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# All you need to know about "Sensitive Nose" (Rhinitis)

## What is Rhinitis?

Rhinitis is the medical term for "Sensitive Nose". It refers to inflammation of the nasal cavity. Rhinitis is a common condition, affecting almost 10% to 30% of the population worldwide. Some people may trivialise the significance of Rhinitis but numerous studies have shown that it has significant socioeconomic cost, adversely affects quality of life of the patients, work productivity and may worsen symptoms in patients with Asthma. In fact, Asthma and Rhinitis often co-exist, with approximately 80% of patients with Asthma suffering from Rhinitis and about 20-50% of patients with Rhinitis have concomitant Asthma. Treatment of rhinitis may improve Asthma control and early treatment of allergies may prevent the development of Asthma.

## What are the types of Rhinitis?

The types of Rhinitis can be broadly divided into:

### a) Allergic Rhinitis (AR)

This is the most common form of Rhinitis and is inflammation of the nasal cavity due to exposure to substances called allergens. In the initial phase of allergic sensitization, there is production of specific antibodies to the allergen. In subsequent exposure to the same allergen, the allergen-antibody interaction leads to the release of inflammatory molecules like histamine. These inflammatory molecules cause symptoms of allergy. Common allergens include house dust mites, grass or tree pollens, cat and dog hairs, mould and cockroach. In the past, Allergic Rhinitis was classified as:

- Seasonal ( also known as Hay Fever) – It occurs during Spring and Autumn (Fall) and is usually due to allergic reaction to pollen from trees, grasses or weed (which are more prevalent in the air during these seasons)
- Perennial – It occurs all year round due to allergens that are present regardless of season, e.g. House dust mites, animal danders, mold and cockroach.

The most recent classification by Allergic Rhinitis and its Impact on Asthma (ARIA) classified Allergic Rhinitis based on symptom frequency ("Intermittent" or "Persistent") and symptom severity ("Mild", "Moderate" or "Severe"). This classification helps guide doctors on the type of treatment required for Allergic Rhinitis.

### b) Non-Allergic Rhinitis

This is Rhinitis that is not due to exposure to an allergen. The cause is largely unknown but common triggers include cigarette smoke, traffic fumes, perfume, strong odors, dietary factors (e.g. spicy food and alcohol), emotional and hormonal changes and weather conditions. The symptoms are similar to Allergic Rhinitis.

### c) Infectious Rhinitis

This is inflammation of the nasal cavity usually due to a viral infection. Cold and flu are common forms of infectious rhinitis.

## What are the symptoms of Allergic Rhinitis?

Symptoms of Allergic Rhinitis include:

- Runny nose (usually clear mucous)
- Blocked nose
- Sneezing
- Itchiness in the nose
- Watery and itchy eyes
- Mucous and phlegm in the throat (from "postnasal drip")

## What causes Allergic Rhinitis?

This is not completely understood. However, there is evidence of a hereditary cause and patients with family history of Allergic Rhinitis are more likely to have it than those who do not. The manifestation of Allergic Rhinitis also depends on how our immune system interacts with the environment. Hence it is not uncommon to hear of symptoms disappearing completely when one moves to another country, yet the symptoms of Allergic Rhinitis may slowly develop again over a period of months or longer.

Patients with a strong allergic tendency are at higher risk of developing more serious conditions such as allergic asthma and atopic dermatitis. This phenomenon is particularly relevant in children during their developmental years. The term "allergic march" has been coined to describe this phenomenon.

## How do I differentiated Allergic Rhinitis from a cold?

It is not always easy to tell if someone is suffering from Allergic Rhinitis or a cold. Many of the symptoms are similar but there are a few signs that may point towards a cold rather than Allergic Rhinitis. A cold tends to have these symptoms/features that are less likely in patients with Allergic Rhinitis:

1. Fever
2. Sore throat
3. Coloured (Yellow, green or brown) or thick mucous/phlegm
4. Body ache and lethargy (tiredness)
5. Usually resolves within a week
6. Less itching of the nose and eyes

## How do I differentiate Allergic Rhinitis from Sinusitis?

Most patients with Allergic Rhinitis often mistaken their condition as "Sinus" or "Sinusitis". Sinus is a normal anatomical structure in the face. It is not a medical diagnosis or condition. Everybody has sinuses. They are air-filled spaces surrounding the nasal cavity. The lining of the sinuses produces mucous that helps protect the nose from dirt and bacteria. The mucous from the sinuses drains into the nose which is then blown out, coughed out or swallowed. However, if the sinuses are blocked and the mucous becomes infected, the condition is known as sinusitis.

Symptoms of sinusitis are different from Allergic Rhinitis. In fact, patients with sinusitis have symptoms that can be similar to patients with a cold except that the duration is usually longer than 7-10 days. Sinusitis is due to a bacterial infection and treatment with antibiotics are usually required. Patients with sinusitis usually presents with the following symptoms:

1. Coloured (Yellow, green or brown) or thick mucous/phlegm
2. Blocked nose
3. Nasal congestion (feeling of mucous trapped in the nose and face)
4. Facial pain or pressure
5. Loss or decreased sense of smell

## How is Allergic Rhinitis diagnosed?

Diagnosis of Rhinitis is usually made based on a combination of clinical history and findings on nasoendoscopy (passage of a small lighted tube with a camera into the nose and back of throat done under local anaesthesia) (***Fig 1a***). On nasoendoscopy, the inferior turbinates may be enlarged or congested (***Fig 2a&b***). However, to confirm the presence of Allergic Rhinitis, an allergy test will need to be conducted. This is usually done in a form of a blood test or a Skin Prick Test (SPT) (***Fig 3a&b***). A positive clinical history and nasoendoscopic findings together with a positive SPT confirms the diagnosis of Allergic Rhinitis.

***Figure 1a*** - Flexible nasoendoscope is inserted in the nasal cavity and is guided to the posterior nasal space (back of nose) and to the level of the larynx (voice box)

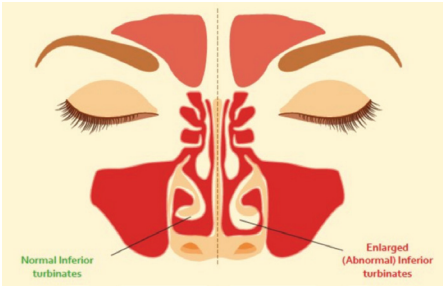


***Figure 2a*** - A schematic diagram showing the location of the inferior turbinates in the right and left nasal cavities. In the left nose, the inferior turbinate is enlarged, narrowing the space in the nasal cavity.

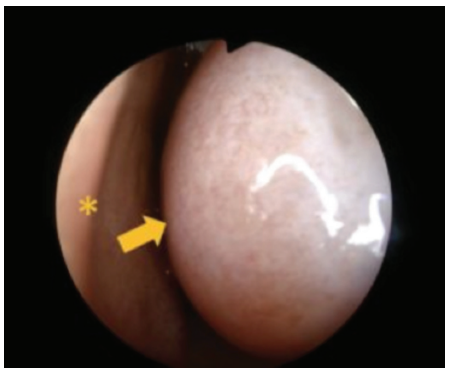

***Figure 2b*** - A real life endoscopic view of the front part of the left nasal cavity. The enlarged left inferior turbinate (indicated by yellow arrow) is almost touching the nasal septum (wall between the right and left nose indicated by yellow asterisk)

***Figure 3a*** - A Skin Prick Test involves dipping the multi-prong needles into a tray of common allergens and "pricking" the skin very gently with the needles (only the outer most layer of the skin is pricked and no blood should be encountered)

***Figure 3b*** - The Skin Prick Test is interpreted about 20 minutes later. A positive reaction to an allergen will manifest as wheals of a certain size on the skin

## What are the treatments for Allergic Rhinitis?

### Allergen Avoidance

It is advisable for patients with Allergic Rhinitis to avoid exposure to the known allergen. In a local study, approximately 80% of Singaporeans are allergic to house dust mite. Patients with known allergy to house dust mites are advised to wash their bedsheets once a week with hot water (preferably 60 degrees Celsius high) to get rid of the dust mite allergens. As it is not possible to avoid all allergens in the environment, your doctor may prescribe some medications as listed below to keep your symptoms under control.

### Medication

The treatment of Allergic Rhinitis depends on how much the symptoms are bothering or troubling the patients. If the symptoms are infrequent or mild, occasional use of oral antihistamine (most effective in relieving runny nose, sneezing and itchiness) or oral decongestant (most effective in relieving blocked nose) and avoidance of the trigger or allergen are sufficient.

In more severe cases or if the symptoms are frequent and troubling, the use of a nasal steroid spray is advised. Nasal steroid spray reduces inflammation in the nose and is effective in alleviating all symptoms of Allergic Rhinitis. While many people have concerns about the side effects of steroids, modern nasal steroid sprays have targeted effects in the nose with minimal absorption into the bloodstream and negligible effects outside the nose. Some nasal stroid sprays can be used in children as young as 2 years old. Nasal steroid spray does take time to be effective (days to 2 weeks for maximal effect) and has to be used on a daily basis, regardless of presence or absence of symptoms. It is important that patients are compliant with the use of nasal steroid spray before giving up this treatment modality. It is also equally important that for the medication to be delivered to the correct areas in the nose, the patient should bend his/her head down, insert the nasal spray nozzle into his/her nose and aim it slightly away from the centre (towards the eye on the same side of the nose). The patient should then press on the nasal spray during normal inhalation (not a forceful inhalation).

There are many other types of medications that may be useful in the treatment of Allergic Rhinitis. These include leukotriene receptor antagonists, anticholinergics and cromolyn. These medications are however not first line therapy and it is best to discuss with your doctor if these medications will benefit you.

### Immunotherapy

Immunotherapy involves presentation of an allergen in an incremental dosage to a patient with Allergic Rhinitis to desensitize the patient to that particular allergen. This alters the patient's immune response to the allergen and is the only disease-modifying treatment for Allergic Rhinitis. It may be useful in patients who do not wish to use nasal steroid sprays for life or patients who cannot avoid allergens due to their occupation. Immunotherapy can be given as an injection (Subcutaneous Immunotherapy – SCIT) or applied under the tongue (Sublingual Immunotherapy – SLIT). In Singapore, the most common mode of immunotherapy for AR is SLIT (***Fig 4***)

***Figure 4*** – Sublingual immunotherapy (SILT) involves spraying the allergen under the tongue on a daily basis to desensitize the patient from that allergen

### Surgery

Surgery for Allergic Rhinitis is targeted at relieving the symptoms. It does not alter the disease process of Allergic Rhinitis. Most commonly, surgery for Allergic Rhinitis is performed to relieve blocked nose. This includes surgery to reduce the size of the inferior turbinates. There are many ways to reduce the inferior turbinates, ranging from office-based procedures (in the clinic) under local anaesthesia (patient awake but given adequate numbing agents) to more aggressive procedures (in the operating theatre) under general anaesthesia (patient completely asleep). It is best to discuss with your ENT Specialist on the procedure that best suits you.