



# Neonatal Rhinitis

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# Neonatal Rhinitis

- Inflammation of the neonatal nasal lining producing nasal obstruction and excessive nasal secretions
- Term usually refers to those cases requiring medical intervention

# Nasal Obstruction without Choanal Atresia (NOWCA)

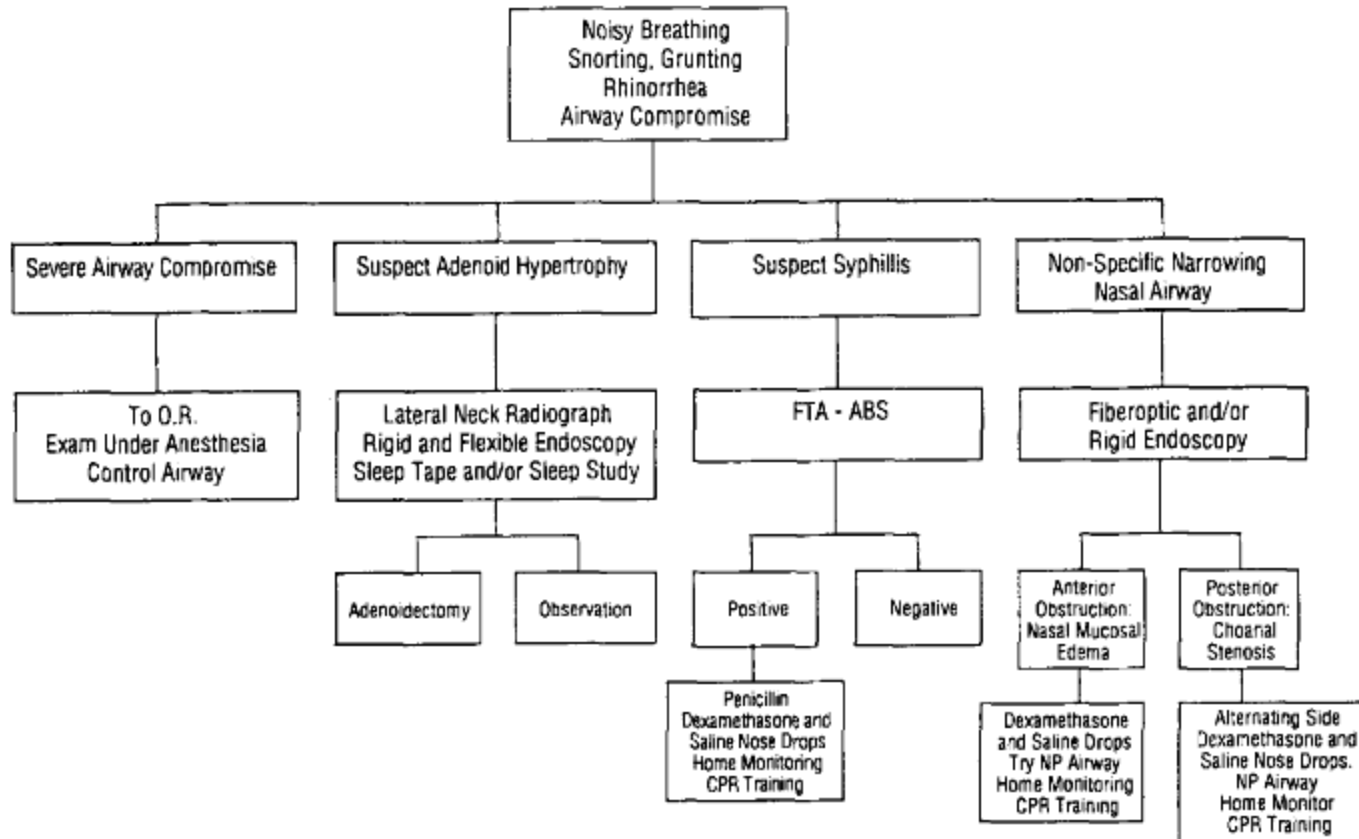
- Derkay and Grundfast
- Int J Ped Otol 1990
- 15 cases
- 3 adenoids
- 1 Aperts
- 8 stented
- 2 syphilis
  - Penicillin
- All given saline/suction/steroid drops
- No swabs

TABLE I

Summarized clinical course in 15 neonates and infants with NOWCA

Initials	Age at presentation	Diagnosis	Evaluation	Management	Age at resolution
R.C.	3 Weeks	Nasal mucosal edema	Fiberoptic and rigid endoscopy	Saline and dexamethasone drops NP airway, home monitoring	6 months
M.K.	6 Weeks	Nasal mucosal edema	Fiberoptic endoscopy, CT scan	Saline and dexamethasone drops NP airway, home monitoring	6 months
T.J.	2 Weeks	Nasal mucosal edema	Fiberoptic endoscopy, CT scan	Saline and dexamethasone drops NP airway, home monitoring	3 months
B.M.	2 Months	Osteogenesis imperfecta, septal deviation, nasal mucosal edema	Fiberoptic endoscopy	Saline and dexamethasone drops, home monitoring and suction	6 months
J.F.	1 Week	Apert syndrome pharyngeal stenosis	Fiberoptic endoscopy, CT scan	Saline nose drops, home monitoring, suction, tracheotomy	5 months
C.E.	9 Weeks	CHARGE association bilateral choanal stenosis	Fiberoptic endoscopy, CT scan	Saline and dexamethasone drops, NP airway, home monitoring and suction	6 months
A.M.B.	3 Months	Goldenhar syndrome right choanal stenosis	Fiberoptic and rigid endoscopy	Saline drops, NP airway, home monitoring and suction	6 months
A.Y.	6 Weeks	Left choanal stenosis	Fiberoptic and rigid endoscopy CT scan	Neosynephrine, saline and dexamethasone NP airway, home monitoring and suction	6 months
S.F.	3 Weeks	Nasal stenosis, choanal stenosis	Fiberoptic and rigid endoscopy sleep study, CT scan	Saline and dexamethasone drops, NP airway, home monitoring and suction	4 months
M.P.	3 Weeks	Bilateral choanal stenosis	Fiberoptic endoscopy CT scan	Saline and dexamethasone drops, NP airway, home monitoring	6 months
M.C.	3 Weeks	'Snuffles'	Fiberoptic endoscopy	Saline and dexamethasone drops, Penicillin, home monitoring	6 months
S.W.	3 Weeks	'Snuffles'	Fiberoptic endoscopy CT scan	Saline and dexamethasone drops, Penicillin, home monitoring	6 months
T.P.	8 Months	Adenoid obstructing choanae	Fiberoptic endoscopy, lateral X-ray sleep study	Adenoidectomy	9 months
C.A.	8 Months	Adenoid obstructing choanae	Fiberoptic endoscopy, lateral X-ray sleep study	Adenoidectomy	9 months
B.B.	6 Months	Adenoid obstructing choanae	Fiberoptic endoscopy, lateral X-ray sleep study	Adenoidectomy	7 months

## Algorithm for Diagnosis and Management of Infants With NOWCA



# Management of neonatal rhinitis

Int.J.Ped.Otol 24:3 1992

Tolley N et al

8 patients severe enough to need stents

Male : Female 3:1

50% family history atopy

2 swab +ve Staph Aureus

50% eye symptoms

Normal immune screen

CT showed mucosal thickening



# Neonatal Rhinitis

- Presentation
- Aetiology
  - Allergic
  - Infective
  - Immune deficiency
  - Primary Cilial Dysfunction
  - Cystic Fibrosis
  - Idiopathic
- Investigations
- Differential Diagnosis
- Treatment

# Presentation

- Blocked nose usually Day 1
  - Poor feeding
    - Poor weight gain
  - Poor sleep
    - Recession
    - OSA
    - Hypoxia
- Excess nasal secretions
- Severity important as determines Rx



# Aetiology

- Environmental
  - House Dust
  - PVC as flooring!
  - Farm living
  - Pets
  - Pollution
  - Smoking at home even in utero
  -
- Racial
  - Increased incidence/severity in African americans

# Neonatal Rhinitis and allergy

- Positive family History
- Breast feeding is protective
- Effect of Lactose Intolerance- no evidence
- Association with later asthma/eczema

# Breastfeeding

- Acta Paediatr. 2002;91(3):275-9.
- Does breastfeeding protect against allergic rhinitis during childhood? A meta-analysis of prospective studies
- Answer: yes

# Lactose intolerance

- Is it worth reducing maternal milk?
- Non diary formula?
- Probiotics
- No evidence

# Neonatal rhinitis and allergy

- Punekar and Sheikh
- Established the sequential progression of multiple allergic diagnoses in a UK birth cohort using the General Practice Research Database.
- Eczema > asthma > rhinitis commonest trajectory
- Rhinitis first (ie neonatal rhinitis) less common

# Neonatal Rhinitis - Infective

- Swab usually negative or Staph Aureus
- Occasionally specific infection
  - Chlamydia
  - Syphilis

# Do early URTI protect against later atopy?

- ↑ prevalence of later allergic disease in children who avoid early URTI
- ? Children too protected: “hygiene hypothesis”
- Early URTI does seem to protect against later atopy
- Early URTI may promote T helper type 1 cytokines,
- Fewer URTI may promote T helper type 2 (Th2) cytokines and atopy.

# Primary Ciliary Dyskinesia

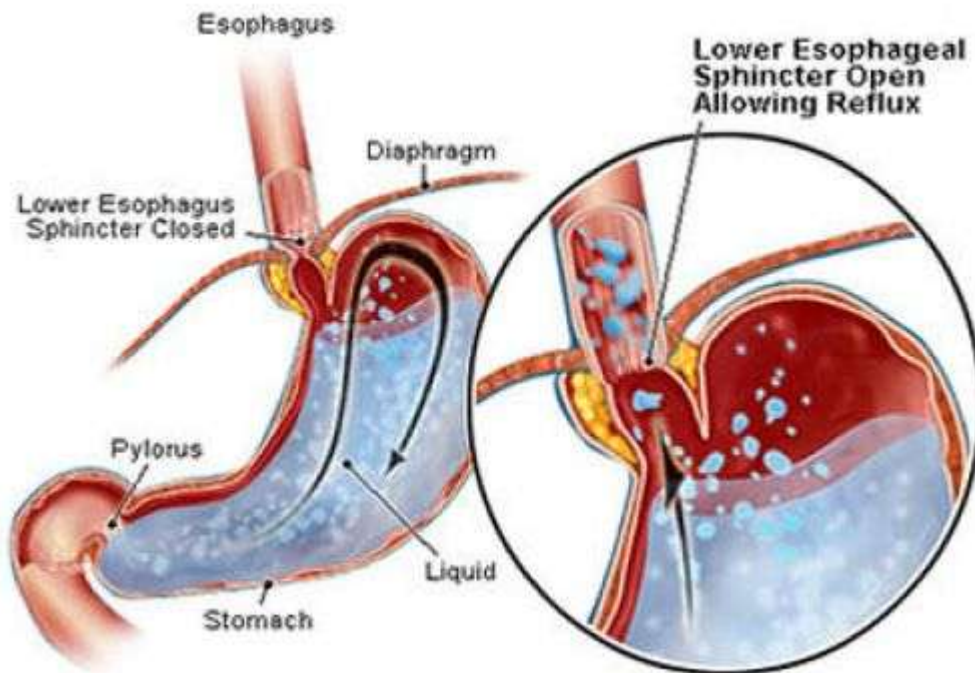
- 50% with situs inversus – high index of suspicion
- Often presents in infancy with rhinitis but not diagnosed till 4 years (avge)
- ? ↑ suspicion if cough also present check heart!
- Electron microscopy



## 4 Most Common Paediatric Immunodeficiencies

- Transient hypogamma-globulinemia of infancy,
  - IgG subclass deficiency,
  - impaired polysaccharide responsiveness (partial antibody deficiency)
  - IgA deficiency.
- 
- Normal cellular immunity, phagocyte function and complement levels.
  - All four illnesses are characterized by recurrent bacterial respiratory infections such as purulent rhinitis, sinusitis, otitis and bronchitis

# Idiopathic neonatal rhinitis ? Related to reflux?



- Maybe worth trial of Ranitidine if other signs of reflux

# Investigations

- Swab?
  - culture/cytology
  - virology rsv/coronavirus in acute infection not rhinitis
- Check airflow/pass catheter
- Endoscopy
  
- Bloods for immunoglobulins
- CT scan

# Differential diagnosis

Choanal stenosis/atresia

Masses

Post nasal space

Teratoma

Anterior nasal space

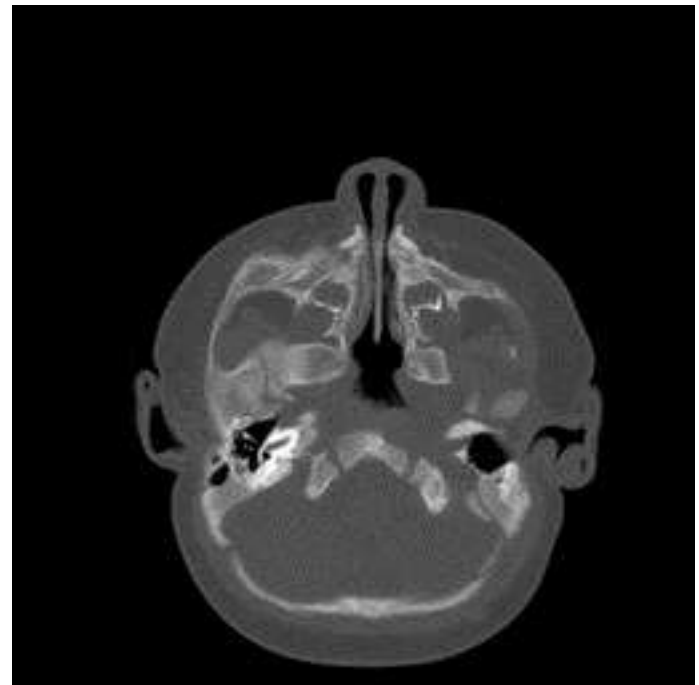
Glioma

*Midline nasal dermoid*

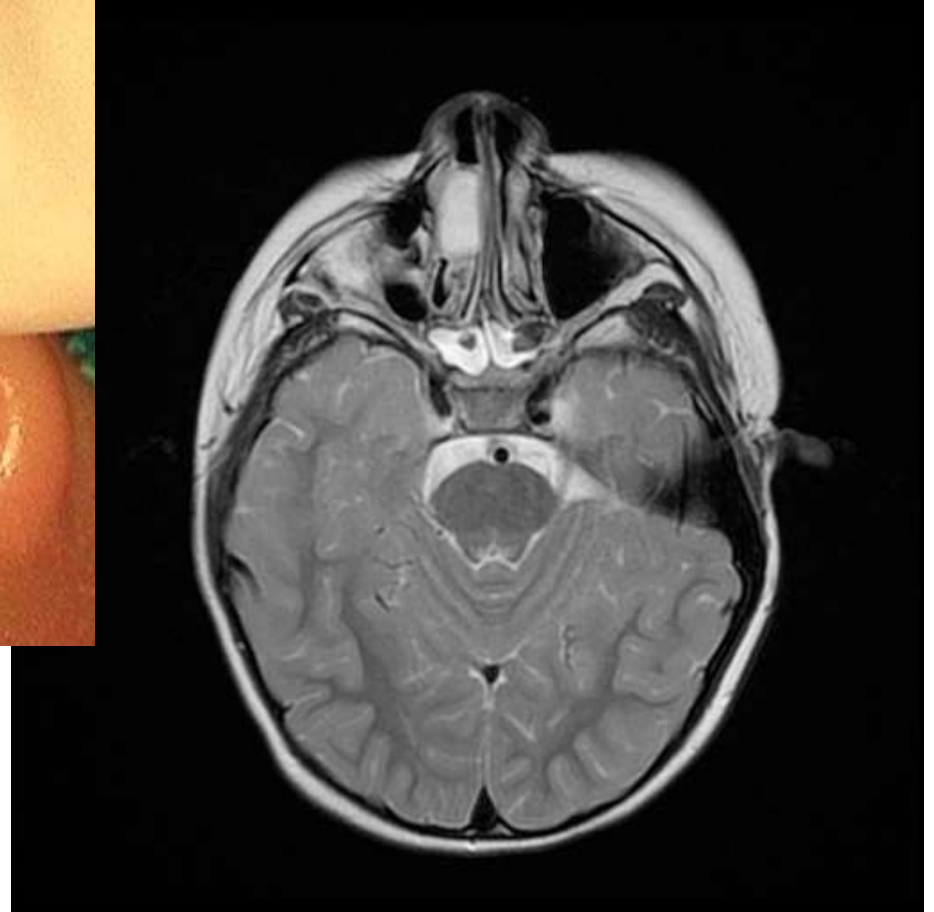
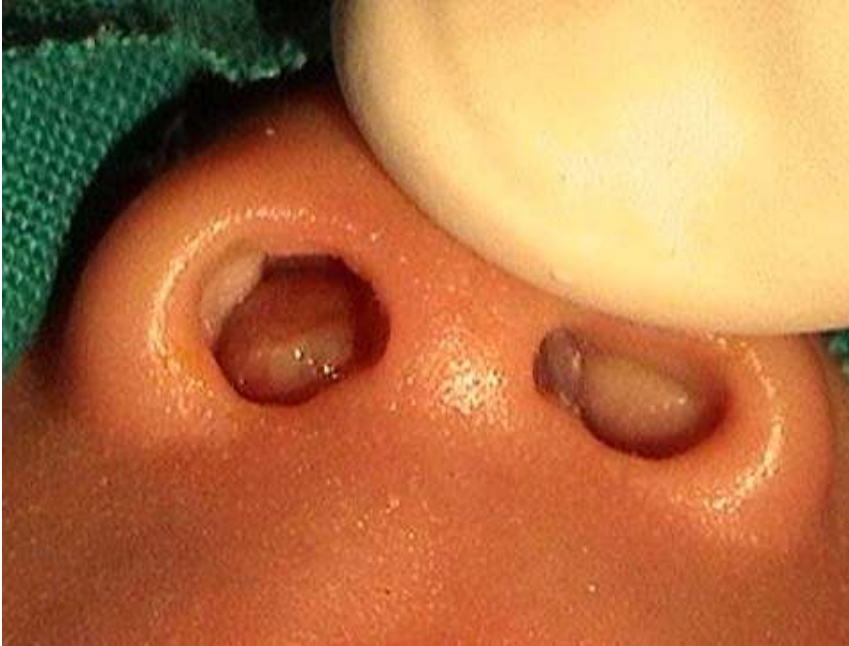
Meningocele

Mid nasal and pyriform  
stenosis

Septal deviation



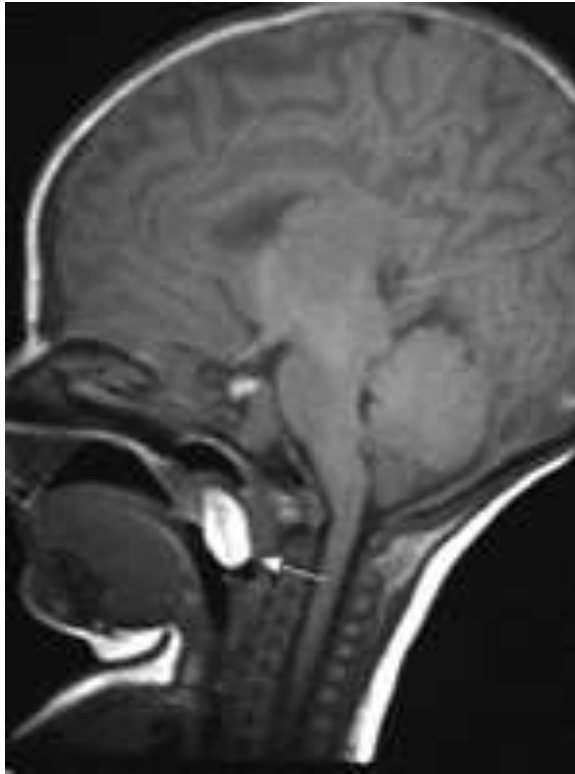
# Nasal glioma



# Nasal encephalocoele



# Hairy polyp of PNS

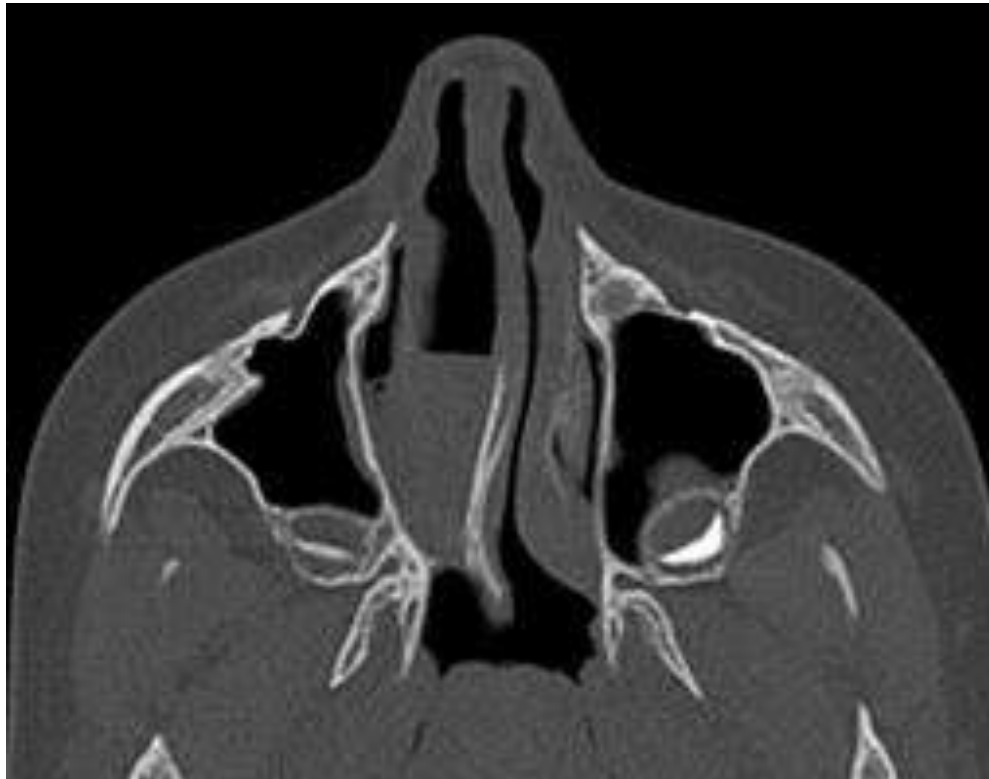


# Early Nasal Polyposis

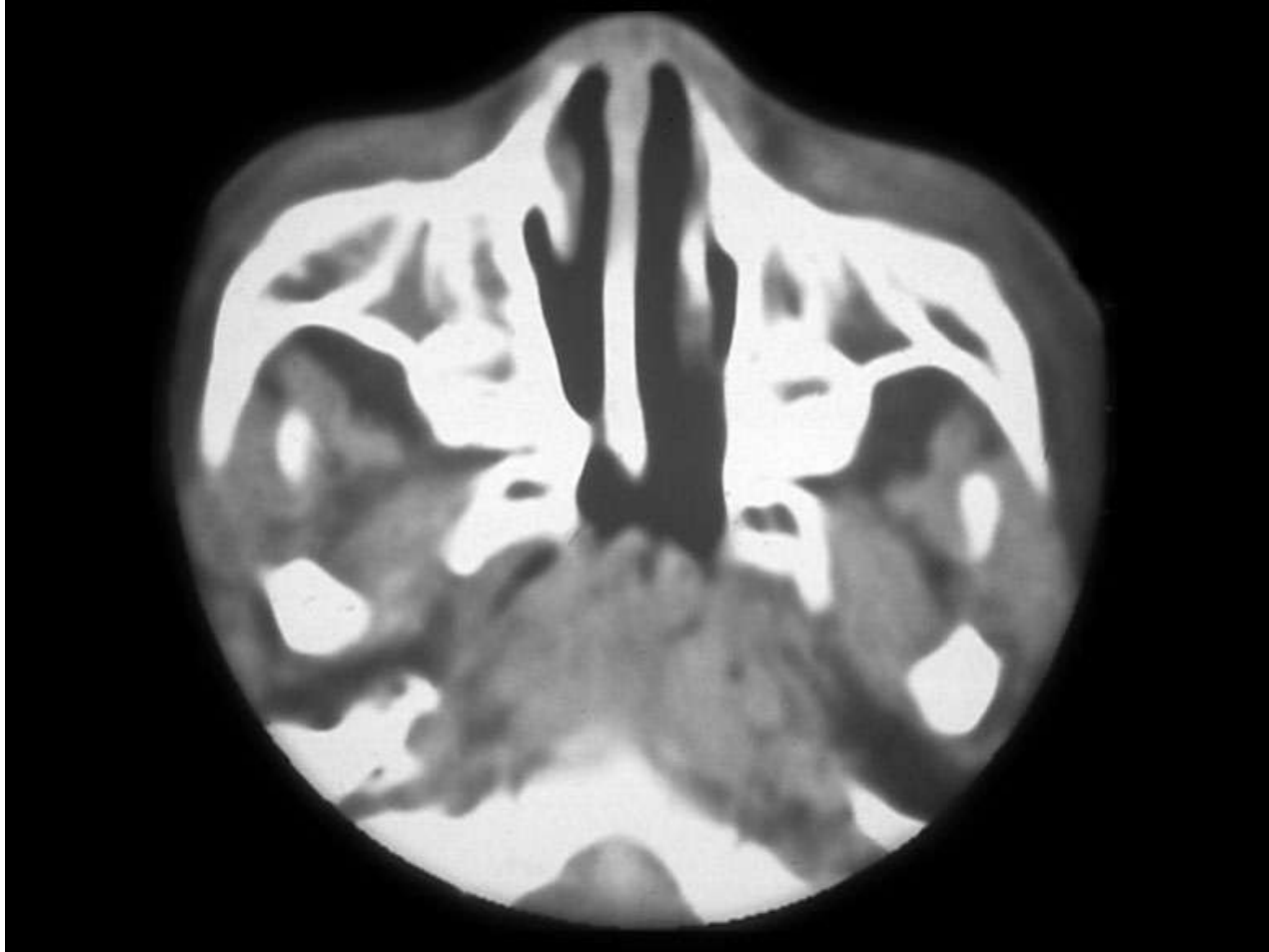
- Usually in Kartageners syndrome or cystic fibrosis
- Reported in early childhood but not in neonates



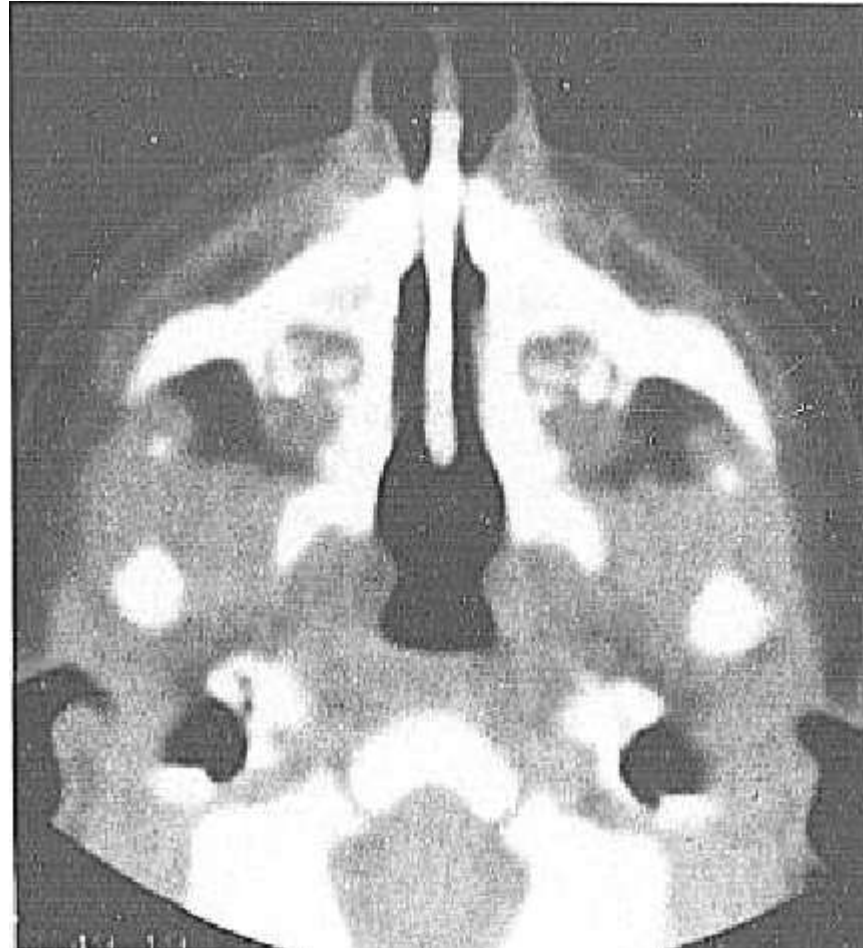
# Septal deviation and Choanal atresia



# Unilateral Choanal Atresia



# Pyramiform aperture stenosis



# Non specific Treatment

- Saline spray not drops
- Sucker
- Vasoconstriction?
- Steroid drops
- Very occasional stent
- Don't operate – I have!



# Summary

- Mild/moderate case common
- Saline/suction – few days steroid drops
- High calorie feeds for poor wt gain
- More severe; look for specific cause ? scan
- If all normal
- ? Try antireflux
- ? Reduce cows milk exposure
- ? Check immunity

