



# Nasal Polyps



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# Introduction

- Abnormal lesions that emanate from portion of nasal mucosa or paranasal sinuses
- Benign polyps
- Other benign or malignant tumours



# Nasal polyps

- Endoscopic view of left nasal cavity. Polyp protruding from uncinate process



# Nasal polyps

- Left anterior nasal cavity showing an antro-coanal polyp. Sucker is pushing inferior turbinate to one side



# Pathophysiology

- Unknown
- Chronic inflammation
- Autonomic nervous system dysfunction
- Genetic predisposition
- Allergic verses non-allergic

# Pathophysiology

Associated with allergic conditions

- 20-50% have asthma
- Allergic rhinitis
- 8-26% have aspirin intolerance
- 50% have alcohol intolerance

# Pathophysiology

## Non allergic conditions

- Cystic Fibrosis 6-48% have polyps
- AFS 85% have polyps
- Young syndrome
- Churg-Strauss syndrome

# Pathophysiology

- Coronal CT scan of sinuses of patient with cystic fibrosis





# Pathophysiology

- Allergic fungal sinusitis



# Pathophysiology

- Polyps are more common in patients with non-allergic asthma (13%) than allergic asthma (5%)
- 3000 atopic patients 0.5% have polyps

Norlander et al (1999)

# Pathophysiology

## Various theories

- Bernstein theory
- Vasomotor theory
- Epithelia rupture theory

# Pathophysiology

## Bernstein theory

- Inflammatory changes in lateral nasal wall or sinus mucosa
- Polyps originate from contact area
- Ulceration, reepithelialisation and new gland formation
- Inflammatory processes from epithelial cells, endothelium and fibroblasts
- Integrity of sodium channels affected

# Frequency

- Adults 1-4%
- Children 0.1%
- All races and social classes
- M/F 2-4:1 in adults
- Increasing incidence with age

# Presentation

- Asymptomatic
- Airway obstruction
- Postnasal drip
- Dull headaches
- Snoring
- Rhinorrhoea
- Hyposmia / Anosmia
- Epistaxis (often other lesion)
- Obstructive sleep apnoea
- Craniofacial abnormalities
- Optic nerve compression

# Differential

- Encephalocoeles
- Gliomas
- Dermoid tumours
- Haemangiomas
- Papillomas / transitional cell papillomas
- Nasopharyngeal angiofibromas
- Rhabdomyosarcomas
- Lymphomas
- Neuroblastomas
- Sarcomas
- Chordomas
- Nasopharyngeal carcinomas

# Differential

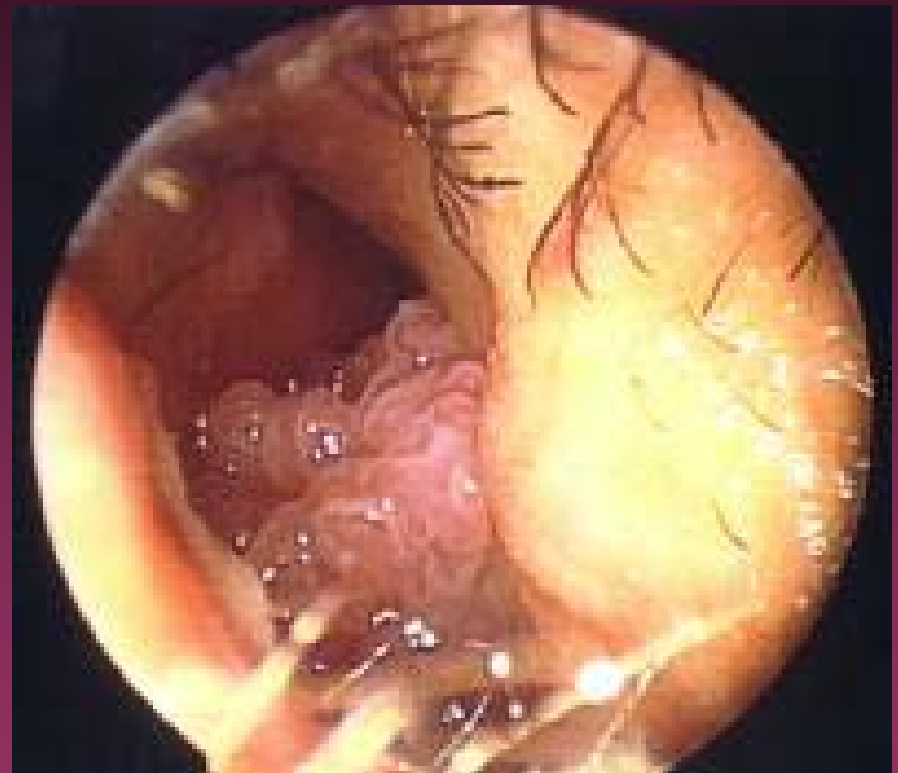
- Intranasal gioma in a 5 year old





# Differential

- Nasal papilloma arising from septum



# Differential

- Rhabdomyosarcoma affecting posterior ethomids, orbit, left middle fossa and skull base of cavernous sinuses



# Differential

- A rare cause of polyps?

# Investigations

- Sweat test
- RAST / skin testing
- Nasal smear
  - Microbiology
  - Eosinophils (allergic component)
  - Neutrophils (chronic sinusitis)

# Investigations

- Coronal CT scan
- MRI scan
- Flexible nasendoscopy
- Rigid nasendoscopy

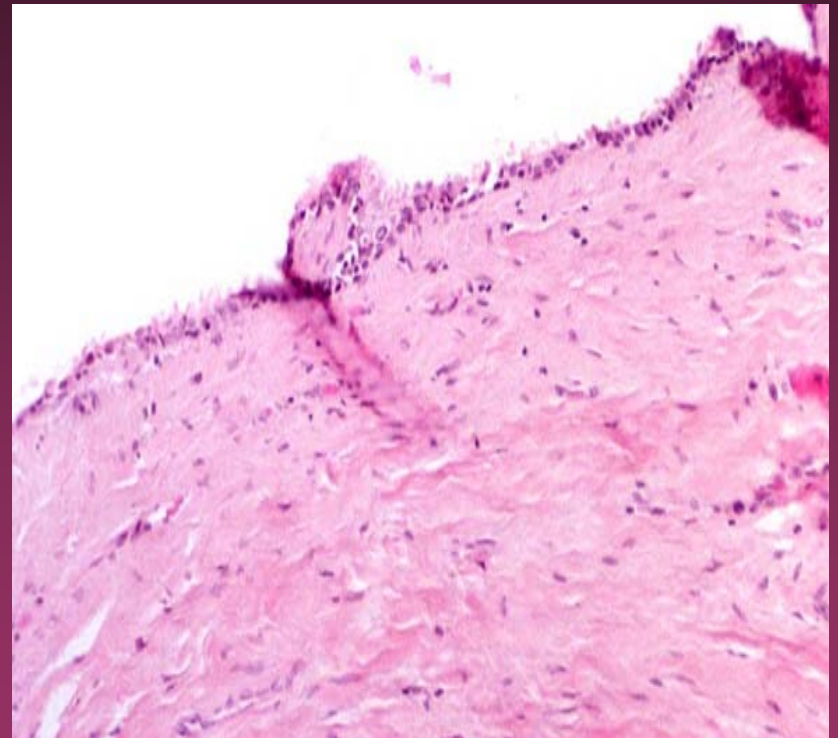
# Investigations

- Coronal CT scan through anterior sinuses. Opacification of left maxillary sinus, opacification of inferior half of nasal cavity. Due to antrocoanal polyp.



# Histological findings

- Pseudostratified ciliated columnar epithelium
- Thickened epithelial basement membrane
- Oedematous stroma



# Histological findings

- Eosinophils in 80-90% of polyps
- Eosinic granules - LTs, ECP, PAF, peroxidases, etc
- Epithelial damage, ciliostasis
- LT-A4 mucosal swelling and hyperresponsiveness
- Increased lifespan (12 days vs 3 days)
- ?due to IL5 blockage of Fas receptors



# Histological findings

- Neutrophils in 7% of polyps
- CF, primary ciliary dyskinesia, Youngs syndrome
- Poor response to standard treatment
- Non IgE mediated degranulation

# Histological findings

- Histamine - level in polyps 10-1000 times higher than serum levels
- Immunoglobulins normally unaffected. IgA2 and IgE higher in middle and inferior turbinate polyps

# Treatment

- Oral and nasal steroids
  - High dose prednisolone and nasal steroid for 20 days will eliminate 50% of polyps
  - Lower bioavailability in modern nasal steroids
  - Poor response in certain groups
  - Intranasal injection not effective
- Immunotherapy
- Diet (no effect)

# Treatment

- Traditional polypectomy
- Microdebrider
- Endoscopic sinus surgery
- Recurrence
  - Multiple small polyps common
  - Large and antro-coanal less so

# Nasal polypectomy

- Nasal polyp.  
Stalk attached  
to medial  
maxillary wall



# Nasal Polypectomy

- Microdebrider entering left middle meatus



Any questions?

# Summary

- Common condition in adults
- Aetiology not fully understood
- Majority are not allergic in nature
- Medical treatment can be effective
- Even with surgery, recurrence is common