



GHADIALI

General Surgery

P R E S E N T S

Dr. Mufa T. Ghadiali is skilled in all aspects of General Surgery.
His General Surgery Services include:

- General Surgery
- Advanced Laparoscopic Surgery
- Surgical Oncology
- Gastrointestinal Surgery
- Hernia Surgery
- Endoscopy

Allergic Rhinitis

Multimedia Health Education

Disclaimer

This movie is an educational resource only and should not be used to manage Allergic Rhinitis. All decisions about the management of Allergic Rhinitis must be made in conjunction with your Physician or a licensed healthcare provider.

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GHADIALI

MULTIMEDIA HEALTH EDUCATION MANUAL

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INTRODUCTION

Allergic rhinitis is a non-infective inflammatory condition of the nose and nasal sinuses. The symptoms usually start after an exposure to a triggering factor called an allergen. Allergic Rhinitis symptoms can be intermittent or persistent and can be quite bothersome to one's quality of life if untreated. To learn more about Allergic Rhinitis it helps to understand the normal anatomy of the nose and sinuses.

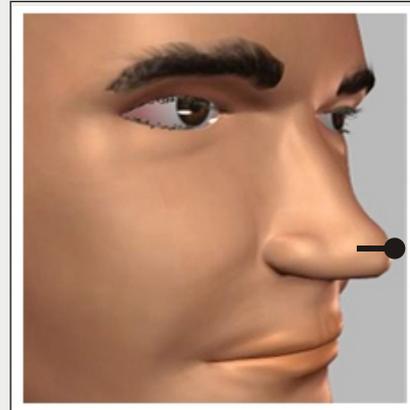
Unit 1:

Normal Nose Anatomy

Normal Nose Anatomy - External Nose

The nose is the most prominent structure of the face. It not only adds beauty to the face it also plays an important, role in breathing and smell. The nasal passages serve as an entrance to the respiratory tract and contain the olfactory organs of smell.

(Refer fig.1)



Normal Nose Anatomy

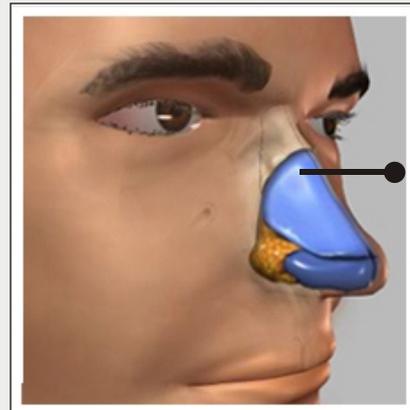
(Fig.1)

Our nose acts as an air conditioner of the body responsible for warming and saturating inspired air, removing bacteria, particles and debris, as well as conserving heat and moisture from expired air.

Nasal Bones:

These are paired rectangular structures attached to the skull bone above and nasal cartilages below. The distal part of the bones is thinner and wider making it more prone for fractures after an injury.

(Refer fig.2)



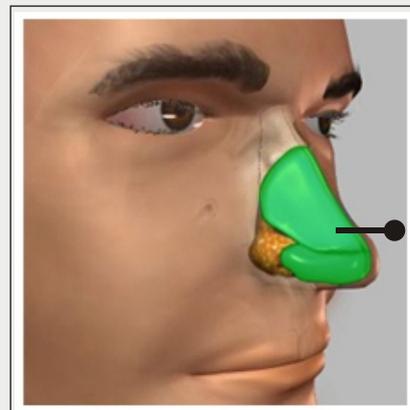
Nasal Bones

(Fig.2)

Lateral Nasal Cartilages:

There are two pairs of nasal cartilages, the upper lateral and lower lateral cartilages. The nasal bones and the lateral nasal cartilages together form the External Nasal Pyramid or Vault.

(Refer fig.3)



Lateral Nasal Cartilages

(Fig.3)

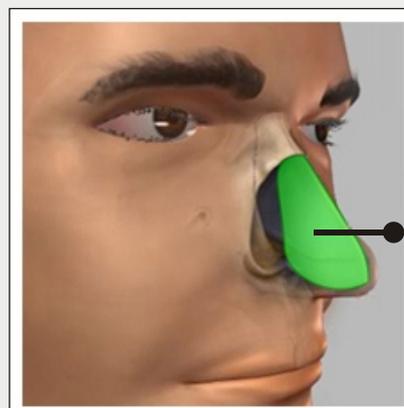
Unit 1:

Normal Nose Anatomy

Normal Nose Anatomy - Internal Nose Nasal Septum:

This is a vertical wall inside the nose that consists of cartilage in the front and bones in the back. The nasal septum divides the interior of the nose into two principal nasal cavities.

(Refer fig.4)



Nasal Septum

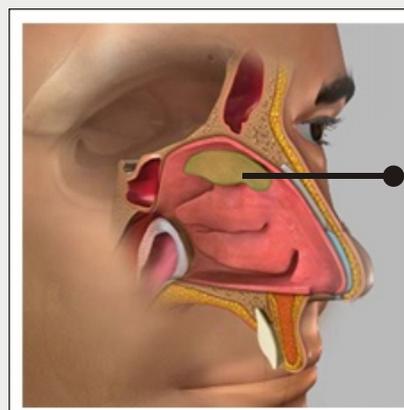
(Fig.4)

It is seldom straight. In the anteroinferior part of the nasal septum is a rich union of blood vessels called the little's area. The nasal septum also forms an important support to the external nasal framework.

Superior Concha:

This is a scroll or shelf like projection from the sidewall of the nasal cavity. It is the smallest of all conchae and is located high up in the nasal cavity. It overhangs a space or channel called the meatus. The posterior ethmoidal sinuses open into the superior meatus. There is a shallow depression behind the superior meatus called Sphenothmoidal recess into which the Sphenoidal sinus opens.

(Refer fig.5)



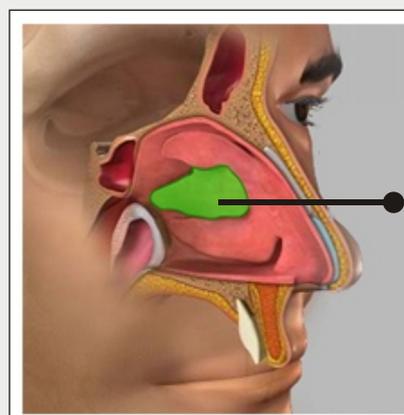
Superior Concha

(Fig.5)

Middle Concha:

The middle concha is the most important of all conchae. The space it encloses is called the middle meatus. The frontal, maxillary and the anterior ethmoidal sinuses open into the middle meatus.

(Refer fig.6)



Middle Concha

(Fig.6)

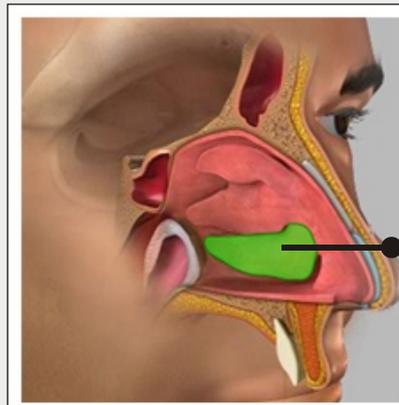
Unit 1:

Normal Nose Anatomy

Inferior Concha:

This is the largest of all concha and is a separate bone. Similar to the other concha, the space it envelops is called the inferior meatus. The nasolacrimal duct, which conveys tears to the nose from the eyes, opens in the inferior meatus.

(Refer fig.7)



Inferior Concha

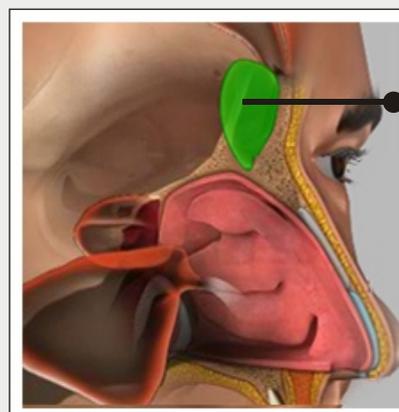
(Fig.7)

Ethmoidal Sinuses:

These are paired sinuses located in between the eyes and nasal cavity. Each sinus consists of 4 – 18 air containing cavities – the ethmoidal air cells.

These sinuses are present at birth and continue to grow until adolescence. The anterior air cells open into the middle meatus and the posterior group open into the superior meatus.

(Refer fig.8)



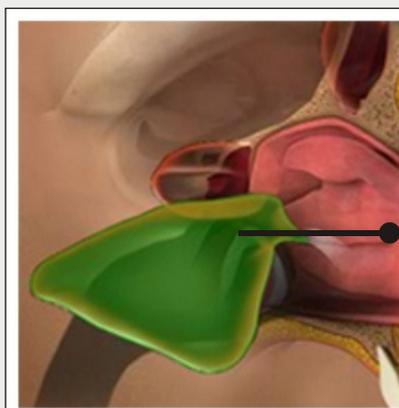
Ethmoidal Sinuses

(Fig.8)

Maxillary Sinus:

It is the largest of all sinuses with a volume of about 15 ml. These are paired cavities located inside the face around the area of the cheeks. This sinus is also present at birth and continues to grow afterwards. The sinus opens into the middle meatus.

(Refer fig.9)



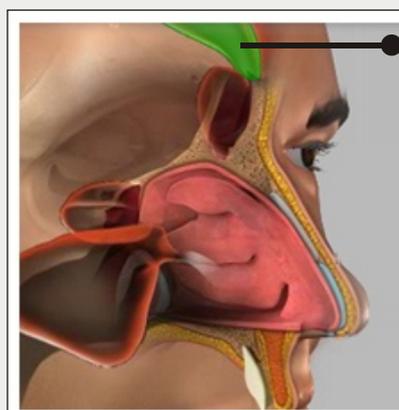
Maxillary Sinus

(Fig.9)

Frontal Sinus:

This is the last of the sinuses to develop. These are paired cavities located inside the face around the area of the forehead. The sinuses open into the middle meatus.

(Refer fig.10)



Frontal Sinus

(Fig.10)

Unit 1:

Normal Nose Anatomy

Sphenoid Sinus:

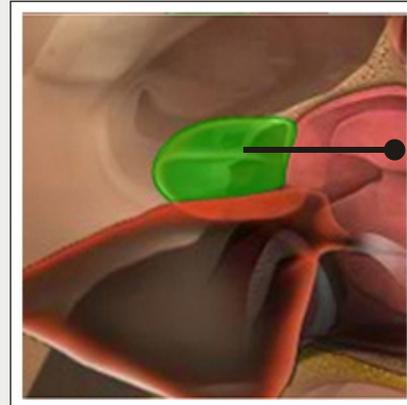
These are also paired cavities located deep in the face behind the nose. Each sinus has a volume of about 7.5 ml. They open into a small recess behind the superior meatus.

(Refer fig.11)

Nasolacrimal Duct:

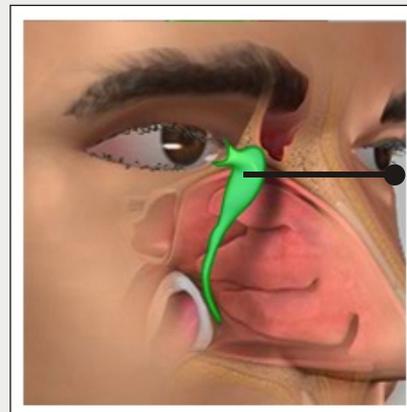
This is a duct that conveys tears from the eyes into the nose. It opens into the inferior meatus. Obstruction of this duct could lead to flooding of eyes with tears and watering of eyes.

(Refer fig.12)



Sphenoid Sinus

(Fig.11)



Nasolacrimal Duct

(Fig.12)

What is Allergic Rhinitis?

Allergic rhinitis is an inflammatory condition of the nose and nasal sinuses that occurs when a person is exposed to something they are allergic to. Allergens are substances that cause allergic reactions in some people but cause no symptoms in others who are not allergic. Allergens can be found indoors and outdoors. When a person is allergic to outdoor allergens it is often referred to as "Hay Fever" and occurs seasonally. Persons who are allergic to indoor allergens usually suffer throughout the year.

Allergens cause the immune system to recognize the allergen as an "invader" and release substances known as IgEs and chemicals such as histamine in order to "attack" the "invader". This immune response is an allergic reaction and is responsible for causing the symptoms associated with allergic rhinitis. Allergic rhinitis can be diagnosed at any age but is the most common chronic condition diagnosed in childhood.

Symptoms

Symptoms of Allergic Rhinitis are similar to cold symptoms. It is important to understand however that allergic rhinitis is not an infection and therefore cannot be passed from person to person like the common cold.

Symptoms of allergic rhinitis can occur seasonally (intermittent allergic rhinitis) or throughout the year (persistent allergic rhinitis). Symptoms of allergic rhinitis can include any or all of the following:

- Runny nose
- Stuffy or blocked nose
- Post nasal drip
- Itching of the nose
- Excessive sneezing
- Watering and itching of eyes
- Swollen eyes
- Itching of the throat
- Coughing
- Fatigue

Causes

Allergic Rhinitis is caused by airborne allergens both inside and outside the home. Common allergens that cause Allergic Rhinitis can include:

(Refer fig.13)



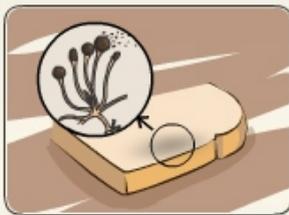
Ragweed (autumn)



Tree pollen (springtime)



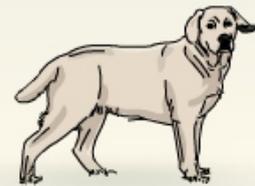
Grass pollen (spring and summertime)



Fungus or mold (indoor and outdoor)



Dust mites in the house



Animal dander



Cockroach droppings



Smoke



Air pollution

(Fig.13)

Risk factors

Risk factors increase your chances of developing a disease or condition.

Risk factors for Allergic Rhinitis include:

Genetic History:

There is an established risk factor between allergic rhinitis and family history of allergy. A child has a 50% likelihood of developing allergic rhinitis if one parent has it and a 75% chance if both parents have allergic rhinitis.

Medical Conditions:

Patients with a history of food allergies, asthma or eczema are at increased risk of developing allergic rhinitis.

Environment:

Allergic Rhinitis is more prevalent in developed countries and the prevalence is increasing with urbanization. Some possible factors are increased exposure to pollution and irritants such as second hand smoke. Changes in our diets and increased stress have also been discussed as possible contributors to the increase in cases.

Complications

Allergic rhinitis can predispose a person to develop:

- Asthma
- Sinusitis
- Middle ear infections (Otitis Media)
- Sleep disorders
- Upper respiratory tract infections

Diagnosis

Allergic rhinitis is diagnosed by a combination of patient history, examination of nasal passages (rhinoscopy) and lab tests. The following tests may be performed by your physician to help with diagnosing your condition:

Blood Tests:

Blood tests are taken to detect the presence of increased eosinophil cells in blood. Eosinophils are a type of white blood cells which increase in number in patients with allergies. Blood tests for allergens include radio allegro sorbent test (RAST) or enzyme-linked immunosorbent assay (ELISA).

Nasal Smear:

A nasal smear may be obtained to examine for eosinophil cells which are usually increased in patients with allergic rhinitis.

Skin Prick Test:

In this test, a standardized allergen extract is introduced into the skin of the forearm with a tiny needle and observed for reaction after 15 minutes. Reactions greater than 3 mm are regarded positive. Patients should not take any antihistamines 2 days prior to the skin prick test. Skin prick tests are simple, cheap and safe. Systemic reactions are very rare and multiple allergens can be tested in the same sitting.

Nasal Allergen Challenge:

An allergen is introduced into the nose and any reaction is measured and compared to a placebo. This is the gold standard for allergy diagnosis. Nasal challenge test is time consuming, difficult and requires extensive laboratory facilities.

Conservative Treatment Measures

Conservative Treatment Measures to treat Allergic Rhinitis can include the following:

Avoidance of allergen

Identifying the allergens and avoiding them is the first method of treatment. Major indoor allergens include house dust mites, domestic pets, cockroaches and mold spores. Some measures that are helpful for avoiding allergens include using allergen proof covers for mattresses and pillows. Use hot water when washing your bedding.

Remove objects that accumulate dust, treat carpets with anti allergen products, and avoid keeping pets in the home. If pets are in the home they should be washed regularly and kept out of bedrooms. Seasonal rhinitis results from exposure to outdoor pollens. Try to avoid grassy, open spaces when outdoors. Use air conditioning and change your filters frequently instead of opening windows.

Medications

Antihistamines:

Antihistamines help prevent symptoms caused by allergies, colds and influenza by blocking histamine, one of the chemicals released in an allergic reaction. The first type of antihistamines developed caused excessive drowsiness, but there are newer antihistamines that have been developed that do not make you sleepy. Antihistamines can interact with other drugs or cause adverse side effects. Talk with your doctor about the best antihistamine for your particular situation.

Topical steroids:

Topical steroid are the most effective treatment for allergic rhinitis. Regular use is necessary as the onset of action is slow and maximum effect occurs after several days. Nasal steroids reduce nasal inflammation, eye symptoms and improve the sense of smell. They also can reduce the risk of asthma exacerbations. Side effects can include nasal bleeding and minor irritation.

Mast cell stabilizers:

These are medications that prevent the release of histamine, one of the mediators responsible for allergic symptoms. These are usually in the form of nasal sprays to treat allergic rhinitis.

Decongestants:

Decongestant nasal drops or sprays reduce nasal obstruction, but prolonged use can cause a condition called Rhinitis Medicamentosa where there is excessive nasal obstruction and loss of response to the drug. Systemic decongestants taken by mouth also can reduce nasal obstruction. Talk to your doctor as to the best choice for your situation.

Systemic corticosteroids:

For very severe symptoms, oral steroid tablets may be ordered by your physician. Regular use is associated with significant systemic side effects.

Immunotherapy

Allergen immunotherapy involves repeatedly exposing the patient to small amounts of the allergen that is causing their symptoms. This repeated exposure eventually creates a tolerance to the allergen. This reduces clinical symptoms and also the requirements for medication during subsequent natural allergen exposure. It is indicated for patients with severe allergic rhinitis who fail to respond adequately to drug therapy.

Immunotherapy offers the potential for long-term disease modification and prophylaxis. Local reactions are minimal. Systemic reactions occur in 10% of people, which include symptoms like mild asthma and itching. Rarely severe reactions like anaphylaxis and generalized body itching occur. In view of the systemic side effects, it is performed only in specialist centres.

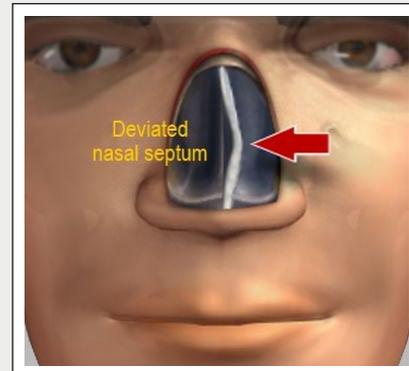
Surgery

There is no surgery that can be performed to cure Allergic Rhinitis. There are occasions, however, where your physician may recommend surgery. If a patient has a deviated nasal septum or nasal polyps that prevent the proper administration of medications to treat their rhinitis, surgery to correct the deformity or to remove the polyps may be recommended.

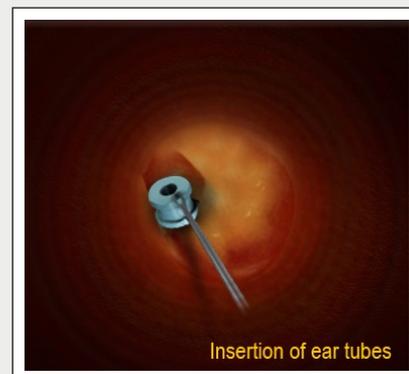
(Refer fig.14)

Occasionally, the insertion of ear tubes may be recommended in children with allergic rhinitis.

(Refer fig.15)



(Fig.14)



(Fig.15)

Disclaimer

The best way to control allergic rhinitis is to avoid the allergen responsible for the symptoms. Although there is no cure for allergic rhinitis, there are various types of medications and treatments available. These options should be discussed with your physician to determine the most appropriate treatment for your particular situation.

Although every effort is made to educate you on Allergic Rhinitis and take control, there will be specific information that will not be discussed. Talk to your doctor or health care provider about any concerns you have about Allergic Rhinitis.

YOUR SURGERY DATE

READ YOUR BOOK AND MATERIAL

VIEW YOUR VIDEO /CD / DVD / WEBSITE

PRE - HABILITATION

ARRANGE FOR BLOOD

MEDICAL CHECK UP

ADVANCE MEDICAL DIRECTIVE

PRE - ADMISSION TESTING

FAMILY SUPPORT REVIEW

Physician's Name : _____

Patient's Name : _____

Physician's Signature: _____

Patient's Signature: _____

Date : _____

Date : _____