   - Should be < 2/3 of AP diameter of cervical vertebral body
   - If > suspect Retropharyngeal abscess
   - Look for FB / Air fluid level / Gas shadow
3. Air collumn in trachea
4. Hyoid bone & Laryngeal cartilage ossifications



Chronic Retropharyngeal abscess

- Secondary to TB spine(Pott’s spine)
- Erosion of cervical vertebra
- Treatment with ATT

FB Cricopharynx with Acute retropharyngeal abscess

- Look for gas shadow-radiolucency
- Look for air fluid level
- Esophagoscopy under GA
- Removal of FB
- Intra-oral drainage of RPA
- Parenteral antibiotics

Complication of esophagoscopy

- Esophageal perforation
- May lead to mediastinitis
- Detected by
  - Interscapular pain (mediastinitis)
  - Low volume pulse + tachycardia = SHOCK
- Managed by
  - Rx of hypovolemic /septicemic shock
  - Adequate airway/ ventillation
  - Drainage of hydropneumothorax

FOREIGN BODIES

NOTE:

- Shape of object
- Position in relation to the cervical vertebrae on lateral radiograph

X ray neck AP view

- Round radio opaque object (? Coin)
- In Esophagus
  - Because the esophagus is an AP compressed tubular structure
  - A coin would occupy this position
  - Can be confirmed by lateral view

X ray neck Lateral view


Razak 3-05-03
L6


R


R


1561 R

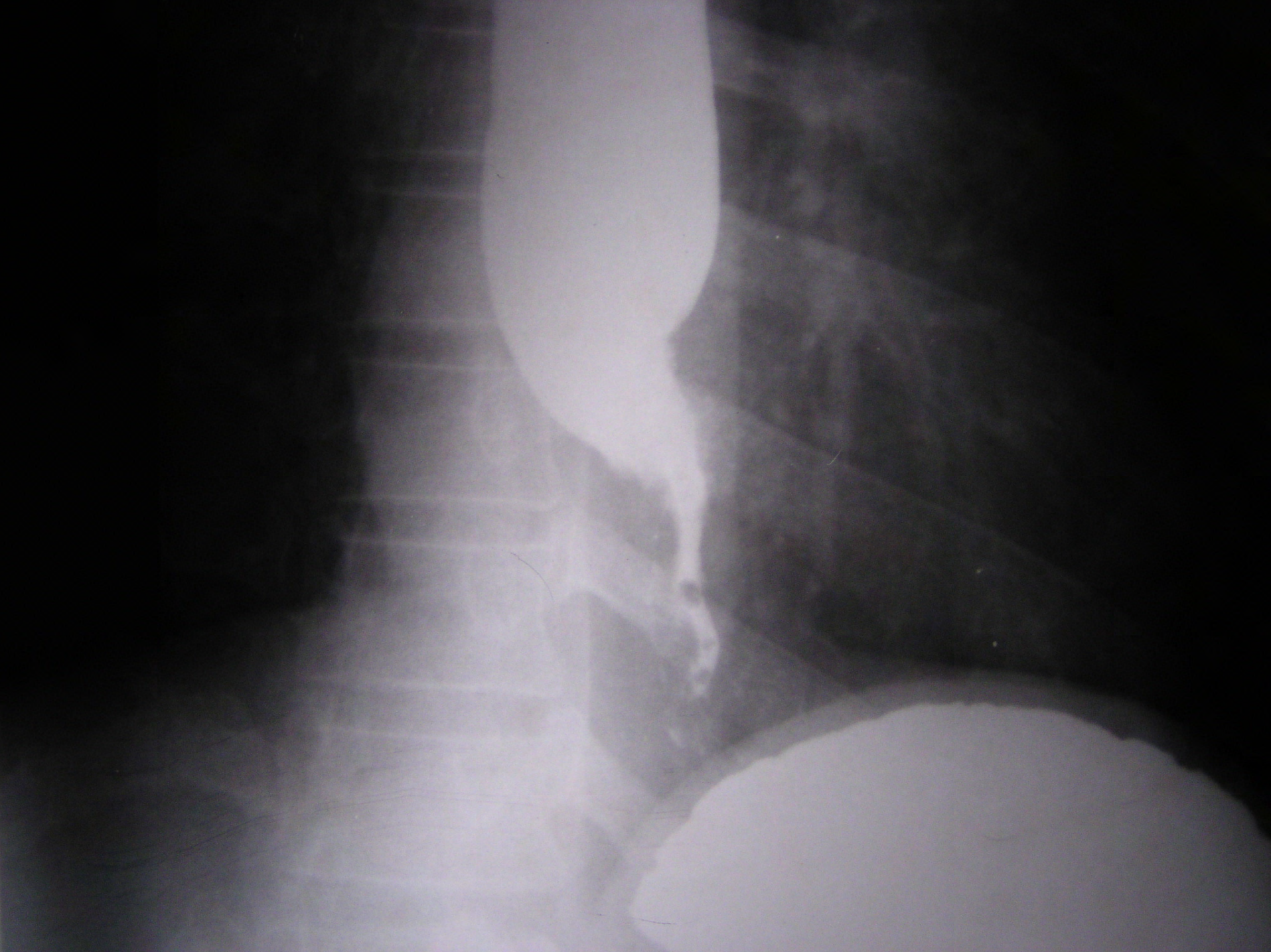
BARIUM SWALLOW

- Achalasia Cardia
  - Regular dilatation of esophagus
  - Air fluid level
  - Abrupt stricture formation
  - “Rat tail appearance / Bird beak appearance”
- Malignancies

  “Shouldering effect” – due to everted margins of malignant ulcer

  Proximal dilatation

  “ Apple core appearance” -



Contrast Xray – Barium Swallow

- Irregularity of mucosa
- Shouldering effect
- Persistent
- Lower third of esophagus
- Proximal dilatation

Diagnosis:

? Malignancy of Lower third of esophagus

Contrast Xray – Barium Swallow

- Irregularity of mucosa
- Shouldering effect
- Persistent
- Middle third of esophagus

Diagnosis:

? Malignancy of Middle thrid of esophagus

Contrast Xray – Barium Swallow

- Shelf like projection at the level of C5/C6
- Cricopharyngeal web seen in Plummer Vinson Syndrome

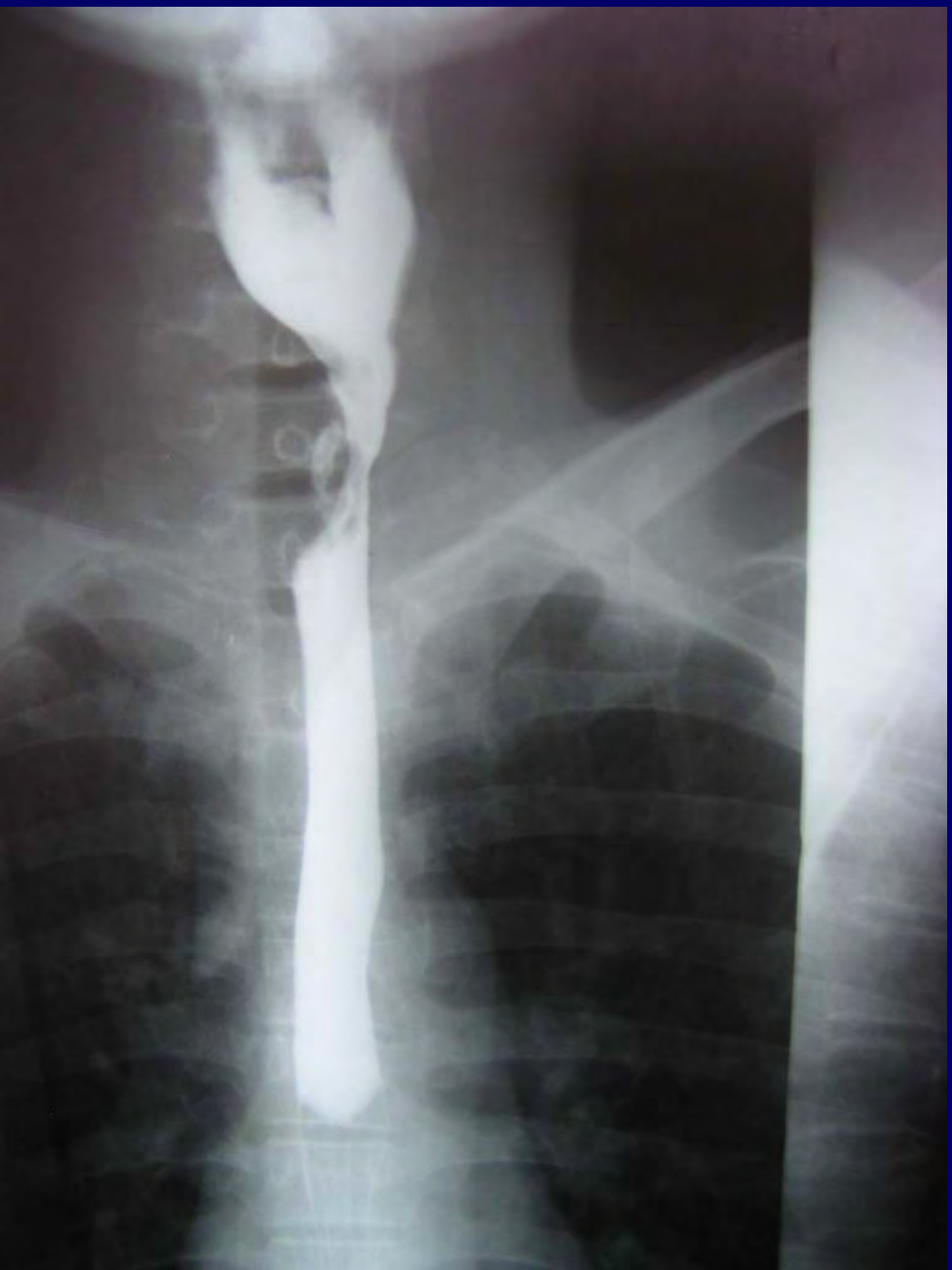
Barium sulphate

- ADVANTAGES

1. Inert
2. Suspendible in water
3. Very minimal absorption in GIT
4. Contrast is not degraded

- DISADVANTAGES

1. Outside the lumen of GIT acts as FB
2. Contrast in Mediastinum leads to inflammatory response



THANK YOU