Antrochoanal Polyp = Killian Polyp

**DEFINITION:**
- Antrochoanal polyp is a benign solitary polypoidal lesion arising from the maxillary sinus antrum causing opacification and enlargement of antrum radiologically without any evidence of bone destruction.
- It exits the antrum through the accessory ostium reaches the nasal cavity, expands posteriorly to exit through the choana into the post nasal space.
- The Antrochoanal polyp is dumb bell shaped with three components i.e. antral, nasal and nasopharyngeal

**INCIDENCE:**
- Children and young adults

**ETIOPATHOGENESIS:**

Unknown

**Proetz theory:**
- Proetz suggested that this disease could be due to faulty development of the maxillary sinus ostium, since it was always been found to be large in these patients. Hypertrophic mucosa of maxillary antrum sprouts out through this enlarged maxillary sinus ostium to get into the nasal cavity. The growth of the polyp is due to impediment to the venous return from the polyp. This impediment occur at the level of the maxillary sinus ostium. This venous stasis increases the oedema of the polypoid mucosa thereby increasing its size.

**Bernoulli's phenomenon:**
- Pressure drop next to a constriction causes a suction effect pulling the sinus mucosa into the nose

**Mucopolysaccharide changes:**
- Jackson postulated that changes in mucopolysaccharides of the ground substance could cause nasal polyp

**Mill's theory:**
- Mills postulated that antrochonal polyp could be maxillary mucoceles which could be caused due to obstruction of mucinous glands

**Ewing's theory:**
- Ewings suggested that an anomaly which could occur during maxillary sinus development could leave a mucosal fold close to the ostium. This fold could later be aspirated into the sinus cavity due to the effects of inspired air causing the development of antrochonal polyp

**Infections**
Vasomotor imbalance theory

Why AC polyp grows posteriorly

- Accessory ostium is posteriorly. Cilia beats posteriorly, Natural slope of Nasal cavity is posteriorly, Nasal airflow directed posteriorly

HISTOLOGY:

- Shows respiratory epithelium over normal basement membrane. The interstitial layer is grossly oedematous, with no eosinophils. The interstitial layer contains other inflammatory cells

CLINICAL FEATURES:

- Since the disorder is unilateral (commonly) the patient always present with
  1. Unilateral nasal obstruction
  2. Unilateral nasal discharge
  3. Headache (mostly unilateral)
  4. Epistaxis
  5. Sleep apnoea
  6. Rhinolalia clausa due to presence of polyp in the post nasal space
  7. Difficulty in swallowing if the polyp extends into the oropharynx

ANTERIOR RHINOSCOPY:

- may show the polyp as glistening polypoidal structures. They will be insensitive to touch. this feature helps to differentiate it from a hypertrophied nasal turbinate

PRE:

- Globular mass can be appreciated

- Investigations: CT diagnostic

TREATMENT:

- Formerly it was treated by Avulsion of the polyp transnasally
- A Caldwell Luc Approach was preferred in patients with recurrences
- In Caldwell luc procedure in addition to the polypectomy, the maxillary antrum is entered via the canine fossa and the antral component is completely excised

- Endoscopic approach: complete removal of the polypoid tissue. The Uncinate process must also be completely excised. Endoscopic approach has the advantage of a complete surgical excision with negligible recurrence rates

RECENT ADVANCES:

Nitric oxide have been shown to play a major role in nonspecific immune reactions and inflammation in a variety of tissues. Endogenous nitric oxide is synthesized from L-argenine by the effect of nitric oxide synthase. This all important nitric oxide synthase exists in three forms:

- Endothelial nitric oxide synthase
- Neuronal nitric oxide synthase
- Inducible nitric oxic synthase
Out of these three types the Inducible nitric oxide synthase has been detected not only in epithelium but also in macrophages, fibroblasts, neutrophils, endothelium and vascular smooth muscle.

Studies have revealed that antrochoanal polyp tissue contained more nitric oxide than normal tissues. Increased nitric oxide production could be from epithelial / inflammatory cells. Among inflammatory cells eosinophils play an important role in production of nitric oxide. Studies have also revealed that Inducible nitric oxide synthase play an important role in the pathogenesis of antrochonal polyp.

Differences between antrochoanal polyp and ethmoidal polypi

<table>
<thead>
<tr>
<th>ETHMOIDAL POLYPI</th>
<th>ANTROCOANAL POLYP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seen in adults</td>
<td>Seen in children and adolescents</td>
</tr>
<tr>
<td>Allergy is the common cause</td>
<td>Infection is the common cause</td>
</tr>
<tr>
<td>Multiple (bunch of grapes)</td>
<td>Unilateral</td>
</tr>
<tr>
<td>Arises from ethmoidal labyrinth</td>
<td>Arises from maxillary antrum</td>
</tr>
<tr>
<td>Seen easily on anterior rhinoscopy</td>
<td>Seen commonly in post nasal exam</td>
</tr>
<tr>
<td>X ray PNS may show hazy ethmoids and normal maxillary sinuses</td>
<td>X ray PNS shows hazy maxillary antrum</td>
</tr>
<tr>
<td>Mostly bilateral, extension may be forward or backward</td>
<td>Usually unilateral Extension is backwards</td>
</tr>
<tr>
<td>Recurrence is common</td>
<td>Recurrence is uncommon</td>
</tr>
<tr>
<td>Polypectomy</td>
<td>Caldwel luc surgery in recurrent cases</td>
</tr>
</tbody>
</table>