

*In The Name Of God*



# Non Allergic Rhinitis

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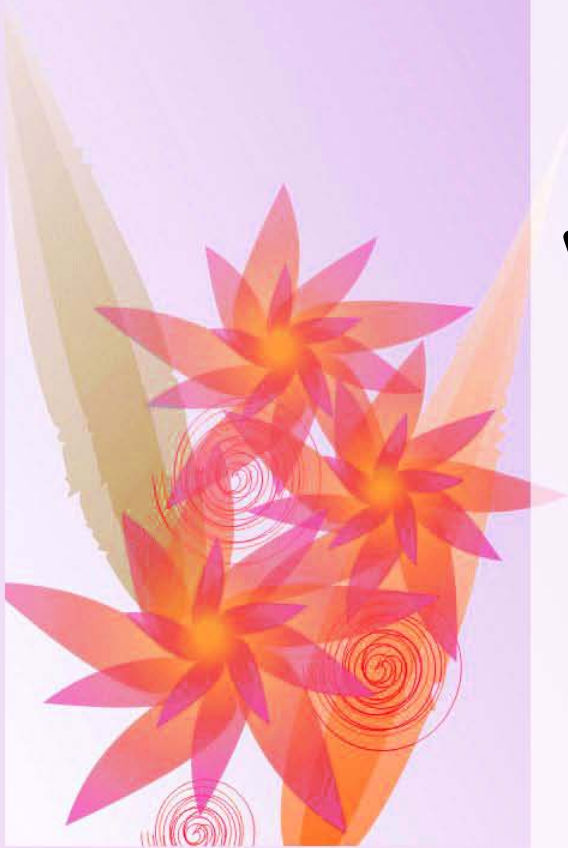
**Chronic rhinitis**  
is an inflammation  
of the nasal tissue





# Symptoms :

**Nasal obstruction  
caused by mucosal  
welling secondary to  
blood vessel  
engorgement .**



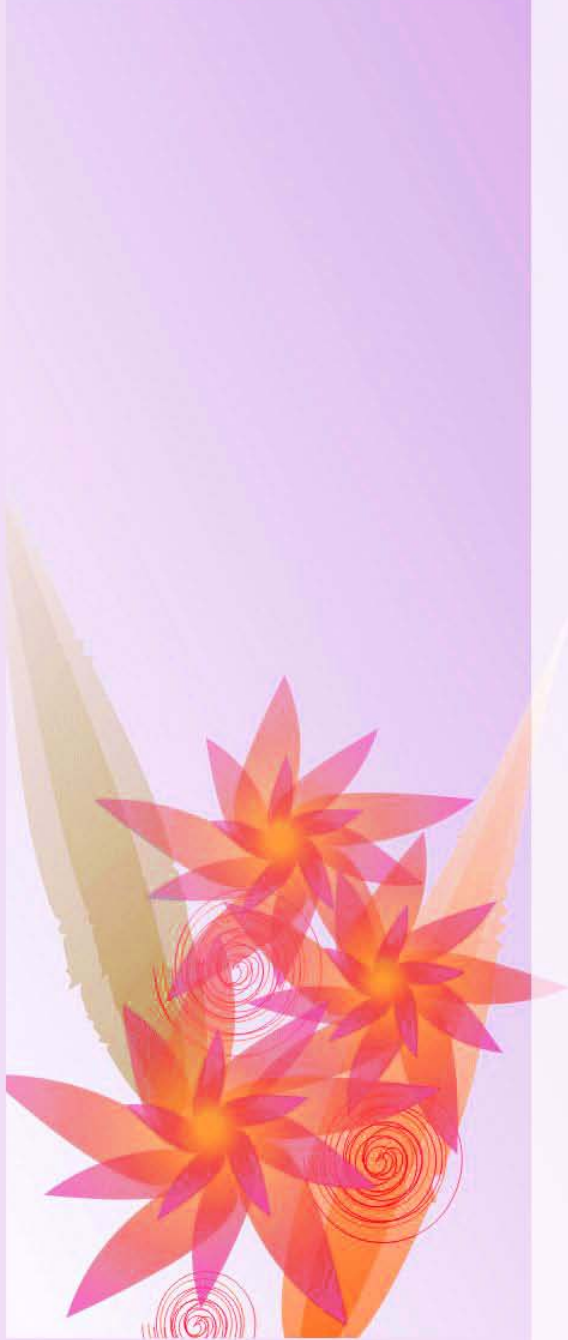
**Rhinorrhea secondary to  
glandular  
hypersecretion and  
tissue transudate .**

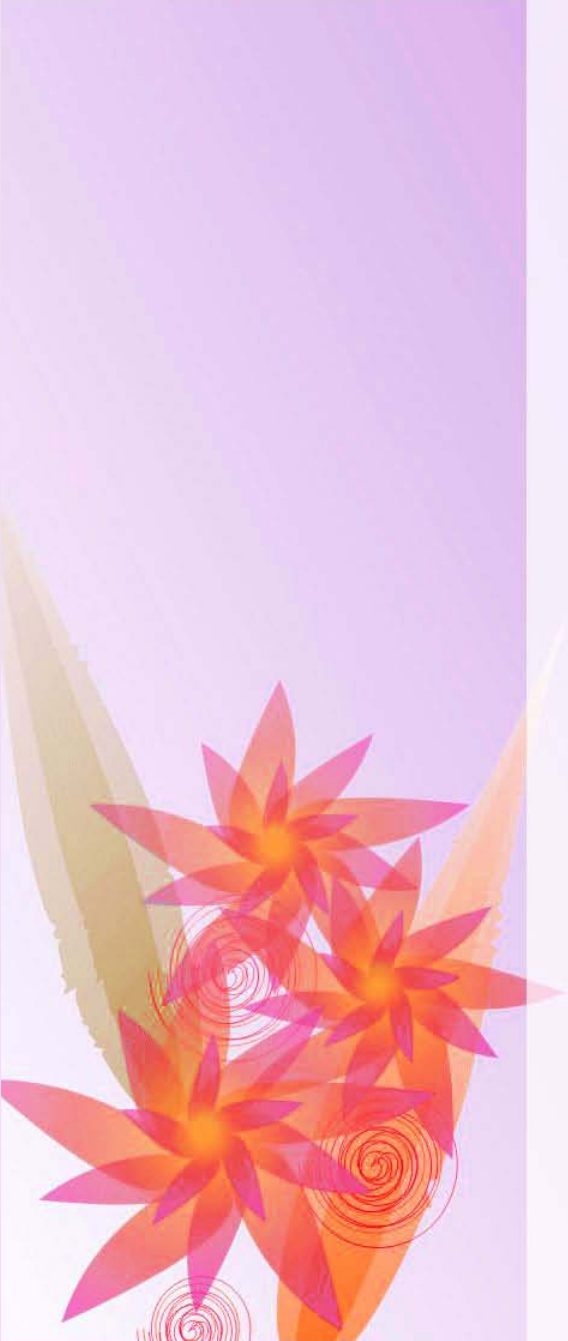


# Sneezing caused by neural reflexes .



**Pruritus secondary to  
histamine release  
from mast cell and  
basophils .**





**N.A.R represents 40 to 70 percent of all chronic rhinitis , afflicting 30 to 40 million Americans With a prevalence of 20 percent.**



**The sympathetic fibers  
exercise primary control over  
the nasal vasculature where  
as the parasympathetic  
Fibers supply the mucosal  
glands with only secondary  
effects on the vasculature .**



## Four major functions the nose :

- 1- Air way protectio
- 2- Air conditioning
- 3- Olfaction
- 4- Resonance

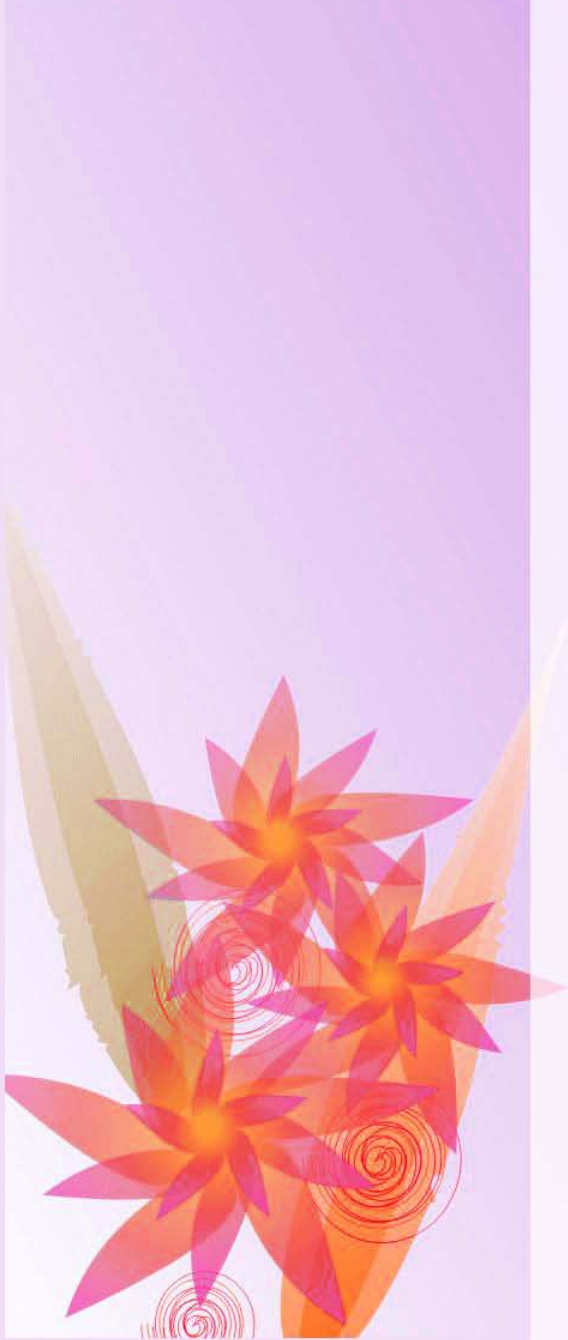


# Pathologic Mechanism Of Rhinitis



# Extrinsic Factors :

**Allergens , Irritants ,  
Cold air , Odors ,  
Infectious agents ,  
Pharmacologic agents ,  
Exercise .**



# Intrinsic Factors :

**Food metabolites ,  
hormonal and endocrine  
substrates , Infiltrating  
cells , Vasoactive  
mediators ,  
autonomic nervous  
system .**





**Table 1.** CLASSIFICATION OF NONALLERGIC  
NONINFECTIOUS RHINITIS

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**Structural Abnormalities**

Deviated nasal septum

Obstructing masses

Intranasal

Paranasal

Nasopharyngeal

Foreign body

**Rhinitis Medicamentosa**

**Endocrine**

Pregnancy

Hypothyroidism

Diabetes

Menstrual cycle

**Irritative**

**Idiopathic**

Vasomotor rhinitis

Eosinophilic nonallergic rhinitis

Mixed cellular rhinitis

Nasal mastocytosis

**Miscellaneous**

Postlaryngectomy rhinitis

Tracheostomy rhinitis

Recumbency rhinitis

**Rhinitis medicamentosa  
is a drug-induced  
rhinitis - 5%**



**affects the autonomic  
nervous system and  
microvascular of nasal  
mucosa**





**Table 2.** DRUGS CAUSING RHINITIS MEDICAMENTOSA

**Systemic**

**Antihypertensive agents**

Methyldopa  
Guanethidine  
Reserpine  
Hydralazine  
Prazosin

**Beta-blockers**

Propranolol  
Nadolol

**Antidepressants and tranquilizers**

Thioridazine  
Chlordiazepoxide-amitriptyline  
Perphenazine  
Alprazolam

**Oral contraceptives and estrogen therapy**

**Aspirin and nonsteroidal anti-inflammatory agents**

Ergot alkaloids  
Antithyroid drugs  
Iodides  
Alcohol  
Tobacco  
Hashish  
Marijuana

**Topical**

Vasoconstrictors  
Cocaine

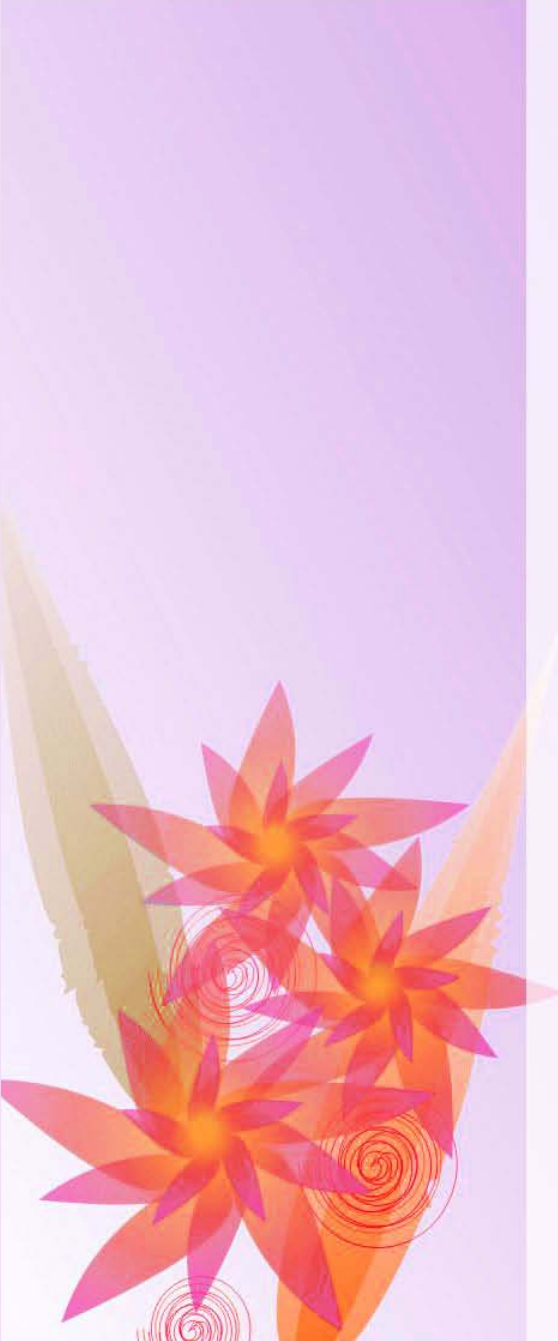
**Topical vasoconstrictors  
should not be used for  
longer than 5  
consecutive days  
( nose drop addict)**





**A small percentage of patients with asthma and rhinitis (4%) or just rhinitis (2%) have associated nasal polyposis .**





**Of thous patients with nasal polyposis approximately 14 to 31 percent have associated aspirin sensitivity characterized by bronchospasm (%70) urticaria( %13) rhinitis (%10)combination of symptoms(%7)**

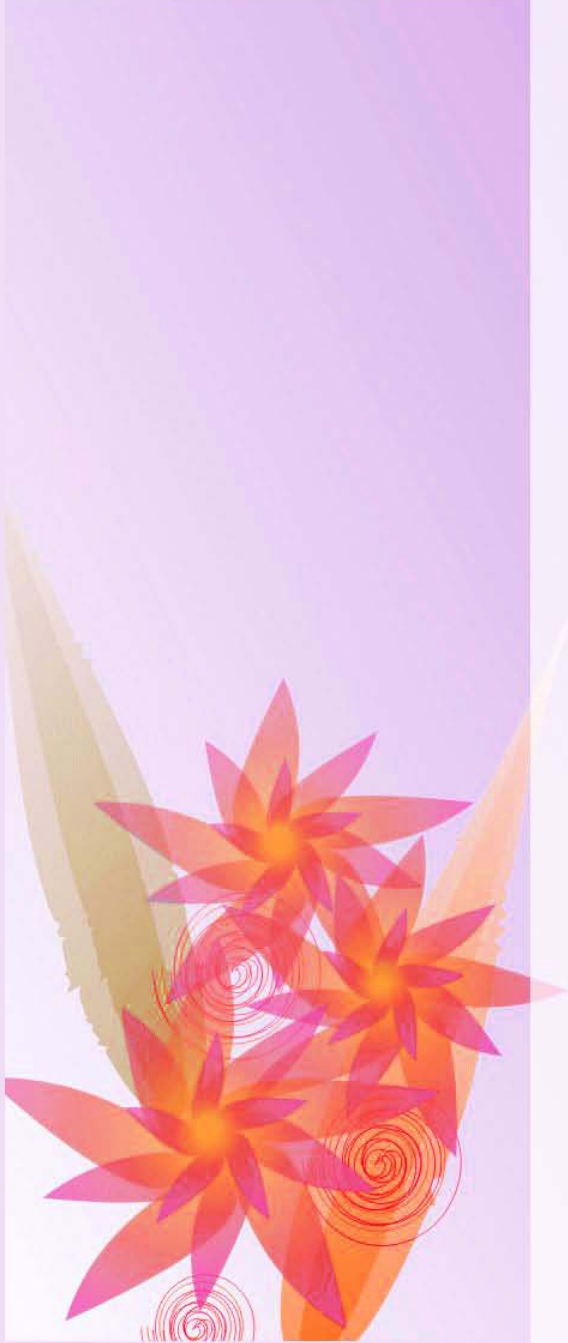
Of all the patients with **aspirin** intolerance about %45 have associated polyps .



**%25 children with cystic fibrosis have associated nasal polyps and %40 of children with nasal polyps are found to have cystic fibrosis .**



**Aspirin and NSAIDs inhibit prostaglandin pathway with the build up of metabolites (5-HETE) and (SRS-A) which are chemotactic for eosinophils and neutrophils and may cause degranulation of mast cells and a lower threshold for the histamine response .**





**Aspirin also alters the  
ration of PGE2  
(bronchodilator) to PGF2  
bronchoconstrictor**



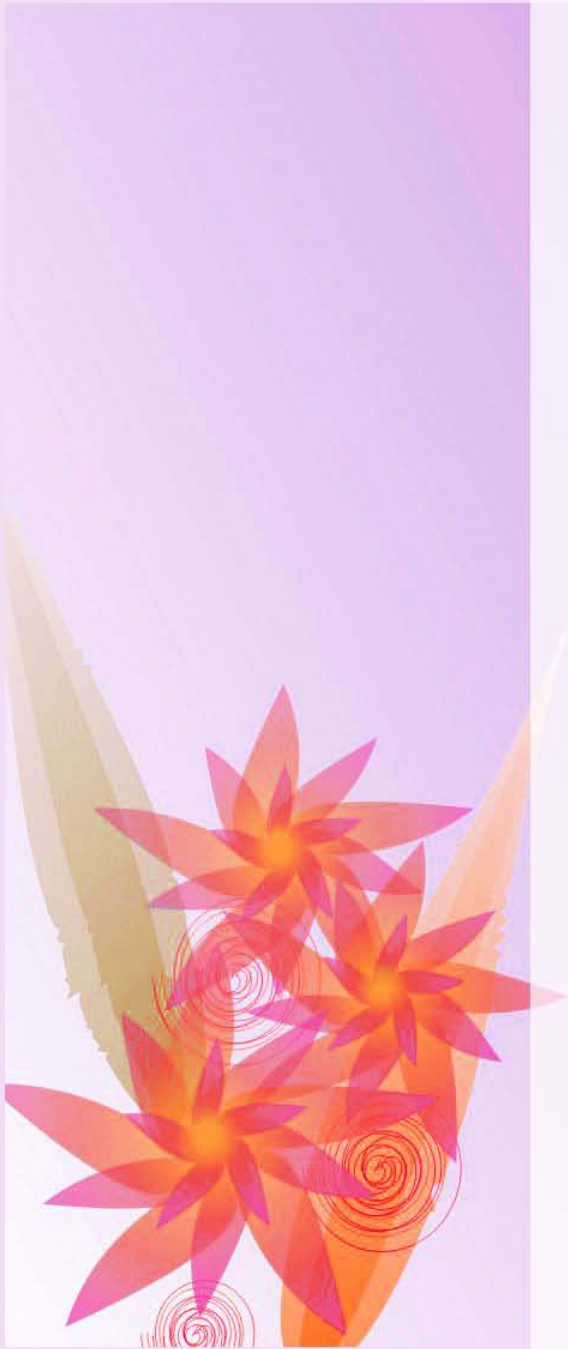
**Aspirin may also cause  
IgE mediated  
angioedema and urticaria .**



**It may also affect the  
composition connective  
tissue and ground  
substance with  
subsequent polyp  
Formation**



**Polyps contain active fibroblasts , collagen and abundant ground substance composed of acid mucopolysaccharides , eosinophils, plasma cells and neutrophils.**



**Nasal polyps release  
histamine, STH-A ,  
eosinophil , chemotactic  
factor of anaphylaxis  
(ECF-A) and  
Serotonin .**





**The management of nasal polyposis includes surgery and systemic or topical steroids**



**Endocrine and hormonal  
cause of rhinitis affect  
the matrix and ground  
substance of the  
submucosa .**



# Causes of rhinitis :

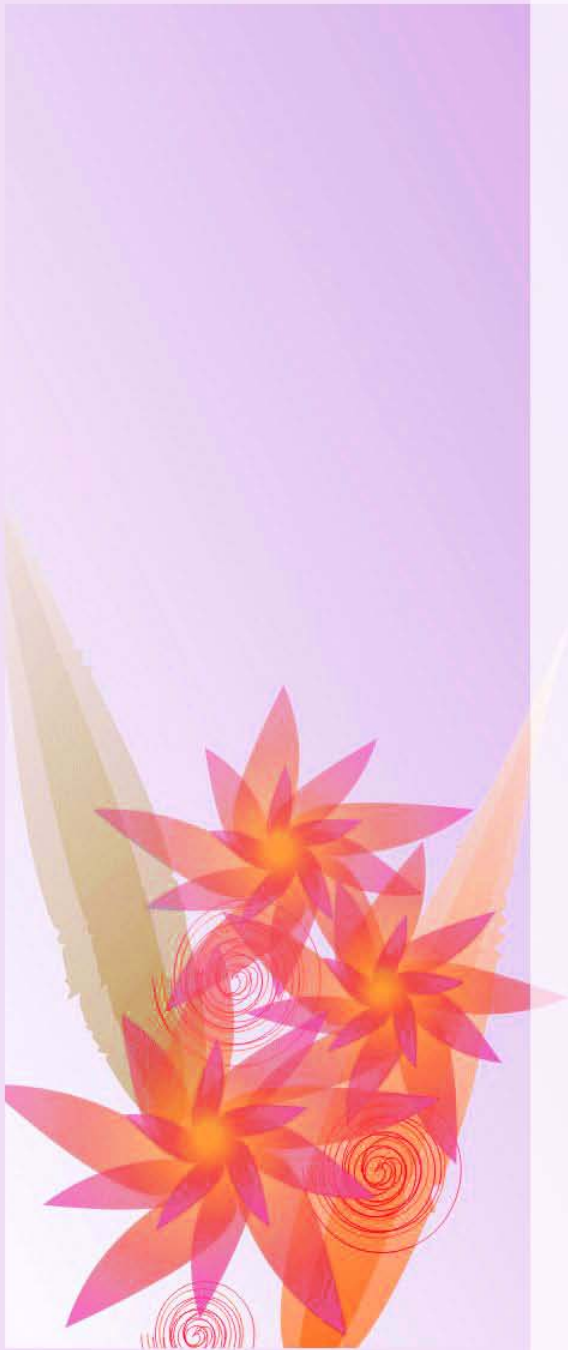
**pregnancy**

**menstruation**

**oral contraceptive use**

**hypothyroidism**

**diabetes mellitus**



**Estrogen increase the  
hyaluronic acid  
component of ground  
substance causing  
increased tissue  
hydration and tissue  
edema .**



**During the second trimester ,  
there is an increase in  
estrogens , an increase in  
mucous glands a decrease in  
ground substance and the  
development of large  
cavernous areas with an  
atrophic  
basement membrane in nasal  
mucosa .**

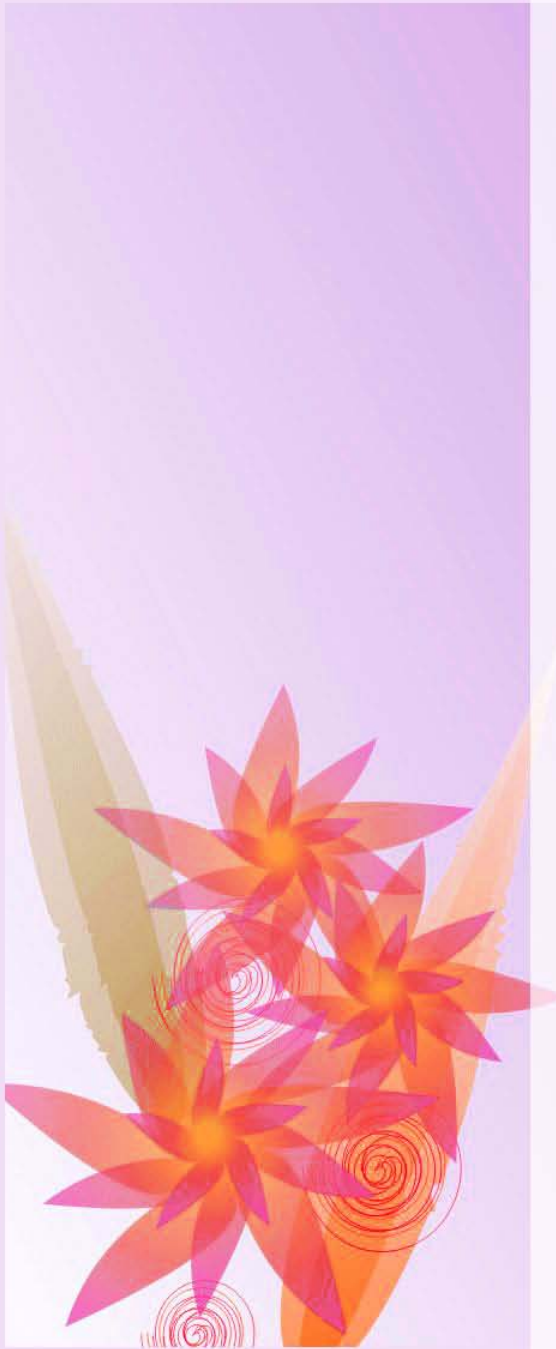




## Estrogen caused :

Squamous metaplasia ,  
intraepithelial edema  
resulting from tissue  
hydration , an increase in  
collagen

Fibers and fibroblasts ,  
congested capillaries , loss  
of cilia and hyperplastic  
mucous gland with increased  
Secretory activity .



**The rhinitis of pregnancy is characterized by nasal congestion without sneezing , pruritus or rhinorrhea.**

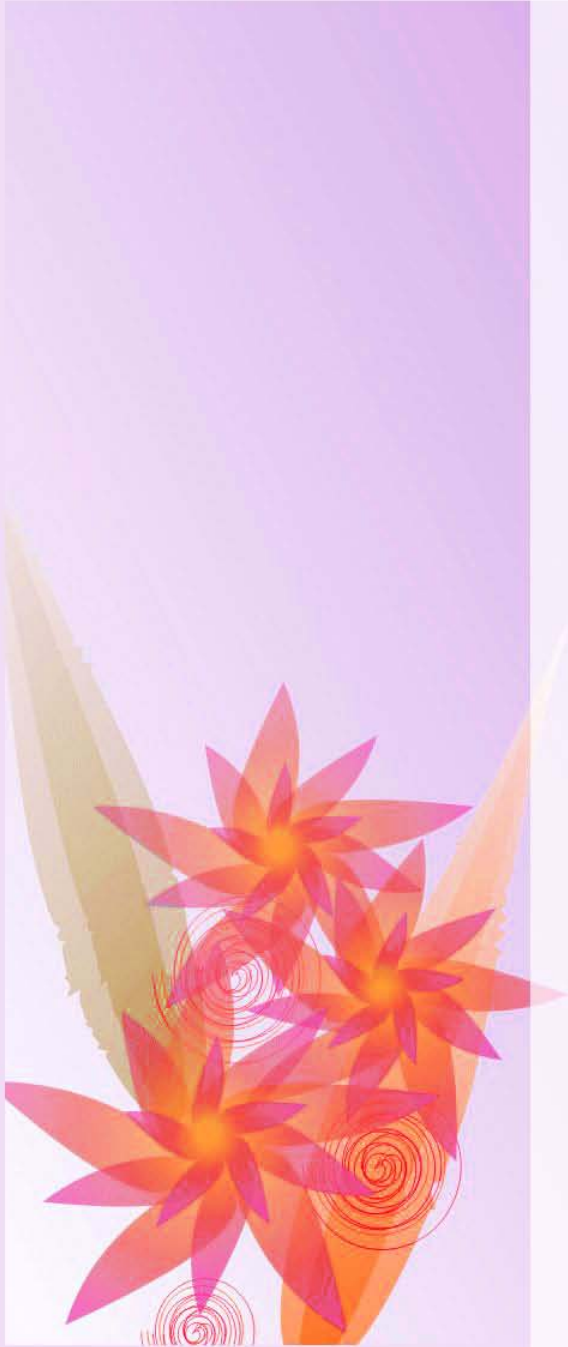


**Hypothyroidism induces thyrotropic hormone release which stimulates acid mucopolysaccharide production**

**. with increase turgidity and edema of the turbinates , congestion of subcutaneous tissue and mucous Gland hypertrophy .**



**The wide swings in blood levels of glucose result in altered molecular configurations of ground substance acid mucopolysaccharides with more short-chain hydrophilic polysaccharides ,increased osmotic pressure, edema collagen and elastic tissue deposion and the eventual formation of fibromyomatous and nasal polyps.**



**The most common irritants  
are :**

**Occupational ( dust , fumes ,  
chemical) but environmental  
factors such as pollution may  
play a role .**





# Idiopathic causes of nonallergic rhinitis

- Vasomotor rhinitis :  
It is characterized by idiopathic , nonspecific
- Airway obstruction with postnasal drainage and profuse rhinorrhea .



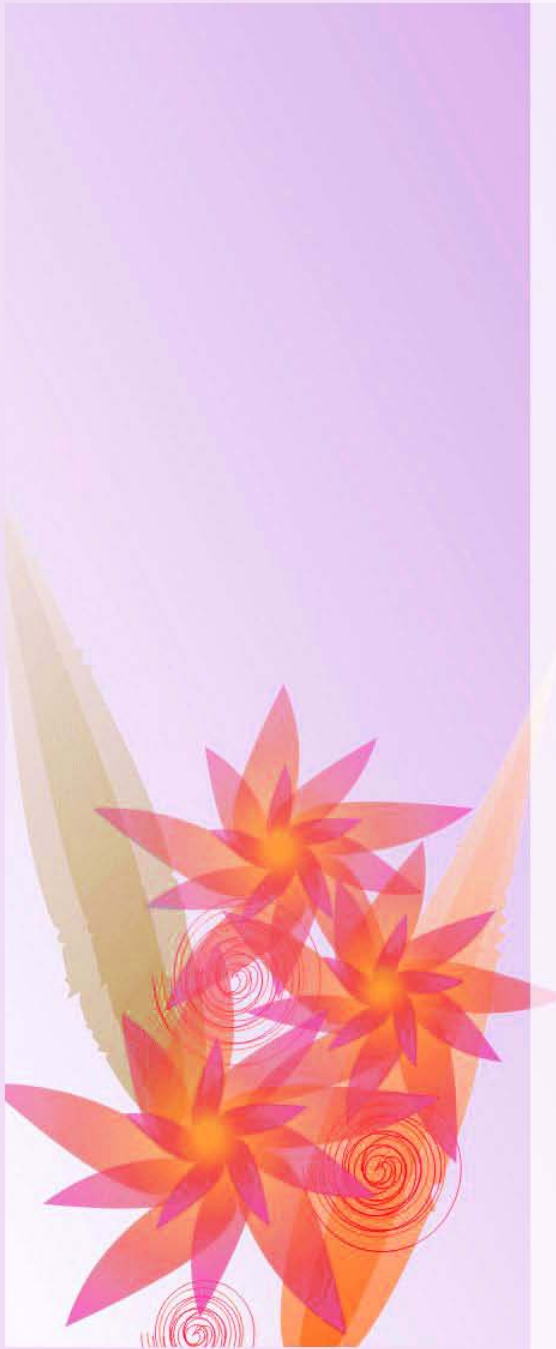
**There are not  
Pruritus , sneezing , family  
history for allergy , skin test  
positive , the serum IgE  
level is normal and nasal  
smears show few if any  
eosinophils .**



**There may however , be  
other associated  
autonomic abnormalities  
such as irritable bowel  
syndrome.**



**Vasomotor rhinitis is felt to be the result of an unstable autonomic nervous system with a hyper responsive parasympathetic outflow and hyperresponsive mucosa .**



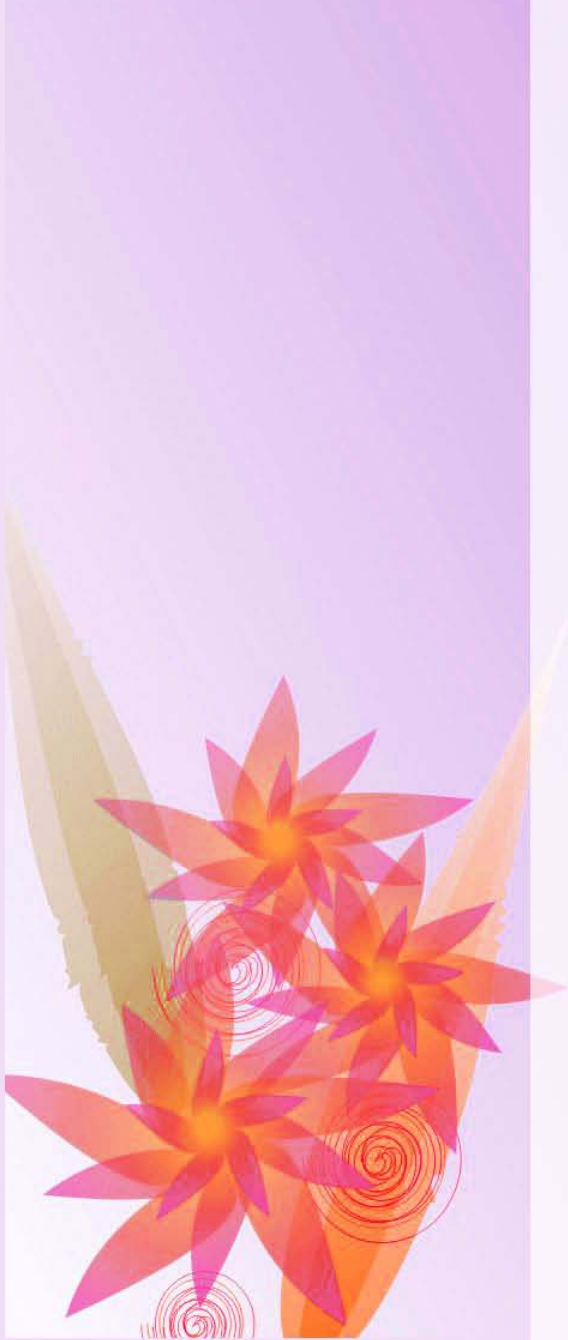
**Likewise , anxiety,  
hostility , guilt ,  
depression and constant  
frustration can all affect  
the autonomic nervous  
system , with resultant  
vasomotor rhinitis .**

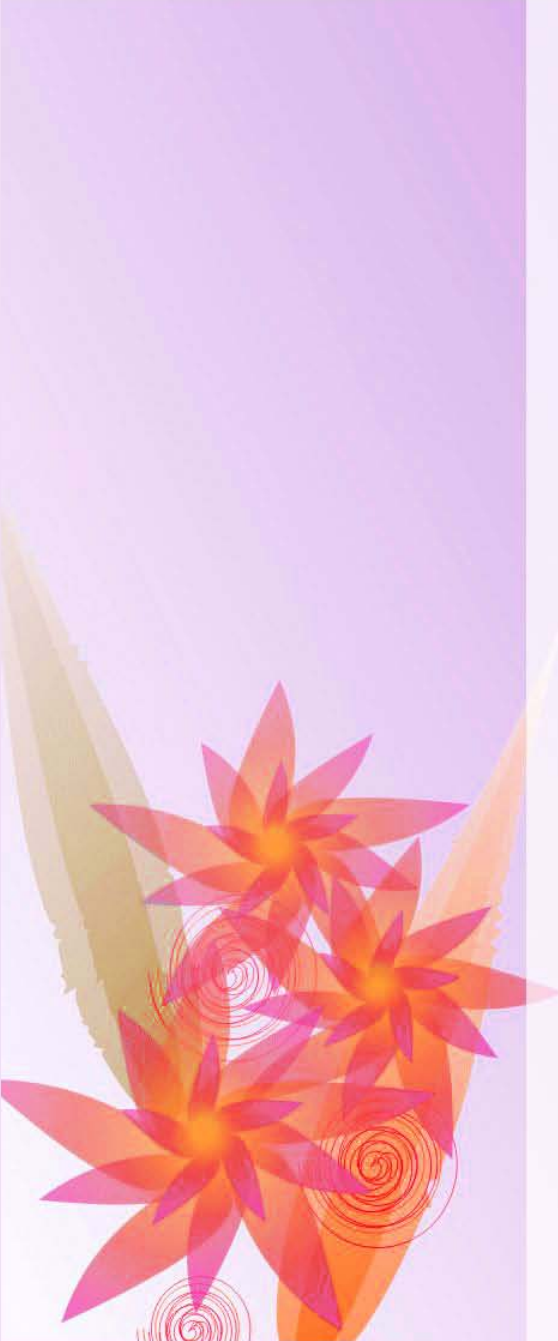




# **Eosinophilic nonallergic rhinitis :**

**Presents with paroxysms  
of sneezing , watery  
rhinorrhea and pruritus .**





**Nonspecific irritants such as strong odors , dust , smoke and weather changes are noted to evoke change in 15 to 30 percent of afflicted patients .**

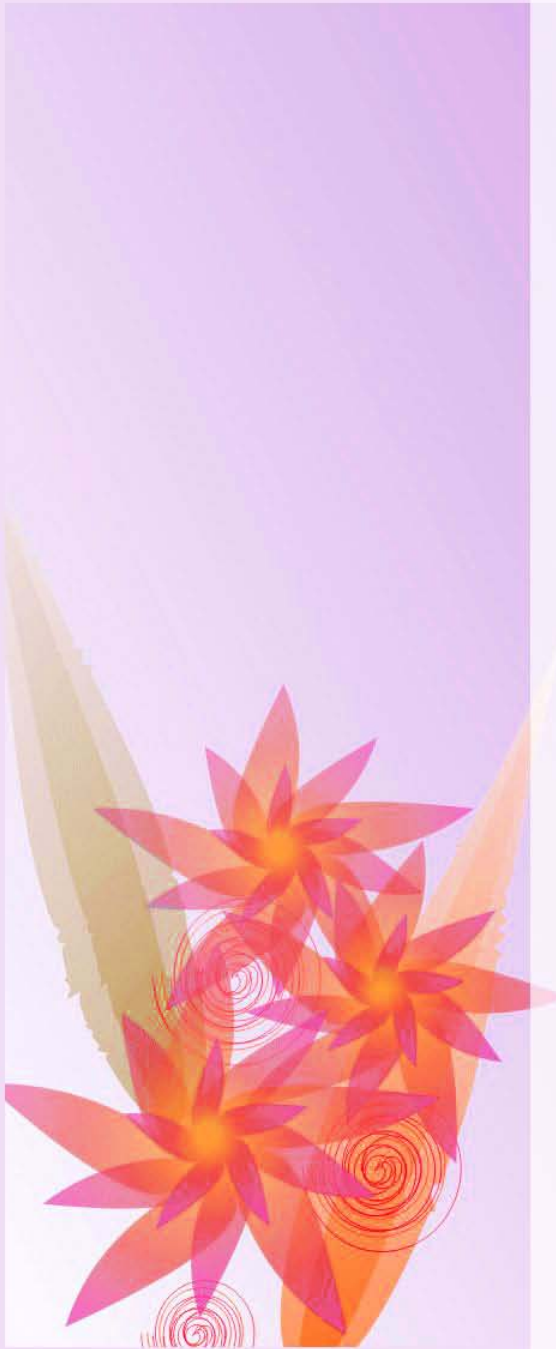
**This condition is noted in patients older than 20 to 30 years of age . It presents in paroxysms , is worse in the morning and is better later in the day .**



**Rhinitis associated eosinophilia are include, allergic rhinitis , nasal polyposis , nonallergic asthma with rhinitis and aspirin sensitivity .**



**ENR is intermittent and is characterized by rhinorrhea and induced by rhinorrhea and induced nonspecific Irritant with negative skin test result .**



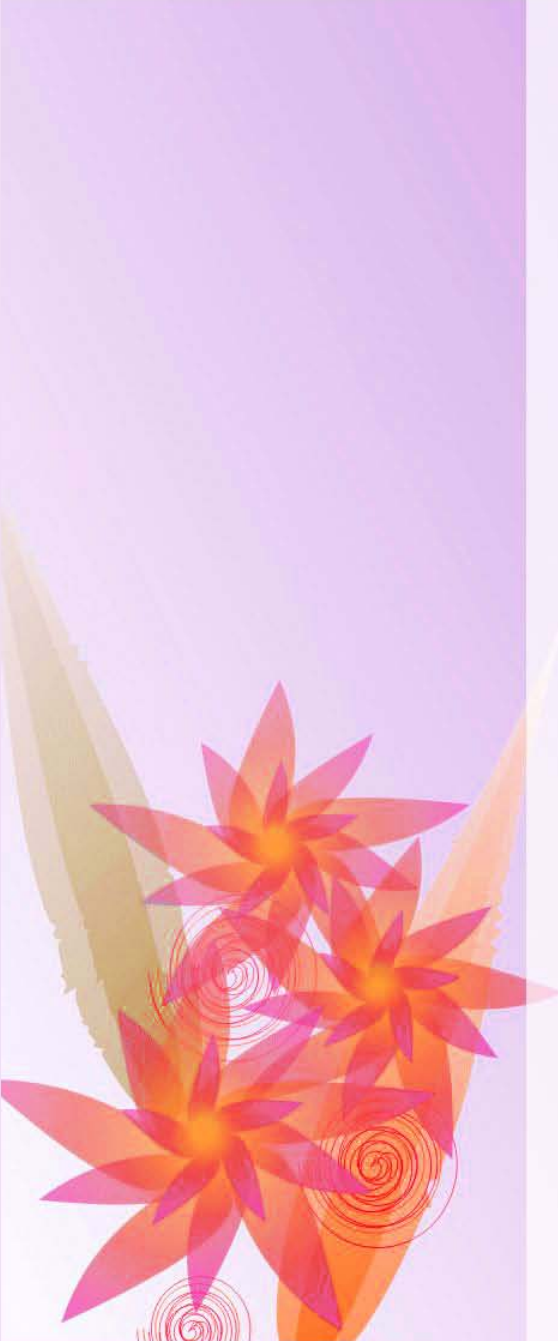


**ER associated with allergy is continuous or seasonal and is induced by specific antigens with positive skin test result .**



**Approximately %25 ER  
have associated nasal  
polyps .**





**ER is characterized histologically by a thickened submucosa a mixed infiltrate of plasma cells , lymphocytes , eosinophils and neutrophils intense local IgE staining and damaged basement membrane.**