

# Airway Stenosis and Eosinophilic Oesophagitis

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# Outline

- Background
  - Parameters Defining Eosinophilic Oesophagitis
  - Treatment of EO
- Hypothesis
- Case Series
- Results
- Conclusions

# Eosinophilic Oesophagitis (EO) is:

- A separate clinical entity from Eosinophilic Gastroenteritis
- Commonly associated with multiple food allergies
- Generally independent of GERD
- Not infrequently seen in asthmatics and atopic patients

# Diagnosing EO

- **1. Clinically**
  - Distal oesophagus
  - Thick, Granular, Furrowed mucosa
  - Tiny points of white exudate
- **2. Histopathologically**
  - Basal cell layer hyperplasia
  - Surface inflammation
  - >24 eosinophils/hpf in epithelial layer

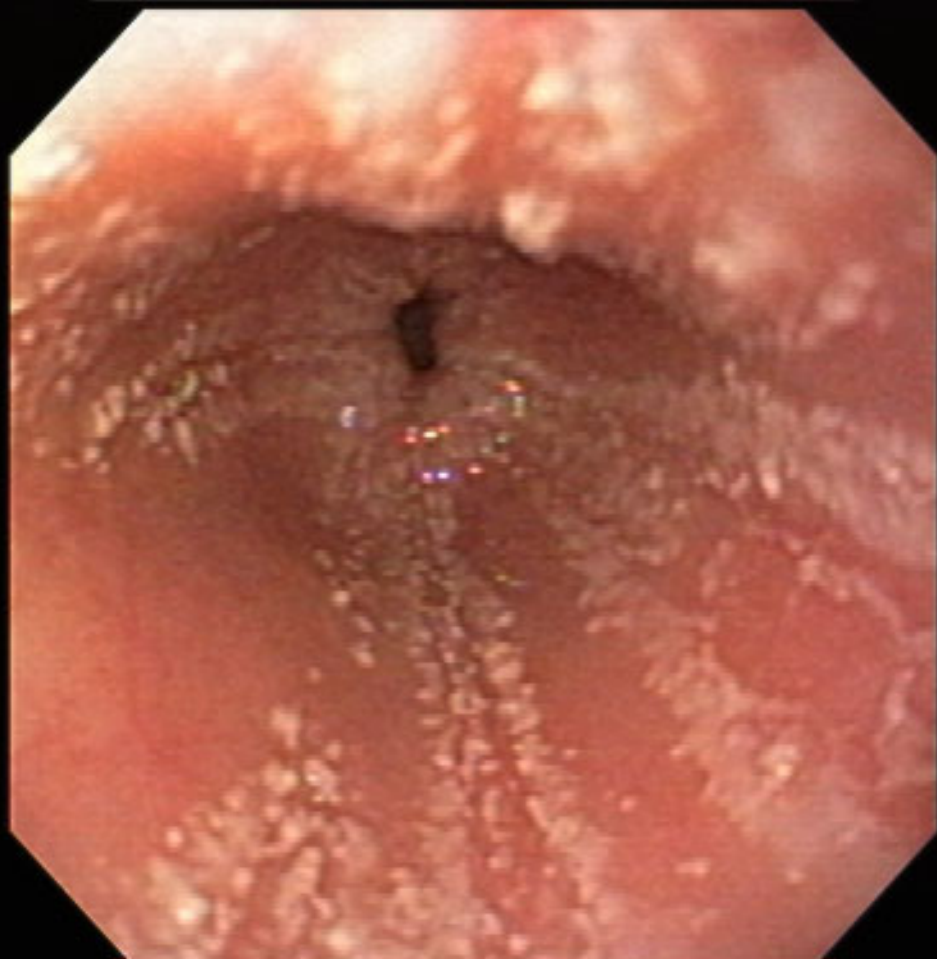
**Normal**



**Esophageal Furrowing**

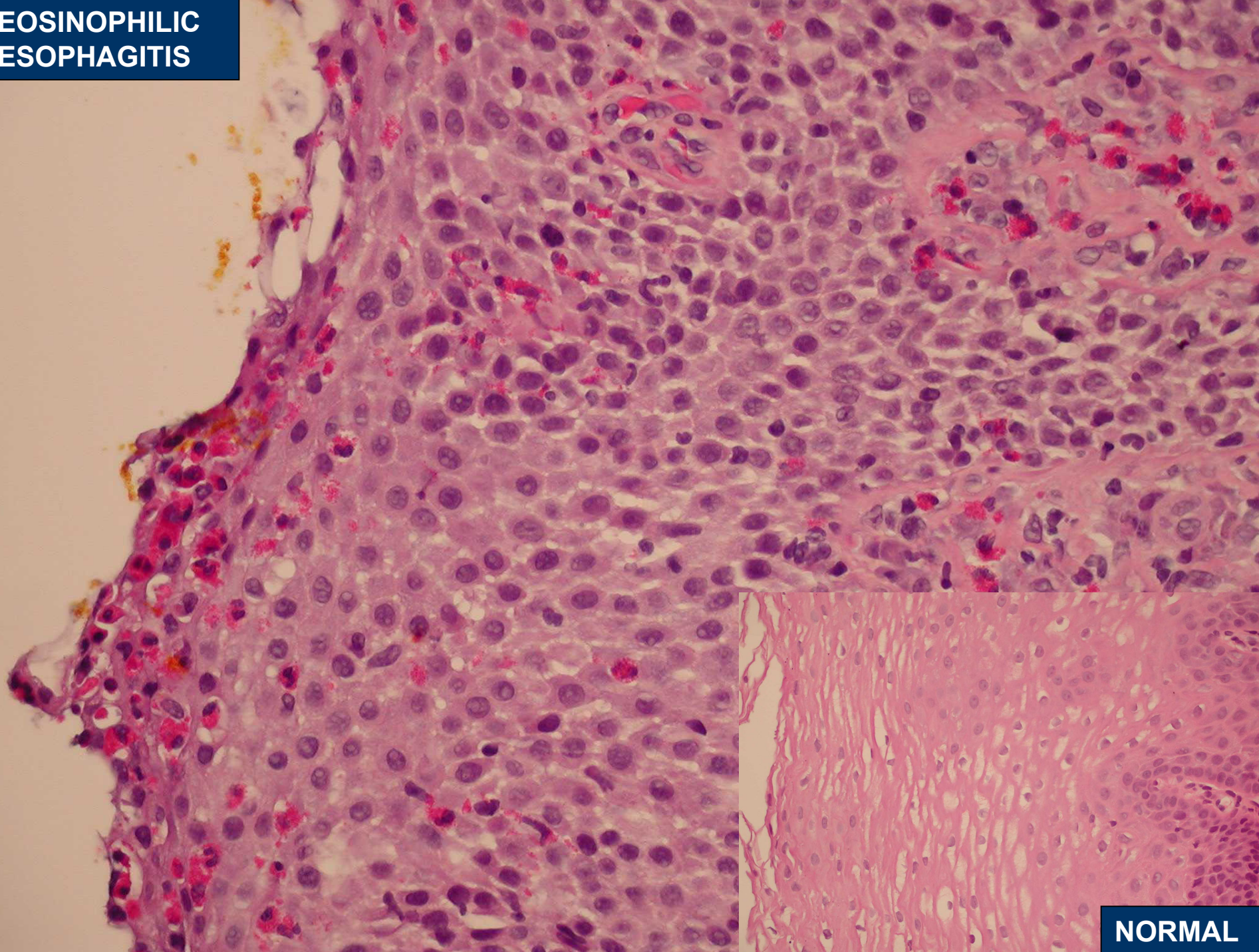


# White Exudate





**EOSINOPHILIC  
ESOPHAGITIS**



**NORMAL**

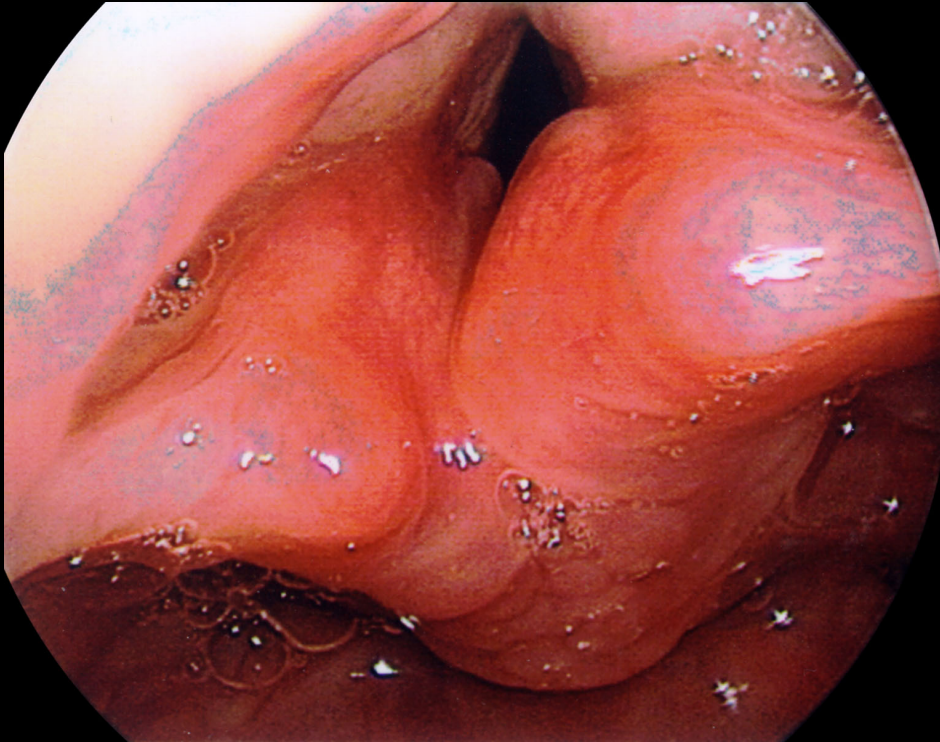
# Treatment of EO

- Hypoallergenic diet avoiding specific triggers
- Oral steroid therapy
- Response ranges between 3-6 months of therapy
- No response to:
  - Prokinetic agents
  - Proton pump inhibitors
- No proven benefit from leukotriene receptor antagonists

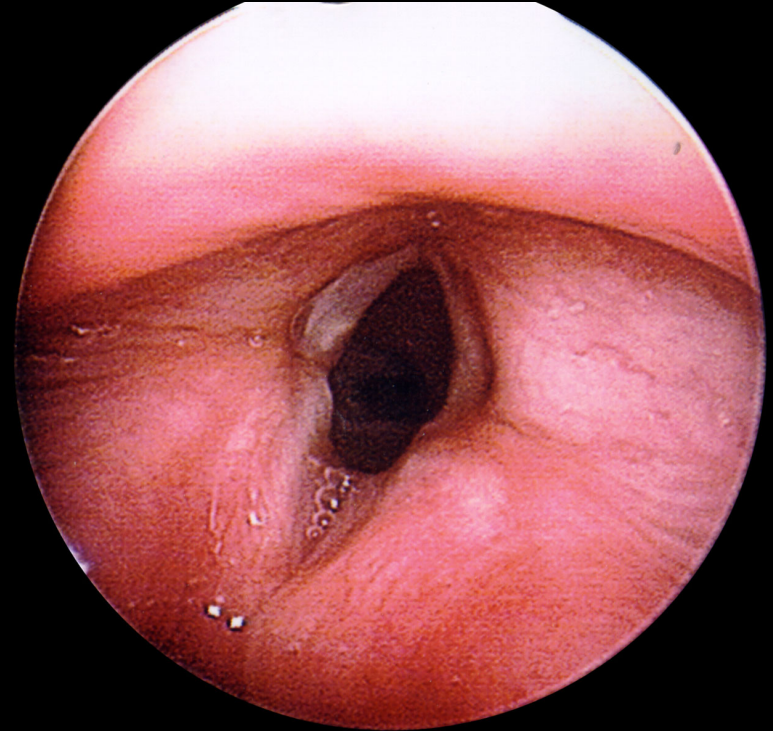


# Glottis

**Pre-Treatment**

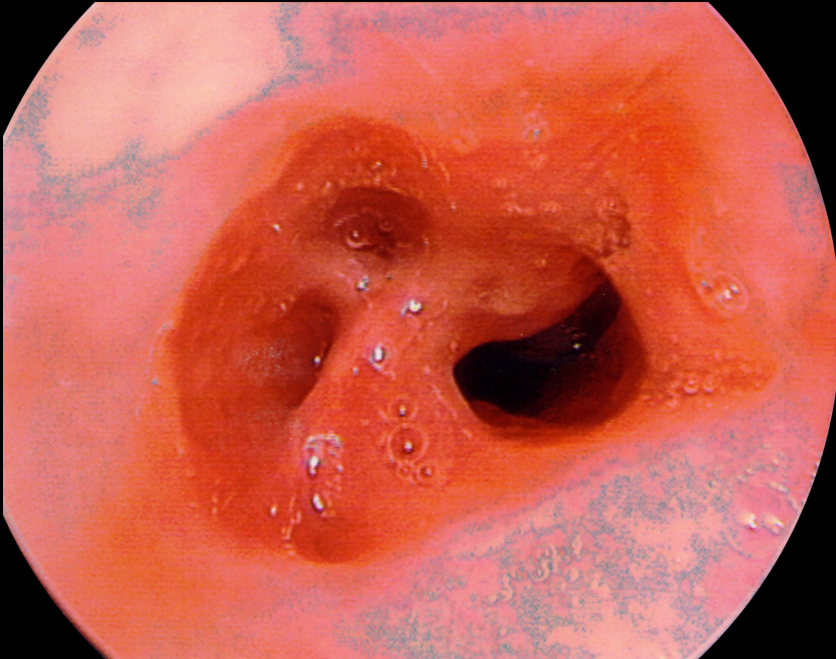


**Post-Treatment**

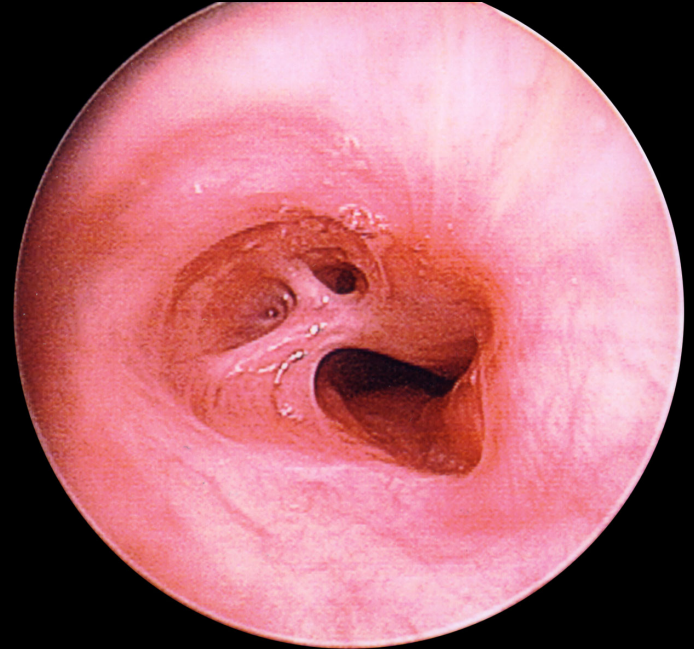


# Subglottis

**Pre-Treatment**



**Post-Treatment**



# Our Hypothesis

- Does the presence of EO contribute to failed airway reconstruction?
- Does treatment of EO alter surgical outcomes?

# Case Series

- 9 patients:
  - 6 males, 3 females
  - Aged between 15 months and 5½ years
- All had prolonged intubation in the neonatal period
- All developed proximal airway stenosis
  - 8 Subglottic stenosis, 1 Tracheal stenosis
- 6 patients previously failed airway reconstruction
  - A total of 19 procedures



# Patient Evaluation

- Aerodigestive endoscopy
  - Laryngoscopy, Bronchoscopy
  - Oesophagogastroduodenoscopy
  - Biopsies
  - 24-hour pH probe
- Allergy work-up
  - Skin testing
  - RAST

# Results - GI Perspective

- **GERD Work-up:**
  - All had negative pre-op pH probe studies
  - 1 positive pH probe after airway repair
  - 2 Nissen Fundoplication in infancy
  - All on perioperative antireflux measures

# Results - GI Perspective

- **Eosinophilic Oesophagitis Work-up:**
  - 6 diagnosed with EO after reconstructive attempts
  - 6 treated with hypoallergenic diets
  - All treated with oral fluticasone and reassessed every 3 months
  - Minimum of 6 months of therapy prior to surgical intervention, except one patient

# Results - Airway Perspective

- 1 improved on fluticasone and diet alone
  - No further surgery
- 2 awaiting surgery - persistent eosinophilia
- 4 post-op, working toward decannulation
- 2 restenosing
  - 1 due to loss of follow-up and discontinuation of steroid
  - 1 distal to repair site, requiring stenting with trach tube



# Results - Procedures

- 1 none
- 2 surgery pending
- 5 Laryngotracheal reconstruction with costal cartilage grafting
  - 2 with stenting
- 1 Cricotracheal resection

# Treatment Outcomes

- 2 of 3 treated for EO prior to surgery are heading toward decannulation
- 1 of 3 is restenosing and is being medically managed for one year
- 2 required stenting
  - 1 working toward decannulation
  - 1 recurrence of EO with loss of follow-up

# Treatment Outcomes

- 6 patients had 19 procedures prior to therapy
- 7 patients had 6 procedures after therapy

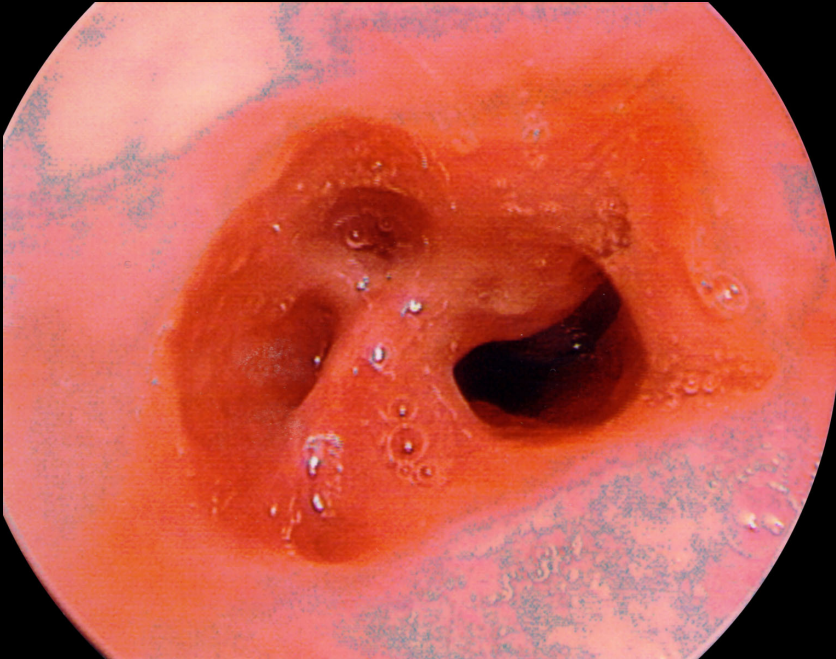
# Conclusions

- Association between failed airway reconstruction and EO
- Treatment of EO reduces airway oedema and erythema
- Criteria for airway reconstruction
  - Treat EO for minimum of 6 months
  - Ensure negative biopsies for EO

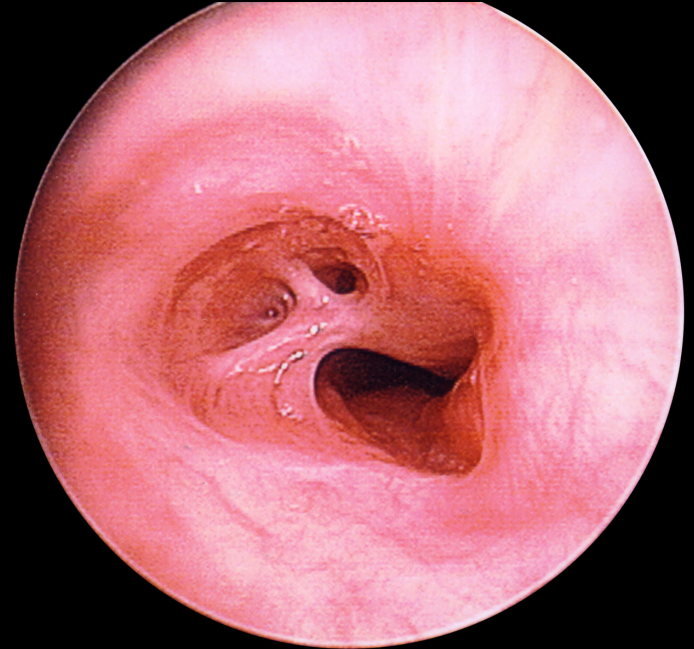


# Subglottis

**Pre-Treatment**



**Post-Treatment**



# Summary

- EO is thought to be triggered by food allergens
- Inflammatory mediators contribute to airway oedema
- Failed airway reconstruction is commonly seen in EO population
- Treatment of EO with diet and steroids improves the success rate of airway surgery