"بسم الله الرحمن الرحيم" بالخط الثلث

Non-Infective Rhinitis

Non-Infective rhinitis is characterized by episodic sneezing, nasal blockage and non-purulent rhinorrhea. Non-Infective rhinitis is classified as allergic when one or more causative allergies can be identified and vasomotor or intrinsic when causative agents can not be found.

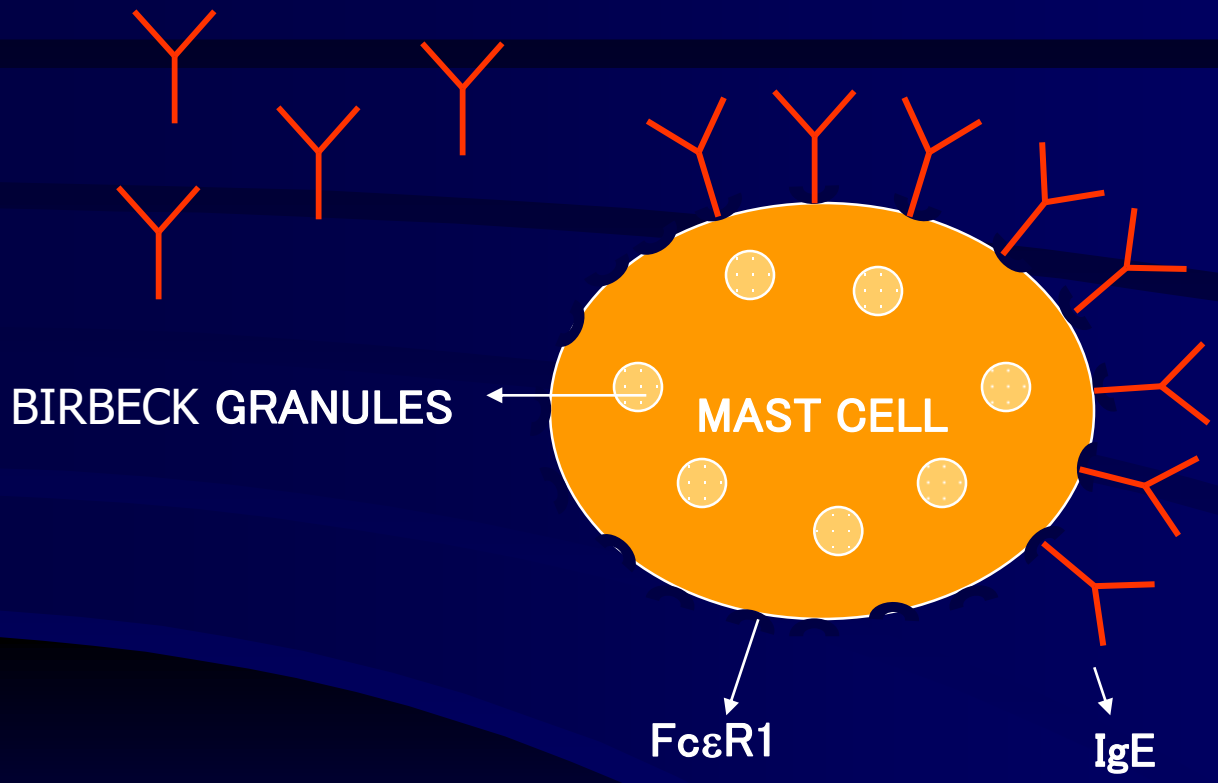
ALLERGIC RHINITIS

Is an abnormal reaction of the tissues to certain substances. The causal substances are called "allergens" or "antigens".

Aetiology

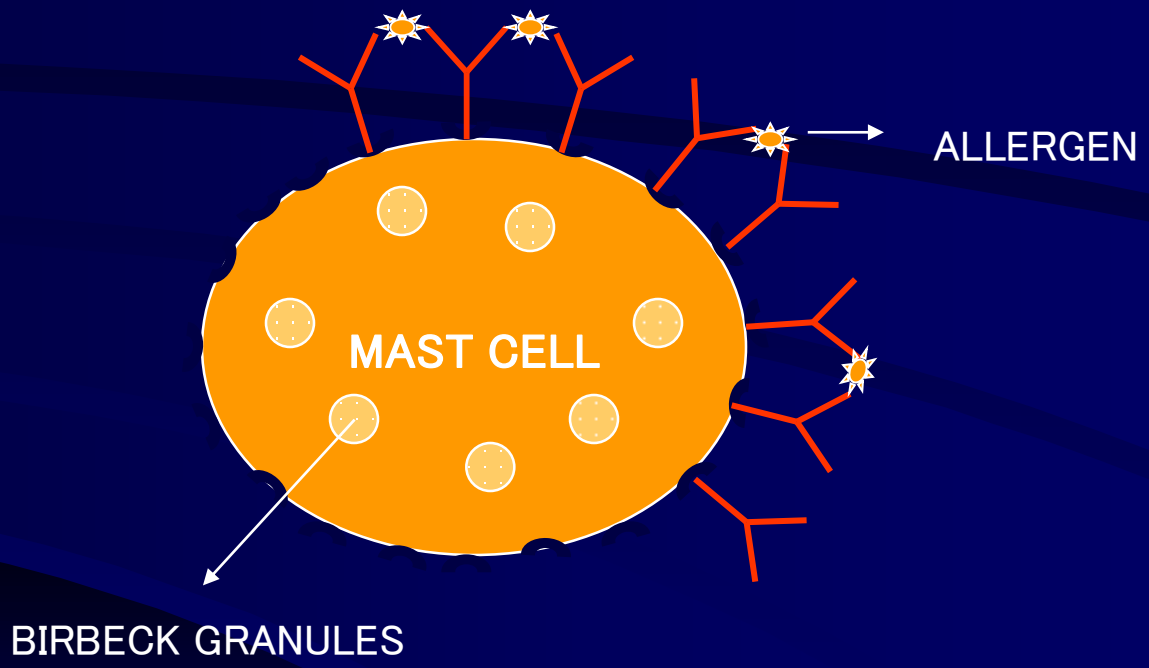
Mechanism of allergy: Allergic rhinitis is classified as **type I reaction**.. When the allergen interacts with reagenic antibodies on the mast cell surface, mast cell degranulation occurs. These degranulating cells secrete histamine and other mediators of anaphylaxis. The capillaries become permeable and oedema occurs. Meanwhile, oesinophils infiltrate the tissue and serous alveolar glands are stimulated to produce excessive watery secretion.

· IgE BINDS TO MAST CELLS

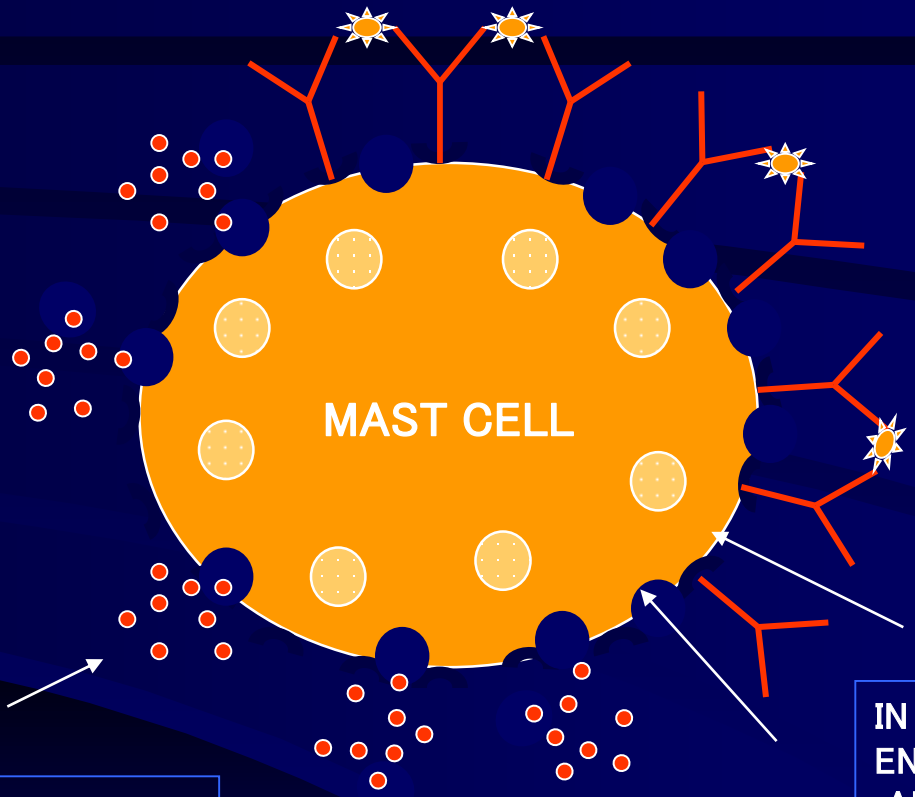


SENSITIZATION
FIRST EXPOSURE TO ALLERGEN
(POLLEN) BY A SUSCEPTIBLE INDIVIDUAL

ALLERGENS BIND TO Fab-REGIONS OF IgE ON SURFACES OF MAST CELLS



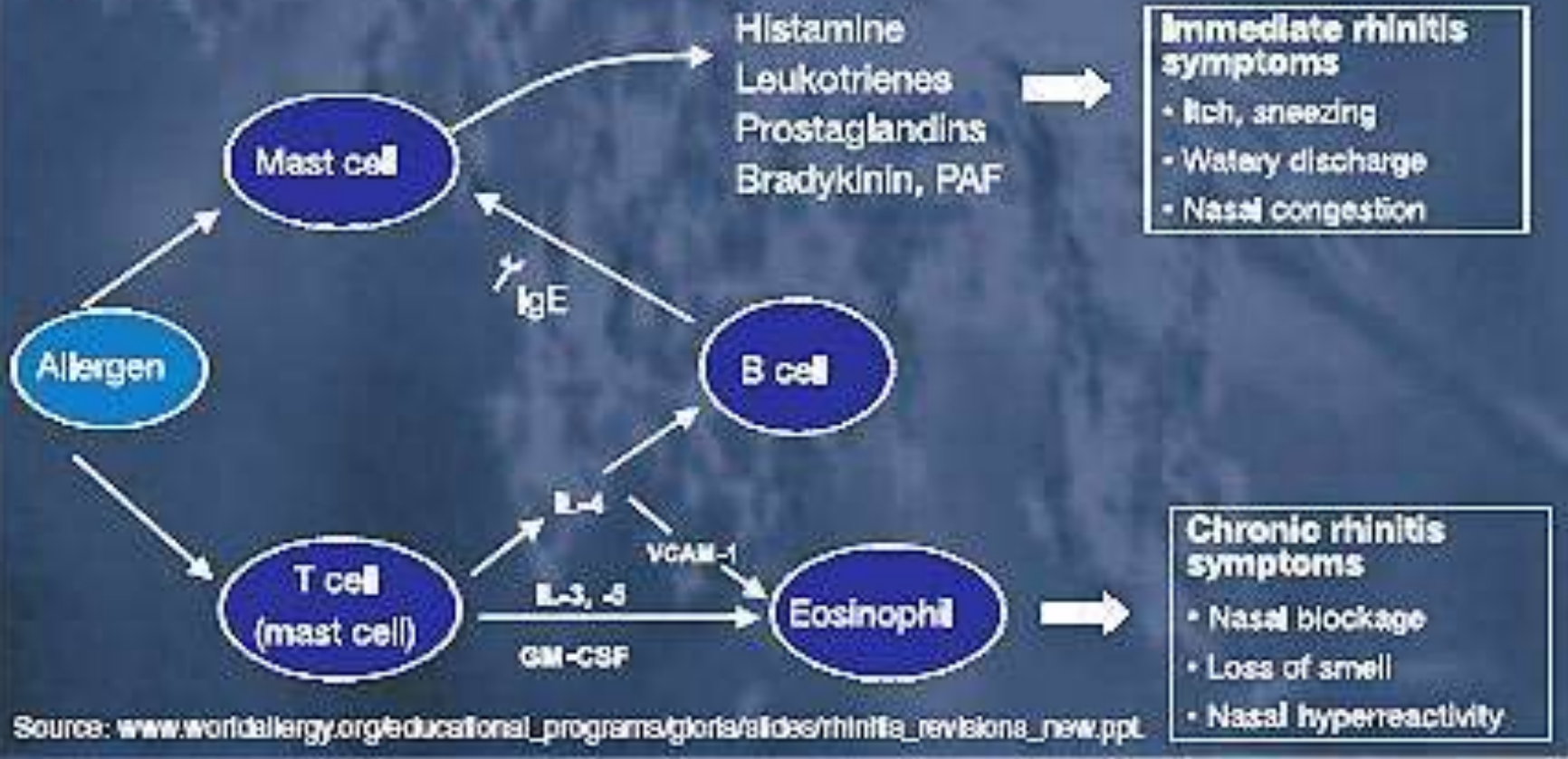
CROSS-BINDING OF IgE BY ALLERGEN LEADS TO ACTIVATION AND DEGRANULATION OF MAST CELL



DEGRANULATION OF PRE-FORMED FACTORS
EG HISTAMINE

IN MEMBRANE:
ENZYMATIC ACTION ON ARACHIDONIC ACID→
PROSTAGLANDIN D2 &
LEUKOTRIENES C4 & D4

Mediators and Symptoms in Allergic Rhinitis



Source: www.worldallergy.org/educational_programs/gloria/slides/rhinitis_revisions_new.ppt

Clinical Picture

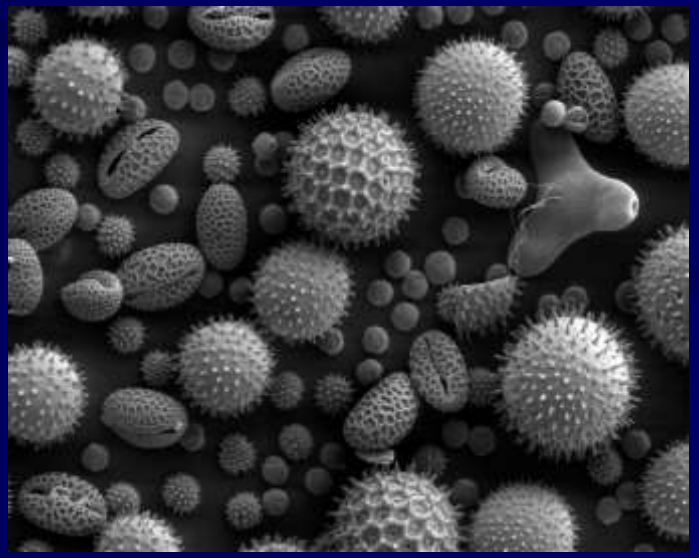
-Seasonal (Hay fever) if the allergen is pollen or moulds.

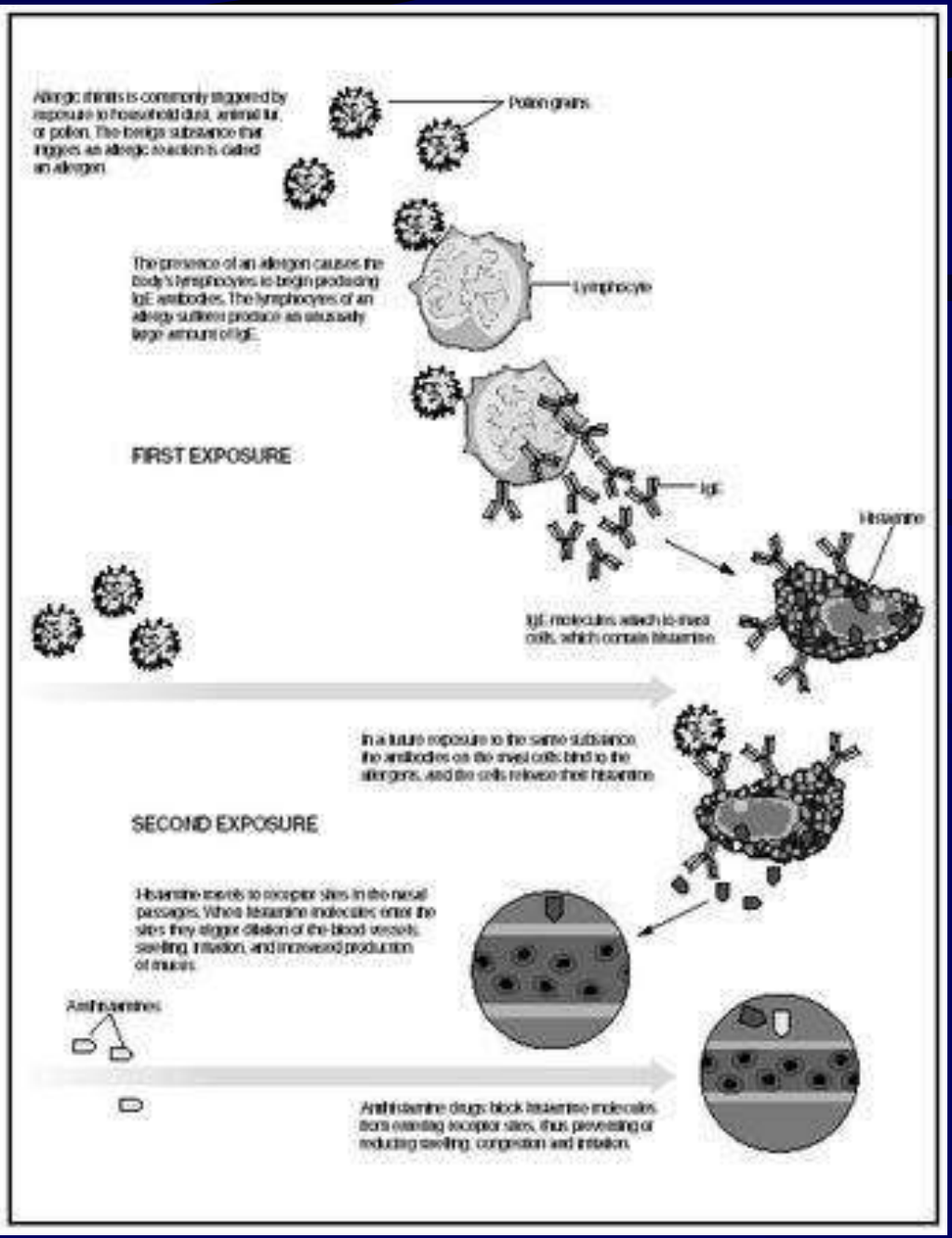
-Perennial (non-seasonal) if the allergen is present all year round like house dust mite. House dust mite is found in high concentration in most bedrooms as it feeds on skin scales. Epithelial debris from domestic cats and dogs may also be an important cause of perennial rhinitis.


Dust mites


Pollen


Milbe
D. pteronyssinus
Allergopharma Joachim Ganzer K




Allergic rhinitis is commonly triggered by exposure to household dust, animal fur, or pollen. The foreign substance that triggers an allergic reaction is called an allergen.
Pollen grains
The presence of an allergen causes the body's lymphocytes to begin producing IgE antibodies. The lymphocytes of an allergy sufferer produce an unusually large amount of IgE.
Lymphocyte
FIRST EXPOSURE
IgE
Histamine
IgE molecules attach to mast cells, which contain histamine.
In a future exposure to the same substance, the antibodies on the mast cells bind to the allergens, and the cells release their histamine.
SECOND EXPOSURE
Histamine travels to receptor sites in the nasal passages. When histamine molecules enter the sites they trigger dilation of the blood vessels, swelling, irritation, and increased production of mucus.
Antihistamines
Antihistamine drugs block histamine molecules from inserting receptor sites, thus preventing or reducing swelling, congestion and irritation.

The *symptoms* of allergic rhinitis are:

1. There is a prodromal nasal itching which is soon followed by violent sneezing.
2. Profuse watery nasal discharge.
3. Nasal obstruction: Which is bilateral due to mucous oedema and/or venous stasis of the inferior turbinate.
4. Itching and watering of the eyes.
5. Anosmia either intermittent or continuous.

Allergic Rhinitis greatly affects the quality of life for people with asthma

Examination

The nasal mucosa is thick, pale and oedematous with thin watery mucoid discharge.

Investigations

1. Skin test using solutions containing various allegens to know the causative one.
2. Nasal smear which shows increase oesinophil count.
3. Blood tests can show oesinophilia and allergen specific IgE in the serum.

- SKIN TEST SENSITIVITY

POSITIVE SKIN TEST

WHEAL & FLARE REACTION
+VE if > 2mm in under fives & 3mm in adults & should be at least 2mm bigger than negative control

Link Between Allergic Rhinitis and Other Chronic Disorders

Comorbidities[1,2]

Asthma

Allergic rhinoconjunctivitis

Sinusitis

Otitis media

Complications[1,3]

1. Spector SL, et al. *J Allergy Clin Immunol.* 1997;99:S773-S780.
2. O'Connell EJ. *Allergy.* 2004;78:7-11.
3. Rachelefsky GR. *Ann Allergy Asthma Immunol* 1998;82:1-10.

Treatment

I. Avoidance of the precipitating factors

II. Drugs

A. *Topical steroids*: as nasal sprays like beclomethasone, budenoside and mometasone. These are locally acting and not systemically absorbed. A short course of oral steroids as prednisolon are effective in severe seasonal symptoms.

B. *Antihistamines*

1. First generation (sedating antihistamines) as diphenhydramine (Allermine) and chlorpheniramine (Histadin).

2. Second generation (non-sedating) antihistamines as loratadine and fexofenadine.

3. Topical nasal antihistamines as azelastine.

C. *Sodium cromoglycate* which is a mast cell stabilizer.

III. Immunotherapy (Hyposensitization):

Involve injection of small amounts of antigen to mop up the allergen specific immunoglobulins in the patient. Hyposensitization probably induces a blocking antibodies which intercepts the antigen before it is able to react with IgE bound to the mast cells.

VASOMOTOR RHIMITIS (INTRINSIC RHINITIS)

Episodic nasal obstruction and watery rhinorrhea for which no specific allergen can be identified.

Aetiology

The mechanism appears autoimmune imbalance (parasympathetic over activity).

Predisposing factors.

1. Hereditary.
2. Infection

3. Psychological and emotional upset.

-Fear → sympathetic overactivity → vasoconstriction

-Anxiety and frustration → parasympathetic activity → engorgement of the mucous membrane and enhancement of gland secretion.

4. Endocrine: vasomotor rhinitis is common during puberty and pregnancy.
5. Drugs: Aspirin, hypotensive drugs and over use of nasal drops which leads to rhinitis medicamentosa.
6. Atmospheric conditions as changes in humidity and temperature, fumes and central heating.

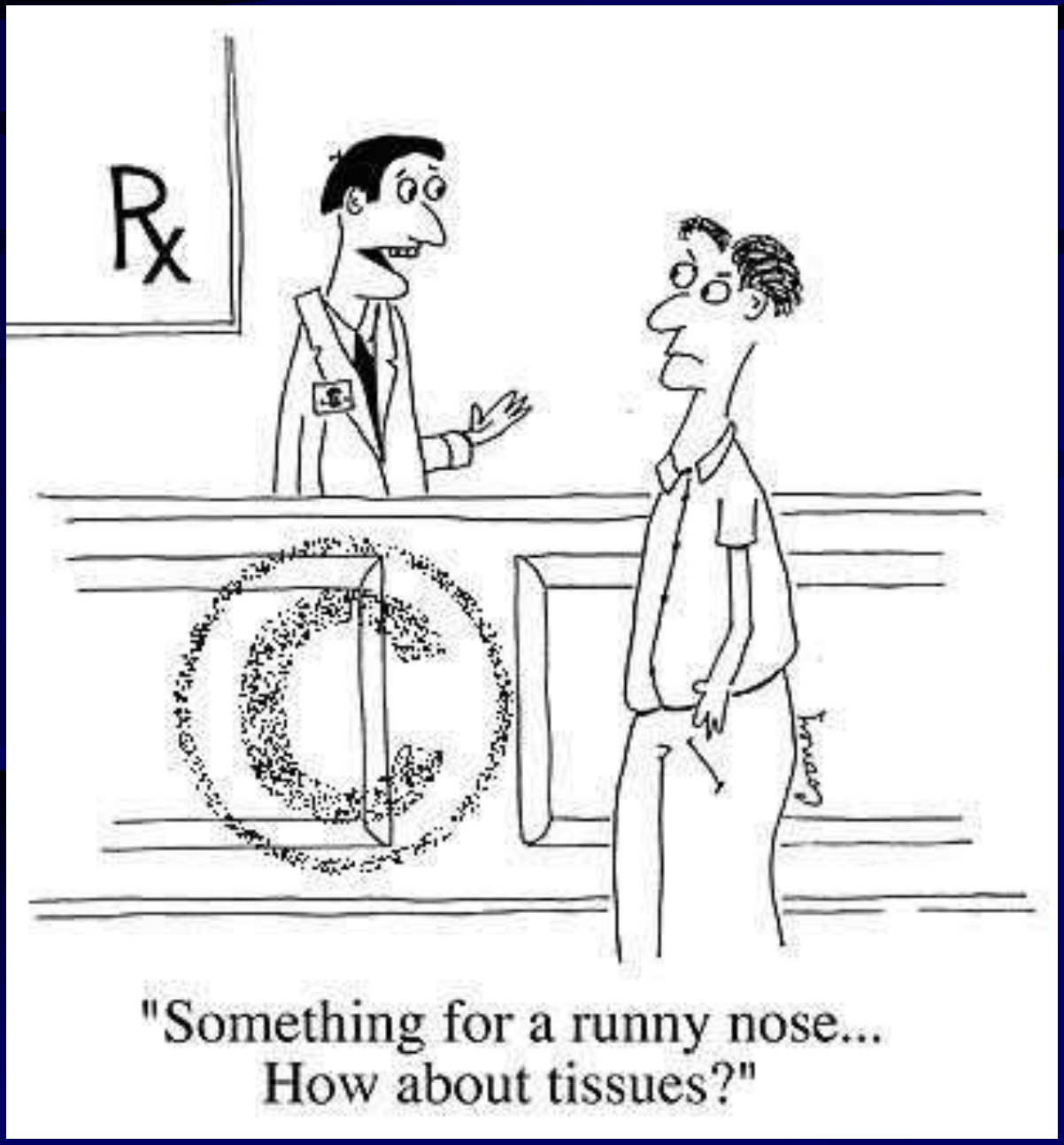
Clinical Picture

The symptoms are identical to those of allergic rhinitis.

1. Nasal obstruction which may alternate from side to side.
2. Watery rhinorrhea, postnasal discharge and headache can occur.
3. Sneezing which is paroxysmal in nature especially on getting out from bed.
4. Postnasal drip.

Examination

The mucous membrane is hyperemic and hypertrophic. Some times polyps and hypertrophy of the inferior turbinate can be seen.


Rx
"Something for a runny nose...
How about tissues?"

Treatment

1. *Avoidance of the predisposing factors.*
2. *Medical:*

   a. When there is little rhinorrhea, the use of topical nasal steroids and antihistamines are the main approach.

   b. When there is copious watery discharge, the addition of topical nasal anticholinergics like ipratropium bromide is usually recommended.

3. *Surgical:*

   a. Reduction of the size of the inferior turbinate by submucosal diathermy, cryosurgery or turbinectomy.

   b. Nasal polypectomy.

Nasal Polyps

Are pedunculated portions of oedematous mucosa of the nose and paranasal sinuses which are attached to the nasal mucosa by a narrow pedicle. Nasal polyps originate in the region of the ethmoidal sinuses and middle turbinate and project into the nasal cavity. They tend to be bilateral and multiple. In unilateral nasal polyps,

- antrochoanal polyp,
- neoplasia
- meningocele
- should be exluded.

Aetiology

-Allergic and VMR.

-Chronic rhinosinusitis.

-Mixed infection and allergy

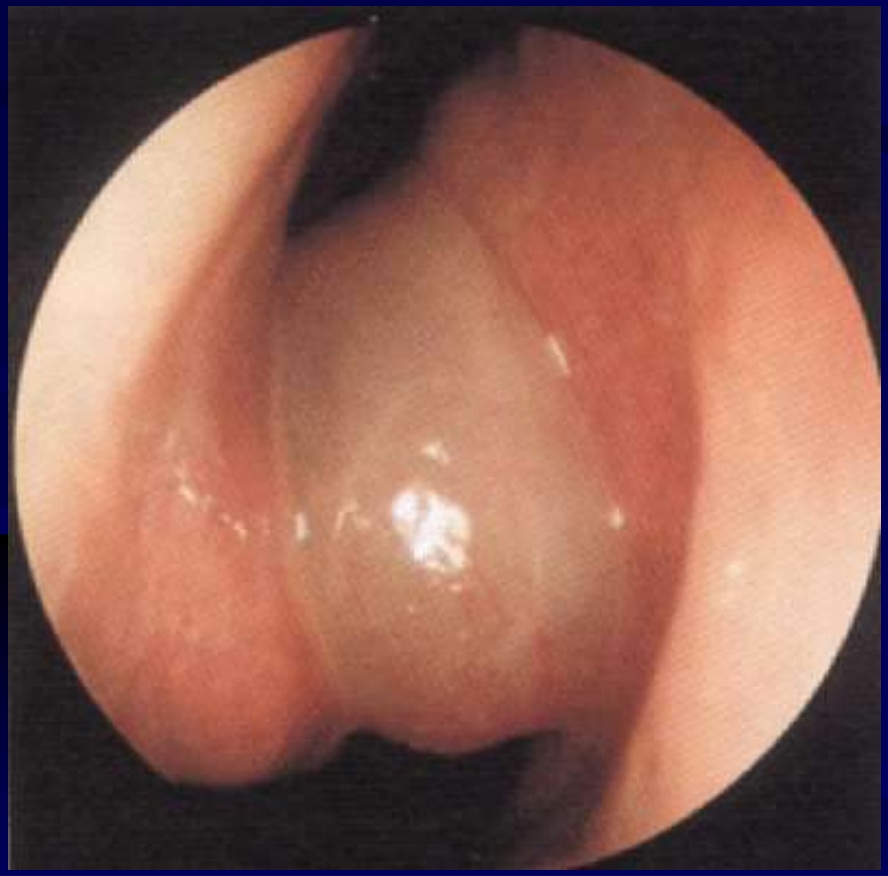
-Cystic fibrosis.

- Nasal polyps are found in association with bronchial asthma and aspirin intolerance.

Pathology

They are round, smooth glistening yellow or pale structures. Polyps show oedematous hypertrophy of the sub-mucosa with intercellular serous fluid.

Nasal polyp



Clinical Picture

Nasal polyps are more common in adult males. Any child with nasal polyps should be regarded as having **cystic fibrosis** until proved otherwise.

-Nasal obstruction which is usually bilateral.

-Nasal discharge which could be mucoid or purulent.

-Postnasal drip

-Anosmia.

Examination

-The polyp is pale, glistening, not tender and moves backwards when probed. These features differentiate the polyp from turbinate hypertrophy.

Investigations

-X-ray of the sinuses and CT scan if endoscopic ethmoidectomy is to be performed.

-Skin test to diagnose and treat allergy.

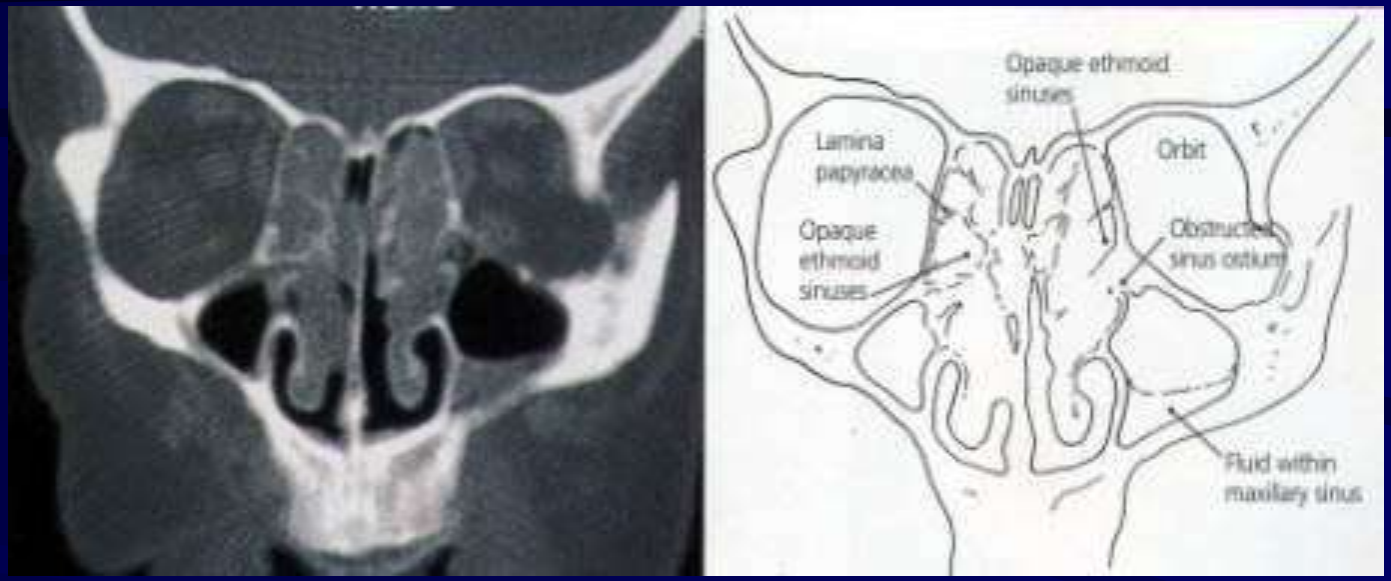
Treatment

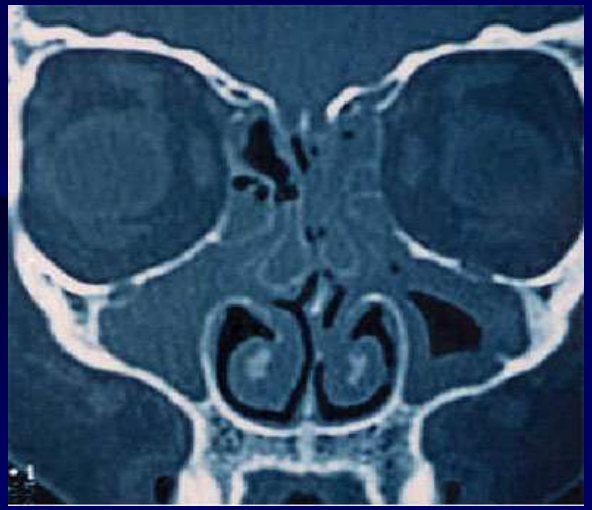
I. Control of the predisposing factors.

II. Medical: is usefull in small polyps by topical nasal steroids. A patient with more extensive polyps is usually best treated with systemic steroids.

III. Surgical: Endoscopic intranasal polypectomy.

CT scan of nasal polyps





Endoscopic sinus surgery (ESS)

Antrochoanal Polyp

- Arises from the lining of the maxillary sinus which become oedematous and project from the maxillary ostium to enlarge posteriorly to the nasopharynx. It tends to be single and unilateral.
- The polyp tends to be dumb-bell in shape with a constriction where they pass the ostium of the sinus. Therefore, it has two compartments; maxillary and nasal portions.

Antrochoanal polyp

Aetiology

It is unknown but faulty development of the maxillary sinus ostium (large or accessory ostium) is a possible factor.

Clinical Picture

The polyp is common in adolescent and young adult males.

-Unilateral nasal obstruction: The obstruction is greater in expiration than inspiration due to ball-like effect of the polyp.

-Nasal and postnasal discharge

Examination

-Anterior rhinoscopy may be normal or some times the stalk of the polyp can be seen.

-Posterior rhinoscopy to visualize the polyp.

-Nasal endoscopy.

Investigations

X-ray and CT sacn of the paranasal sinuses shows opacification of the affected antrum.

CT scan of antrochoanal polyp

Treatment

Endoscopic removal of the polyp including the maxillary portion because it has a high incidence of recurrence. In recurrence a Cald-Wel-Luc operation can be performed to clear the maxillary sinus.

Extensive Sinonasal polyps:

Extensive sinonasal polyps	
Mainly Ethmoid	Origin
Allergic or non-allergic	Etiology
Adult	Age
Equal	Sex
Common	Incidence
O, bilateral + D, watery + Sneezing+ Anosmia	Symptoms
Polyps, bilateral+discharge, watery+Pale mucosa	Signs
CT+Endoscopy+Skin test+Biopsy [eosinophyl	Investigation
Corticosteroids+- FESS	Treatments
Common	Recurrence

Antrochoanal polyp:

Antrochoanal polyp	
Maxillary	Origin
Retention cyst	Etiology
Young adult	Age
Equal	Sex
Uncommon	Incidence
O, unilateral + D, mucous	Symptoms
One polyp, unilateral+discharge, mucous	Signs
CT+Endoscopy	Investigation
Endoscopic removal	Treatments
Uncommon	Recurrence


Nasal Polyp
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THANK YOU


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