

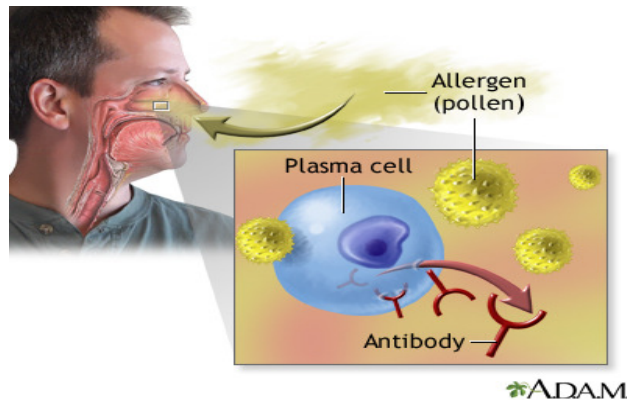


*Anti-allergic Effect of Bee Venom in An
Allergic Rhinitis*

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Allergic Rhinitis

- Rhinitis: Symptomatic disorder of the nose characterized by itching, nasal discharge, sneezing and nasal airway obstruction.
- Allergic rhinitis: Induction of rhinitis symptoms after allergen exposure by an IgE-mediated immune reaction; accompanied by inflammation of the nasal mucosa and nasal airway hyperreactivity.



Rhinitis phenotypes most common forms



- Allergic
- Infectious: Viral (acute), bacterial, fungal
- Non-Allergic, Non-Infectious, Rhinitis
- Non-Allergic Rhinitis with Eosinophilia Syndrome (NARES)
- Chronic Rhinosinusitis with or without Polyps: Hypertrophic, inflammatory disorder that can affect allergic or non-allergic individuals



Rhinitis phenotypes less common forms

- Occupational: May be allergic or non-allergic
- Drug-induced: Aspirin, some vasodilators
- Hormonal: Pregnancy, menstruation, hormonal contraceptives, thyroid disorders
- Food-induced (gustatory)
- Cold air-induced (skier's nose)
- Atrophic (rhinitis of the elderly)



Allergic rhinitis: impact

- High prevalence
- Impaired quality of life
- Work and school absence
- Impaired learning
- Impaired sleeping
- Loss of productivity
- Associated asthma, sinusitis, otitis
- Treatment create substantial costs to society.

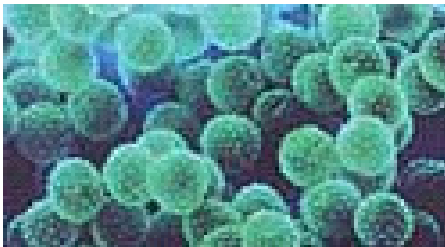


Allergic rhinitis co-morbidities

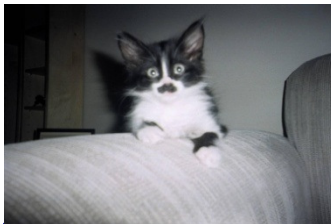
- Conjunctivitis
- Sinusitis
- Otitis Media
- Cough
- Asthma



Globally important sources of allergens



- House dust mites
- Grass, tree and weed pollen
- Pets
- Cockroaches
- Molds

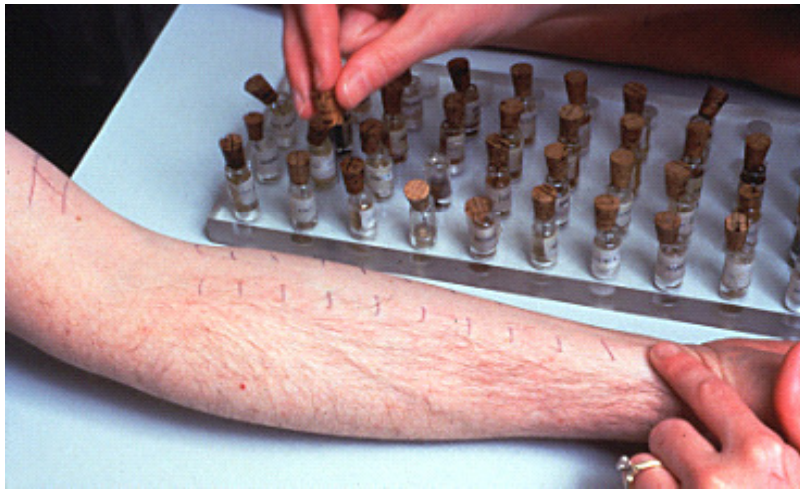


Diagnosis of allergic rhinitis

- Detailed personal and family allergic history
- Intranasal examination – anterior rhinoscopy
- Symptoms of other allergic diseases
- Allergy skin tests **and/or**
- *In vitro* specific IgE tests

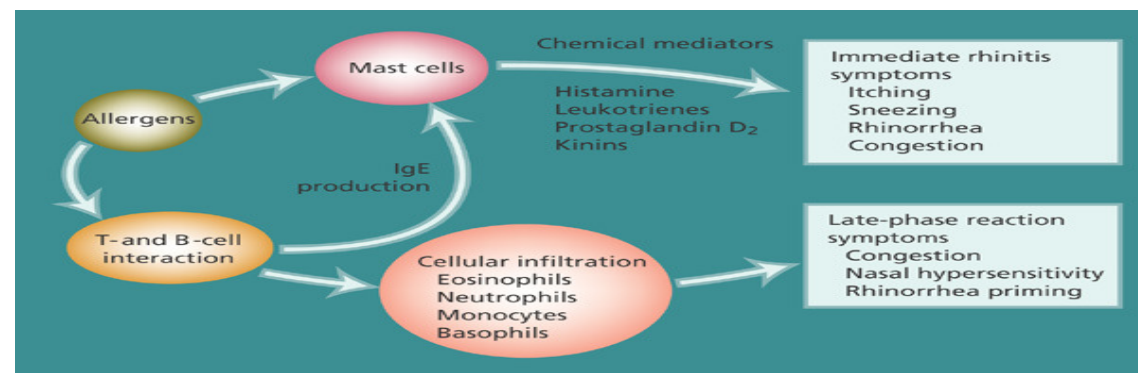


Allergy skin prick testing



Allergic Rhinitis: Mechanism

Allergic rhinitis (AR) is characterized by nasal mucosal inflammation resulting from immunoglobulin E (IgE) mediated hypersensitivity reaction. Allergen exposures stimulate infiltration of inflammatory cells within the nasal mucosa, including basophils, eosinophils, mast cells, and mononuclear cells. These inflammatory cells release several allergic mediators, such as histamine, cysteinyl leukotrienes, and prostaglandins, which sustain the inflammatory reaction and produce characteristic nasal symptoms of, sneezing, itching, rhinorrhea and nasal congestion.



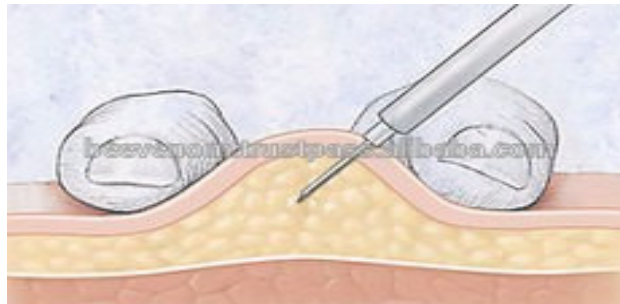
Apitherapy

- APITHERAPY, or “bee therapy” (from the Latin *apis* which means bee) is the medicinal use of products made by honeybees.
- Products of the Honeybee include bee venom, honey, pollen, royal jelly, propolis, and beeswax.



Bee venom

Bee venom (BV) consists of a various biologically active amines, peptides and nonpeptide components, and has radioprotective, antimutagenic, anti-inflammatory, antinociceptive, and anticancer activities.



Therapies involving the honeybee have existed for thousands of years and some may be as old as human medicine itself. Bee venom therapy was practiced in ancient Egypt, Greece, and China—three Great Civilizations known for their highly developed medical systems.





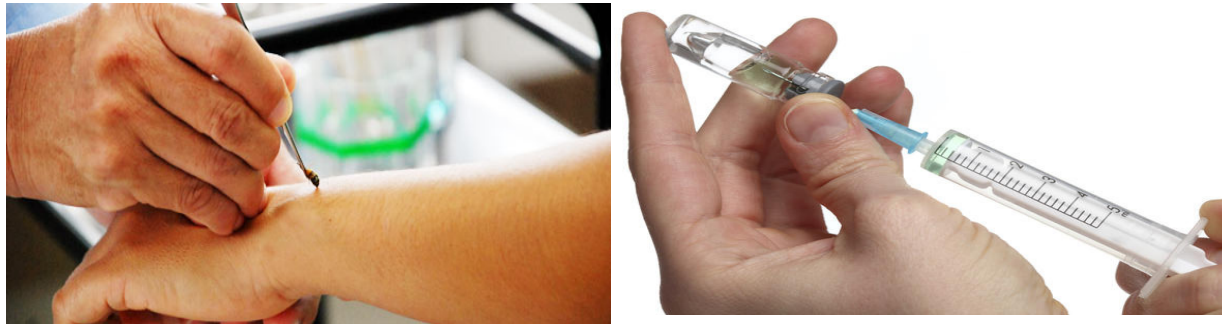
Hippocrates, the Greek physician known as the “Father of Medicine”, recognized the healing virtues of bee venom for treating arthritis and other joint problems.

Prophet Muhammad gave a special mention of some foods as cure of some diseases stressing the high nutrition quality found in them. Modern studies have found certain elements that cure many diseases in the same foods the prophet recommended





Today, growing scientific evidence suggests that various bee products promote healing by improving circulation, decreasing inflammation, and stimulating a healthy immune response.



The number of treatments varied, depending on the severity of the disease. Acute cases required few times and short treatment. More chronic cases required many more treatments over a longer time. The usual course of treatment was to apply the bees every other day for three times a week over the affected areas.



- The injectable bee venom can be legally used by doctors, the same treatment is used as with the live bee. The same amount of venom (one bee is equal to about 0.1 mg pure dry bee venom) can be injected with a needle intradermally to imitate the live bee, and it produces the same effects.
- The application of the venom seems to be most effective when applied to the “trigger points” or “hot spots,” corresponding to some extent to acupuncture or acupressure points. Pressure is applied to the area with the thumb. When the thumb presses a trigger point, it will produce a sharp pain; it is this point that is treated.





- Venom immunotherapy is indicated in individuals of all ages with severe systemic reactions to stinging insects, as well as in adults who experience generalized reactions that are limited to the skin. Severe systemic reactions to venom are relatively uncommon, but can be fatal. The purpose of venom immunotherapy is to reduce the severity of the reactions and the risk of fatality, and to improve patient quality of life by allowing the patient to work or play outdoors without being concerned about the possibility of experiencing a serious allergic reaction



Bee venom: Mechanism



- Two main components of BV, melittin and adolapin, have anti-inflammatory activity that involve inhibition of cyclooxygenase-2 and, phospholipase A_2 expression, and decrease levels of tumor necrosis factor- α , interleukin (IL)-1, IL-6, and nitric oxide.
- The anti-allergic activity is associated with marked inhibition of tracheal contraction and histamine release from lung tissue. The mast-cell degranulating peptide binds to the mast cell receptors and inhibits the binding of IgE and production of histamine. BV also inhibits the release of inflammatory mediators similar to nonsteroidal anti-inflammatory drugs.





- The use of pure venom injections and well placed bee stings is increasing in Western countries as an alternative to heavy (and sometimes ineffective) drug use, which is often associated with numerous side-effects.
- A society for api-acupuncture was formed in 1980 in Japan. In the West, the American Apitherapy Society (AAS) is collecting case histories and information on bee venom therapy, together with medical uses of other bee products.



Conclusion

- Bee venom has significant anti-allergic effect.
- The anti-allergy effect of BV is associated with the inhibition of T helper cell type-2 (Th2) cytokine production, inflammatory cell infiltration in nasal tissue and mucin production.
- The combination of natural products, like BV, with modern anti-allergic medications, might enhance the therapeutic potency and minimize adverse effects.



Thank You

 **Honey**

