Allergic Rhinitis and its Explanation in Ayurveda – A Review

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Abstract: Children's and adults' respiratory allergies are a major cause of morbidity. One of the most common disorders of the respiratory system that affects people of all ages and both sexes is allergic rhinitis. Nasal congestion, sneezing, rhinorrhea, itching in the nose, and other symptoms of allergic rhinitis are widespread. Allergic rhinitis is an inflammatory condition of the nasal mucosa. Effectively managing this condition in a short amount of time continues to be difficult. According to ancient Ayurvedic writings, Vataja Pratishyaya is a condition whose symptoms are like those of allergic rhinitis. Panchakarma therapy's Nasya treatment has shown good results in treating this condition's symptoms. This irritating disorder has no effective cure as of now in the conventional medical system. The need for an effective metric for an equivalent is therefore urgent. Most rhinitis' symptoms are like those of vata-kaphaj pratishaya. This thorough research paper attempts to establish the relationship between rhinitis and Vataja Pratishyaya in Ayurvedic therapy of case study. Ayurveda, the science of life, has the power to guarantee a full recovery when used methodically.

Keywords: Allergic Rhinitis, Ayurveda, Pratimarsha Nasyaas, Vataja Pratishyaya, etc.

Introduction

The only medical method that enables ideal coexistence with nature is Ayurveda [1]. The five sense organs that make up the human body—the tongue, ear, nose, skin, and eyes—are what allow us to perceive objects. It is difficult to see an object when there is an obstruction between the sense organ and the sensory object (or difficult). Any disease of a sense organ affects how that organ perceives a specific thing, but AR is a disease that affects all five sense organs. If their symptoms are not effectively controlled, people with nasal allergies may find it challenging to participate in both indoor and outdoor activities [2]. Sneezing, nasal discharge, nasal obstruction, headache, head heaviness, itching in the eyes, throat, and tongue, among other symptoms, greatly reduce patient quality of life and productivity. Worldwide, 400 million people have allergic rhinitis, according to WHO [3].

H1 receptor antagonists (antihistamines), nasal decongestants, mast cell stabilisers, leukotriene receptor antagonists, corticosteroids, and anti-cholinergic drugs in oral or topical nasal formulations are among the current therapeutic options for allergic rhinitis. However, all these simply provide symptomatic alleviation and have negative side effects. Modern medicine therefore lacks a long-term treatment for AR [4].

For the continuing and successful completion of any work, attitude, behaviour, concentration, and dedication are crucial. But one issue that interferes with a person's ability to operate normally is known as allergic rhinitis. Sneezing, nasal discharge, nasal obstruction, headache, head heaviness, itching in the eyes, throat, and tongue, among other symptoms, greatly reduce patient quality of life and productivity.

The SHALAKYA TANTRA, one of the eight branches of the ancient healing science Ayurveda, is responsible for providing information on the aetiology, prodromal symptoms, symptoms, diagnosis, prognosis, prevention, and treatment of diseases that affect the area above the neck, including Eye, E.N.T., Head &Neck, and orodental disorders [5]. Here, the condition known as Vataja Pratishyaya—which manifests symptoms like allergic rhinitis—has been identified [6]. These nasal symptoms' sudden onset and recurrent episodes also point to the Vata Dosha's predominance in their pathophysiology [7].

A hundred percent increase in allergic rhinitis has been observed over the past three decades, according to the American College of Allergy, Asthma, and Immunology (ACAAI). 400 million people worldwide suffer from allergic rhinitis, according to the World Allergy Organization (WAO) [8]. Between 10% and 30% of people globally suffer from allergic rhinitis, according to a different study [9].

According to current estimates, one in seven Americans suffers from AR, which has emerged as the most prevalent allergic/immunologic illness in the country [10]. 26% of the population in India has allergic rhinitis. The incidence of allergic rhinitis may differ between and within nations. This might be a result of regional variations in the kinds and strength of various allergens as well as the burden of aeroallergens. Although allergic rhinitis by itself does not pose a life-threatening threat (unless it is accompanied by severe asthma or anaphylaxis), the illness can have significant morbidity. In addition, otitis media, Eustachian tube dysfunction, sinusitis, nasal polyps, allergic conjunctivitis, and atopic dermatitis are all linked to allergic rhinitis. The condition has a negative impact on a child's physical, social, psychological, and intellectual wellbeing [11].

Allergic rhinitis is an IgE-mediated immunological response of the nasal mucosa to airborne allergens. It is frequently classified as seasonal or perpetual, depending on whether symptoms appear only occasionally or continuously throughout the year [12]. Although allergic rhinitis does not provide a life-threatening risk, due to its chronic nature and tendency to worsen when exposed to allergens, it can be a bothersome and upsetting condition for the patient. Additionally, allergic rhinitis is a significant contributor to widespread morbidity, medical expenses, decreased productivity at work, and missed school days [13]. The effects of allergic rhinitis symptoms, which include fatigue, headaches, cognitive decline, and sleep problems, can have a major impact on a patient's quality of life [14]. Effective management of concomitant respiratory disorders such asthma, sinusitis, and sleep apnea depend heavily on the proper management of allergic rhinitis [15-25].

Traditional therapeutic approaches for treating allergic rhinitis symptoms include avoiding triggers, taking oral antihistamines, using intranasal corticosteroids, and allergen immunotherapy, among others. Even while these interventions work, there are still several drawbacks, including the possibility of side effects and the fact that roughly 60% of the affected population does not respond well to antihistamines and intranasal corticosteroids, among other things. Therefore, it is unquestionably necessary to hunt for more successful treatments for people with allergic rhinitis [26,27].

In accordance with Ayurveda, a healthy human body should have a generally stable equilibrium (congenial homeostasis) of the Dosha (psycho-biological rhythm - Vata, Pitta, and Kapha), Dhatu (body tissues and their nourishing elements), and Mala (excreta); Acharya Sushruta defines health as an equilibrium of the Dosha (psycho-biological rhythm), Agni (digestion and metabolism), The goal of therapy is to re-establish this equilibrium because sickness results from imbalance in this equilibrium. Treatment for disease entails steps that purify the biological system by eradicating the body's vitiated components, hence causing disease prevention and health promotion [28-31].

According to ancient Ayurvedic writings, Vataja Pratishyaya is a condition that exhibits symptoms like allergic rhinitis, such as Tanu Nasa Srava (rhinorrhea), Shirashoola (headache), and Kshavathu (sneezing), among others. According to "Asatmyaja Vyadhi," the term "allergy" refers to a condition whose causes include inherited factors, food allergens, blood-vitiating conditions like Kitibha (psoriasis), among others, Viruddhahara, Dushivisha, and Ritu Sandhi (environmental factors, i.e. when proper seasonal regimen is not followed). One of the most significant disorders associated with the nose (Nasaroga), Pratishyaya is characterised by the vitiation of the Vata and Kapha doshas at the root of the nose, which results in a secretion that pours through the nose. Consequently, Vataja Pratishyaya mainly includes the vitiation of the Vata then Kapha doshas. Conferring towards Ayurveda, the conduct of Vataja Pratishyaya necessity concurrently discourse the vitiation of together the Vata then Kapha doshas; shodhana (purificatory) then shamana (pacifying) treatments consume remained suggested cutting-edge this respect. Panchakarma remains a purificatory Ayurvedic process, which comprises Snehan (oleation) then Swedan (sudation) by way of Poorva Karma (pre-procedures); Vaman (therapeutic emesis), Virechan (beneficial purgation), Anuvasana Basti (oil purgative), Asthapana Basti (decoction enema) then Nasya (nasal insufflation) by way of Pradhan Karma (chief-process); then, Sansarjan Kram (graduated diet) by way of Paschat Karma (column-process) [32-34].

Panchakarma's Nasya (nasal insufflation) procedure has been used to treat allergic rhinitis, with encouraging results. Patients with allergic rhinitis were given Shunthi Taila Nasya, along with the internal medication Shuddha Haridra (purified Curcuma longa), Bhakti Taila Nasya, along with the oral medication Haridra Khanda, and Kumar Taila Nasya, along with the oral medication Haridra Another Panchakarma therapy process is called basti, and it is regarded as one of the top therapies for illnesses connected to Vata. Therefore, Nasya and other Panchakarma therapy techniques can be helpful in the management of allergic rhinitis symptoms [35].

The Ayurvedic Organization of Sensitive Coryza (Vataja Pratishyaya) through Pratimarsha Nasyaas Adenoidal Medication Distribution Organization

Allergic Rhinitis (AR) is an immunoglobulin (Ig) E-mediated inflammatory disease characterised by sneezing, rhinorrhea, congestion, and obstruction of the nasal passages, as well as itching and lacrimation of the

conjunctiva and pharynx [36-40]. It is a seasonal or perennial response to a specific allergen. Asthma, nasal polyposis, rhino-sinusitis, serous otitis media, and sleep problems are only a few of the co-morbid illnesses that AR is linked to [41-44]. Self-reported prevalence of AR has increased significantly over the past two decades, reaching 41%. There are not many published studies on allergic rhinitis in adults in south-east Asia [45,46]. According to epidemiological data, the prevalence of AR varies within and within-country regions [47,48]. Urban life, exposure to air pollution at home and at work, and allergic sensitivity to airborne allergens are the prevalent risk factors for AR [49-51]. Although allergic rhinitis cannot cause death, it has a significant and persistent negative impact on people's quality of life and ability to go about their everyday lives [52]. Avoiding allergens, treating symptoms as they occur (typically with drugs like b2 agonist inhalers, antihistamines, and adrenaline), and generally suppressing immunological responses are the mainstays of current clinical care (e.g., using corticosteroids) [53]. According to Ayurveda, Pratishyaya, which is defined as the condition where the secretion produced due to the derangement of Vata and Kapha (i.e., bodily humours) at the root of the nose, flows down through the nose against the inspired air [54], is one of the most significant diseases among Nasaroga (diseases related to nose). Vataja Pratishyaya is the variety of Pratishyaya that occurs the most frequently. The illness Vataja Pratishyaya is as old as humankind. Allergic rhinitis and Vataja Pratishyayas clinical symptoms in the Ayurvedic Classics are remarkably similar conditions [54].

The medical system known as Ayurveda stresses the necessity to cleanse the body's entire biological system, from the most basic molecular levels up to the gross channels, in order to avoid sickness and promote health. Because of the disease's Vata and Kapha (i.e., bodily humours) predominance, treatment for it should be bidirectional, and as a result, emphasis should be placed on shodhana (purificatory) therapies. Asnasa (nose) is the gateway to shiras (head), so nasya (nasal insufflations) is one such purificatory treatment to avoid, regulate, and cure the Urdhvajatrugata rogas (diseases of the head and neck) [56]. Nasya therapy, which involves medicated oils and powders acting on the nasal mucosa, is the term used to describe medication administered through the nose to achieve desired therapeutic effects [55].

Nasya is a significant practise that is described as one of the cleaning processes for channels in the head and neck region under Vaiyaktika Swasthavritta (i.e., preventative medicine and personal hygiene). A person can be encouraged to use nasya for both disease prevention and treatment. The Ayurvedic classics list many nasya methods according to their actions and dosages of medication. Pratimarsha Nasya is one of them and plays a big part in preventing Urdhvajatrugata rogas and promoting the health of the sense organs. In order to defend themselves against Urdhvajatrugata rogas, Swastha (healthy) people are encouraged to do Pratimarsha nasya as part of their everyday routine. In addition, Pratimarsha Nasya helps to enhance visual perception, reinforce dentures, and promote dental cleanliness. Indication of Anutaila, when administered for a long time in the form of Pratimarsha nasya, is said to have positive benefits on disorders of the head and neck. The theory of anutaila states that merely two drops delivered in each nostril are sufficient to reach the body's tiniest channels [55].

Allergic Rhinitis in Ayurvedic Perceptions

One of the most prevalent diseases impacting people nowadays is an allergic disorder. Each person is exposed to a disproportionately large number of the chemical and biological agents found in the environment every day. Information about a disease's aetiology, prodromal symptoms, symptoms, diagnosis, prognosis, and prevention and treatment. One of the eight subdisciplines of the ancient medical system known as Ayurveda [56]. Here, the illness with symptoms that resemble rhinitis almost exactly has been identified as Vataja Pratishyaya [57]. These nasal symptoms' sudden onset and recurrent episodes also point to the Vata Dosha's predominance in its pathophysiology [58].

While some of these substances, such as food and medications, are beneficial to the body, others, such as microbes, are typically harmful to it. Inflammation of the mucous membrane in the nose, or rhinitis, is brought on by an irritant and results in episodes of sneezing, nasal discharge, or a blocked nose. Additionally, extra mucus might seep into the throat and hurt it. A normal attack lasts for around an hour.

While perennial rhinitis affects the nose all year long, pollinosis (seasonal allergic rhinitis) is limited to a certain time of year. Pollen from plants such as grass, trees, and flowers, as well as spores from fungus, is the allergen that causes allergies. The American College of Allergy, Asthma, and Immunology (ACAAI) reports that each of the past three decades has seen a 100 percent increase in rhinitis cases. According to the World Allergy Organization (WAO), rhinitis affects 400 million people globally [59].

Each study claims that between 10% and half of people globally suffer from rhinitis [60]. One in seven Americans are now thought to have AR, making it the most prevalent allergic/immunologic condition in the country [61]. Rhinitis affects 26% of the population in India [62]. Rhinitis prevalence may differ between and within nations. This may result from regional variations in the types and strength of specific allergens and, consequently, the burden of aeroallergens in general. Although allergic rhinitis by itself is seldom

life-threatening (unless it is accompanied by severe asthma or anaphylaxis), the illness frequently has significant morbidity.

In addition, otitis, Eustachian tube dysfunction, sinusitis, nasal polyps, allergic conjunctivitis, and atopic eczema are associated with allergic rhinitis. The condition has a negative impact on children's academic achievement as well as their physical, social, and psychological wellness. The Body's Reaction to Allergens IgE is a particular type of immunoglobulin that is produced in greater amounts by those who are allergic. When the body meets the same allergen again, it will react with the IgE, causing the mast cells to produce a range of chemicals, including histamine. IgE develops after the initial interaction with an allergen and becomes linked to tissues' mast cells. Depending on where portion of the body the chemical affects, it might produce swelling and inflammation in the surrounding tissues and give birth to a variety of allergy symptoms.

The term "allergy" refers to an aberrant response of biological tissues to certain foreign chemicals, also known as allergens, which are typically proteinous in nature. Specific antibodies are produced by the body in response to allergens. In addition to circulating antibodies, allergic individuals also have a specific type of reaginic antibody that can attach to tissue cells, including mast cells. Histamines and related amines are released during an antigen-antibody response in which reaginic antibodies participate, resulting in local vasodilation and enhanced capillary permeability that supplies local oedema, a nasal allergy symptom. Additionally, nasal allergies may be recurring or transient.

Dosha Dushya Vikruti and Adhisthan

• Dosha: Tridosha, mainly vata & Kapha
• Dushya: Rasa, Rakta
• Adhishthana: Nasa Pradesha
• Srotas: Pranvaha, Rasavaha, Raktavaha
• Srotodushti prakara: Attipravritti, Sanga, Vimargag Amana
• Udhbhava Sthana: Amshaya, Pkvashya
• Agni: Mandya

Mokshayan- Contents

Ayurvedic name	Botanical name
Haridra -	Curcuma Longa
Bilva -	Aegle Marmelos
Punarnava -	Boerhaavia Diffusa
Tulsi -	Ocimum Sanctum L
Lodhra -	Symplocos Racemosa
Brahmi-	Bacopa Monnieri
Vacha -	Acorus Calamus
Amla -	Emblica Officinalis
Manjishtha -	Indian madder
Ashwagandha -	Withania somnifera
Guduchi -	Tinospora Cordifolia

Marvellous Consequence of Ayurvedic Organization cutting-edge Allergic Rhinitis – A Solitary Circumstance Study

Ayurveda is a medical system that offers a method to live perfectly in harmony with nature. The human body's sense organs play a major role in how we perceive objects. A distorted perception of difficulty results from any impediment or disturbance. All these sensory organs, but particularly the nose, experience issues as a result of the condition allergic rhinitis. 400 million people worldwide suffer from allergic rhinitis, according to WHO [63].

Allergic rhinitis and Ayurvedic Vataja Pratishyaya may be connected based on the symptoms. In Ashtanga Hridayam Uttaratantram [64], Acharya Vaghbhata provides an explanation of Vataja Pratishya. Clinical signs linked to Vataja Pratishyaya in Ayurveda were found in the current case report. The case study describes how Panchakarma and Shamana Aushadies are used to treat allergic rhinitis.

Patient Info

The 30-year-old single, non-smoking, non-drinking male patient included in this case study has a history of frequent sneezing, running noses, nasal obstructions, breathing difficulties, headaches, severe dust allergies, hoarseness of voice, impaired sense of smell, and itching in the nose and eyes. Sneezing and runny nose symptoms are aggravated by eating cold foods and by sitting in an air-conditioned environment. He previously experienced a similar ailment, but allopathic treatment provided only modest relief. The illness gets worse every day, and the symptoms get worse over time. He was unable to conduct business in his office's air-conditioned space. He visited numerous allopathic

hospitals but only received symptomatic relief. Finally, he came to Kaya Chikitsa's outpatient department (OPD). He has no specific family background or medical history of any kind. Below is a list of his prior experiences [Table 1].

Table 1: Individual Antiquity of Persistent

Diet	Vegetarian
Micturition	5-6 times in a day, 0-1 times at night
Bowel	Regular/ Slightly constipated
Appetite	Moderate
Sleep	Disturbed
Addiction	Nil
Allergy	Dust, Cold, Pollen grains.

Ashtavidha Pareeksha: - Ashtavidha Pariksha (Eightfold Classifications) has been mentioned below [Table No 2].

Table 2: Ashtavidha Pariksha of Persistent

Nadi (Pulse)	72/min
Mutra (Urine)	5-6 times a day
Mala (Stool)	1-2 times per day
Jihva (Tongue)	Malavrita (Coated)
Shabda (Speech)	Nasal (Not Normal)
Sparsha (Touch)	Rukshata
Drik (Eyes)	Sa Raga (mild reddish discoloration)
Akriti (Built)	Madhyama

Scientific discoveries

The systemic examination reveals that his nasal mucosa is a light blue colour. Vatapradhana Vata-Pitta Prakruthi was the patient. The patient complained of itching near the eyes and ear, as well as rhinorrhea, nasal congestion, and frequent sneezing [65].

Analytical valuation

Vataja Pratishyaya was the diagnosis made for the current case based on the indications and symptoms (Allergic Rhinitis). By contrasting the symptoms before and after therapy, the assessment was carried out [66-67].

Table 3: Beneficial interference

Sr.no.	Drug	Dose	Anupana	Duration
1	Haridra khand (50 gm) + Lakshmi vilasa rasa (10 gm) +Abhraka bhasma (10gm) + Godanti bhasma (10 gm) + Shudha tankana bhasma (10 gm) + Sitopaladi churna (50 gm) + Rasa manikya (5 gm).	5 gm Morning & 5 gm Evening (Before food.)	Lukewarm water	15 Days
2	Chitraka Haritaki	1 tsp Morning 1 tsp evening (After food)	Lukewarm water	15 Days
3	Tab Immunocin/ Giloya Ghana vati	2-tab Morning 2-tab evening (After food)	Lukewarm water	15 Days
4	Tab Alleczy	2-tab Morning 2tab evening (After food)	Lukewarm water	15 Days

Panchakarma Rehabilitation

Sr.no.	Panchakarma	Medicine	Dose	Duration
1	Pratimarsh Nasyam	Anu Tailam	2 drops in each nostril 6 times a day	15 Days
2	Aschotanam	Opthacare eye drops	2 drops in each eye X 4	15 Days

Follow-up and results the patient was instructed to follow up with the OPD after 15 and 30 days. The patient's condition significantly improved after the treatment.

Sr.no.	Signs/ Symptoms	BT	After 15 Days of Treatment	After 30 Days of Treatment
1	Excessive sneezing	+ + + +	+	+
2	Nasal obstruction	+ + + +	+	-
3	Headache	+ + +	+	-
4	Difficulty in breathing	+ + +	-	-
5	Severe dust allergy	+ + + +	-	-
6	Hoarseness of voice	+ + +	-	-
7	Decreased sense of smell	+ + +		-
8	Itching in nose and eyes	+ + + +	+	-
9	Starting sneezing while walking some distance	+ + + +	+	+
10	Nasal mucosa	Pale blue	Normal	Normal

Conclusion

Allergic rhinitis does not provide a life-threatening risk to the patient, but it can considerably reduce productivity and quality of life. Asthma and allergic rhinitis frequently coexist; they can also be connected by otitis media, malfunction of the Eustachian tube, sinusitis, nasal polyps, allergic conjunctivitis, and atopic dermatitis. It might also be a factor in issues like sleep disorders and learning challenges. Even with the availability of increasingly more modern medications, allopathic treatment is not without adverse effects. The other health systems must offer a corrective treatment because there is no curative care available. The world has high hopes for ayurvedic science when it comes to treating AR. Allergic rhinitis may be associated with Vataja Pratishyaya based on parallels in the etiological causes and clinical characteristics, and it should be treated as such with the breakdown of the pathophysiology given first emphasis. The patient's condition was significantly improved because to this Ayurvedic therapy regimen, which combined Panchakarma and Shaman treatments. Therefore, patients with can think about using this strategy Allergic rhinitis.

References

1. Sushruta. Sushruta Samhita Dalhana Commentary Nibandhasangraha, edited by Vaidya Jadavaji Trikamji Acharya, Chaukhamba Surbharati Prakashana, Varanasi, 2012, Sutra Sthan 1/15.
2. Verma Swati. Role of Katphaladi Kwath and Anu Taila Nasya in the management of Vataj Pratishyaya (Allergic Rhinitis), International Ayurvedic Medical Journal, May-June 2013; 1(3): 8-14.
3. Mark D. Scarpa. In depth review of allergic rhinitis. World Allergy organization Journal. June-2005.
4. Dhingra P. L. Diseases of Ear, Nose and Throat, Published by Elsevier, a division of Reed Elsevier India Private limited, New Delhi,4th Edition-2007., 30th chapter.
5. Sushruta, Uttartantra 24/67, Sushruta Samhita Dalhana Commentary Nibandhasangraha, Gayadasacharya commentary Nyayachandrika Panjika on Nidanasthana, Ed. By Vd. Jadavaji Trikamji Acharya& Narayana Ram Acharya, Chaukhamba Surbharati Prakashana, Varanasi,2008.
6. Sushruta, Sutra Sthan, 1/7/2., Sushruta Samhita Dalhana Commentary Nibandhasangraha, Gayadasacharya commentary Nyayachandrika Panjika on Nidanasthana, Ed. By Vd. Jadavaji Trikamji Acharya& Narayana Ram Acharya, Chaukhamba Surbharti Prakashana, Varanasi, 2008.
7. Sushruta, Nidana Sthan, 1/8., Sushruta Samhita Dalhana Commentary Nibandhasangraha, Gayadasacharya commentary Nyayachandrika Panjika on Nidanasthana, Ed. By Vd. Jadavaji Trikamji Acharya& Narayana Ram Acharya, Chaukhamba Surbharti Prakashana, Varanasi, 2008.
8. WAO Journal, June2008.
9. World Health Organization. White Book on Allergy 20112012 Executive Summary by Prof. Ruby Pawankar, MD, PhD, Prof. Giorgio Walkter Canonica, MD, Prof. Stephen T. Holgate, BSc, MD, DSc, FMed Sci and Prof. Richard F. Lockey, MD). 6. Meltzer EO. The prevalence and medical and economic impact of

allergic rhinitis in the United States. J Allergy Clin Immunol 1997; 99: S805–S828.
10. Dr. Anjali S. Nayak et al a survey on allergic rhinitis 2007.
11. P. L. Dhingra, Diseases of Ear, Nose and Throat, Published by Elsevier, a division of Reed Elsevier India Private limited, New Delhi,4th Edition,2007.
12. Walker B, Colledge N, Ralston S. Davidson principles and practice of medicine; 2014.
13. Small M, Piercy J, Demoly P, Marsden H. Burden of illness and quality of life in patients being treated for seasonal allergic rhinitis: a cohort survey. Clin Transl Allergy. 2013;3(1):33.
14. Dykewicz MS, Hamilos DL. Rhinitis and sinusitis. J Allergy Clin Immunol. 2010;125: S103–15.

15. Wallace DV, Dykewicz MS, Bernstein DI, Blessing-Moore J, Cox L, Khan DA, Lang DM, Nicklas RA, Oppenheimer J, Portnoy JM, Randolph CC, Schuller D, Spector SL, Tilles SA, Joint Task Force on Practice, American Academy of Allergy, Asthma & Immunology, American College of Allergy, Asthma and Immunology, Joint Council of Allergy, Asthma and Immunology. The diagnosis and management of rhinitis: an updated practice parameter. J Allergy Clin Immunol. 2008;122(2 Suppl): S1–84.

16. Amritwar AU, Lowry CA, Brenner LA, Hoisington AJ, Hamilton R, Stiller JW, et al. Mental health in allergic rhinitis: depression and suicidal behavior. Current Treatment Options in Allergy. 2017; 4(1): 71–97.
17. Hoyte FCL, Nelson HS. Recent advances in allergic rhinitis [version 1; referees: 2 approved]. F1000Research. 2018; 7(F1000 Faculty Rev): 1333.
18. Kumar S, Debnath P, Banerjee S, GR AR, Rao PN. Clinical investigations on the ayurvedic management of allergic rhinitis (vataja pratishyaya) by pratimarsha nasyaas nasal drug delivery system. Exploratory Animal and Medical Research. 2014; 4(2): 194-205.
19. Kozlov V, Lavrenova G, Savlevich E, Bazarkina K. Evidence-based phytotherapy in allergic rhinitis. Clinical Phyto science. 2018; 4: 23.
20. Scadding GW, Calderon MA, Shamji MH, Eifan AO, Penagos M, Dumitru F, et al. Effect of two years of treatment with sublingual grass pollen immunotherapy on nasal response to allergen challenge at three years among patients with moderate to severe seasonal allergic rhinitis: a randomized clinical trial: the grass randomized clinical trial. Journal of the American Medical Association. 2017; 317(6): 615–625.
21. Sinha B, Vibha, Singla R, Chowdhury R. Allergic rhinitis: a neglected disease - a community-based assessment among adults in Delhi. Journal of Postgraduate Medicine. 2015; 61(3): 169–175.
22. Small P, Keith PK, Kim H. Allergic rhinitis. Allergy, Asthma & Clinical Immunology. 2018; 14(Suppl 2): 51.
23. Varshney J, Varshney H. Allergic rhinitis: an overview. Indian Journal of Otolaryngology and Head and Neck Surgery. 2015; 67(2): 143–149.
24. Wheatley LM, Togias A. Allergic rhinitis. The New England Journal of Medicine. 2015; 372(5): 456–463.
25. Zajac AE, Adams AS, Turner JH. A systematic review and meta-analysis of probiotics for the treatment of allergic rhinitis. International Forum of Allergy & Rhinology. 2015; 5(6): 524–532.
26. Cheng L, Chen J, Fu Q, He S, Li H, Liu Z, et al. Chinese society of allergy guidelines for diagnosis and treatment of allergic rhinitis. Allergy, Asthma & Immunology Research. 2018; 10(4): 300-353.
27. Werkhauser N, Bilstein A, Sonnemann U. Treatment of allergic rhinitis with ectoine containing nasal spray and eye drops in comparison with azelastine containing nasal spray and eye drops or with cromoglycic acid containing nasal spray. Journal of Allergy. 2014; 2014: 176597.
28. Kadlimatti SM, Maheshwari KS, Chandola HM. Critical analysis of the concept of asthi kshaya vis-a-vis osteoporosis. Ayu. 2009; 30(4): 447-458.
29. Murthy KRS. Sushruta samhita - vol. I, II, III. Varanasi, Uttar Pradesh, India: Chaukhambha Orientalia; 2008.
30. Shastri K, Chaturvedi GN. Charak samhita – elaborated vidyotini hindi commentary. Part I. Varanasi, Uttar Pradesh, India: Chaukhamba Bharati Academy; 2001.
31. Shastri K, Chaturvedi GN. Charak samhita – elaborated vidyotini hindi commentary. Part II. Varanasi, Uttar Pradesh, India: Chaukhamba Bharati Academy; 2003.
32. Bhakti C, Rajagopala M, Shah AK, Bavalatti N. A clinical evaluation of haridra khanda & pippalyadi taila nasya on pratishyaya (allergic rhinitis). Ayu. 2009; 30(2): 188-193.
33. Modha NJ (Tank), Shukla VD, Baghel MS. Clinical study of anurjata janita pratishyaya
(Allergic rhinitis) & comparative assessment of nasya karma. Ayu. 2009; 30(1): 47-54.

34. Yadaiah P. Clinical panchakarma. Akola, Maharashtra, India: Jaya Publications; 2008.

35. Gundeti MS, Raut AA, Kamat NM. Basti: does the equipment and method of administration matter? Journal of Ayurveda and Integrative Medicine. 2013; 4(1): 9-12.

36. Schapowal A. Randomised controlled trial of butterbur and cetirizine for treating seasonal allergic rhinitis. BMJ (Clinical research ed.) 2002; 324 (7330): 144–146.

37. Jung, H, Jung J, Kim Y, Kang JS. Effect of KOB03, a polyherbal medicine, on ovalbumin-induced allergic rhinitis in guinea pigs. Chinese Med. 2012; 7 (1): 27.

38. Mygind N. Glucocorticosteroids and rhinitis. Allergy. 1993; 48 (7):476–490.

39. Bousquet, J, Van Cauwenberge P, Khaltaev N. Allergic rhinitis and its impact on asthma. The J Allergy Clinic Immunol.2001; 108 (5 Suppl) : S147–334.

40. Passalacqua G and Durham SR. Allergic rhinitis and its impact on asthma update: allergen immunotherapy. J Allergy Clinic Immunol. 2007; 119 (4): 881–891.

41. Liam CK, Loo KL, Wong C, Lim KH. Skin prick test reactivity to common aeroallergens in asthmatic patients with and without rhinitis. Respirology (Carlton, Vic.). 2002; 7 (4): 345–350.

42. Shinmei Y, Yano H, Kagawa Y, Izawa K. Effect of Brazilian propolis on sneezing and nasal rubbing in experimental allergic rhinitis of mice. Immunopharm immunotoxicology. 2009; 31 (4): 688– 693.

43. Davies, J, Li H, Green M, Towers M. Subtropical grass pollen allergens are important for allergic respiratory diseases in subtropical regions. Clinic Translational Allergy. 2012; 2 (1): 4.

44. Lam H, Tng N, Ekerljung L, Ronmark E. Allergic rhinitis in northern vietnam: increased risk of urban living according to a large population survey. Clinical Translational Allergy. 2011; 1 (1): 7.

45. Adelroth E, Rak S, Haahtela T, Aasand G. Recombinant humanized mAb-E25, an antiIgEmAb, in birch pollen–induced seasonal allergic rhinitis. J Allergy Clinic Immunol. 2000; 106 (2): 253-259.

46. Papadopoulos N, Agache I, Bavbek S, Bilo B. Research needs in allergy: an EAACI position paper, in collaboration with EFA. Clinical Translational Allergy. 2012; 2 (1): 21.

47. Asher MI, Montefort S, Bjorksten B, Lai CK, Strachan DP, Weiland SK, Williams H. Worldwide time trends in the prevalence of symptoms of asthma, allergic rhinoconjunctivitis, and eczema in childhood: ISAAC Phases One and Three repeat multicounty cross-sectional surveys. Lancet. 2006; 368: 733-743.

48. Ronmark E, Perzanowski M. Different sensitization profile for asthma, rhinitis, and eczema among 7-8-year-old children: Report from the Obstructive Lung Disease in Northern Sweden studies. Pediatr Allergy Immunol. 2003; 14: 91-99.

49. Seth D, Secord E, Kamat D. Allergic rhinitis. Clin Pediatr (Phila). 2007; 46: 401-407.

50. Mackenzie K, Anderton S and Schwarze J. Peptide immunotherapy for childhood allergy - addressing translational challenges. Clinical Translational Allergy. 2011; 1 (1):13.

51. Sharma, RK and Dash B. Agnivesa's Charaka Samhita, Text with English Translation & Critical Exposition Based on Cakrapani Datta's Ayurveda dipika. 2nd edn. Varanasi, India: Chaukhambha Sanskrit Series Office.2001.

52. Shastri A. Sushruta: Sushruta Samhita with Ayurveda Tattva Sandipika Hindi Commentary. 14th edn. Varanasi, India: Chaukhambha Sanskrit Sansthan.2003.

53. Bhakti C, Rajagopala M, Shah AK. A Clinical evaluation of Haridra Khanda & Pippalyadi Taila Nasya on Pratishyaya (Allergic Rhinitis).2009.

54. Martens M, Schnoor H, Malling HJ and Poulsen L . Sensitization to cereals and peanut evidenced by skin prick test and specific IgE in foodtolerant, grass pollen allergic patients. Clinical Translational Allergy. 2011; 1 (1): 15.

55. Modha NJ, Shukla VD and Baghel MS. Clinical Study of Anurjata Janita Pratishyaya (Allergic Rhinitis) and Comparative Assessment of Nasya Karma.2009.

56. Sushuta, Uttartantra 24/67, Sushruta Samhita Dalhana Commentary Nibandhasangraha, Gayadasacharya commentary Nyayachandrika Panjika on Nidanasthana, Ed. By Vd. Jadavaji Trikamji Acharya & Narayana Ram Acharya, Chaukhamba Surbharti Prakashana, Varanasi, 2008.

57. Sushruta, Sutra Sthan, 1/7/2., Sushruta Samhita Dalhana Commentary Nibandhasangraha, Gayadasacharya commentary Nyayachandrika Panjika on Nidanasthana, Ed. By Vd. Jadavaji Trikamji Acharya & Narayana Ram Acharya, Chaukhamba Surbharti Prakashana, Varanasi, 2008.

58. Sushruta, Nidana Sthan, 1/8., Sushruta Samhita Dalhana Commentary Nibandhasangraha, Gayadasacharya commentary Nyayachandrika Panjika on Nidanasthana, Ed. By Vd. Jadavaji Trikamji Acharya & Narayana Ram Acharya, Chaukhamba Surbharti Prakashana, Varanasi, 2008.

59. WAO Journal, June 2008.

60. World Health Organization. White Book on Allergy 20112012 Executive Summary by Prof. Ruby Pawankar, MD, PhD, Prof. Giorgio Walkter Canonica, MD, Prof. Stephen T. Holgate, BSc, MD, DSc, FMed Sci and Prof. Richard F. Lockey, MD). 6. Meltzer EO. The prevalence and medical and economic impact of allergic rhinitis in the United States. J Allergy Clin Immunol. 1997; 99: S805–S828.

61. Dr. Anjali. S. Nayak et al a survey on allergic rhinitis, 2007.

62. P. L. Dhingra, Diseases of Ear, Nose and Throat, Published by Elsevier, a division of Reed Elsevier India Private limited, New Delhi, 4 th Edition, 2007.
63. Mark D. Scarupa. In-depth review of allergic rhinitis. World Allergy organization Journal. 2005.
64. Dhingra P. L. Diseases of Ear, Nose, and Throat, Published by Elsevier, a division of Reed Elsevier India Private Limited, New Delhi,4th Edition-2007., 30th chapter
65. Dr. Anna Moreswara Kunte and Krsna Ramchandra Sastri Navare, Edited by Bhishagacharya Harisastri Paradakara Vaidya, Introduction by PV Sharma, Astanga Hrdayam Composed by Vagbhata, with the Commentaries (Sarvangasundara) of Arunadatta and (Ayurvedarasayana) of Hemadri Chaukambha Orientalia Varanasi, Reprint Edition 2019. Uttara Tantra Chapter 19.
66. Dr. Anna Moreswara Kunte and Krsna Ramchandra Sastri Navare, Edited by Bhishagacharya Harisastri Paradakara Vaidya, Introduction by PV Sharma, Astanga Hrdayam Composed by Vagbhata, with the Commentaries (Sarvangasundara) of Arunadatta and (Ayurvedarasayana) of Hemadri Chaukambha Orientalia Varanasi, Reprint Edition 2019. Uttara Tantra Chapter 19.
67. Dr. Anna Moreswara Kunte and Krsna Ramchandra Sastri Navare, Edited by Bhishagacharya Harisastri Paradakara Vaidya, Introduction by PV Sharma, Astanga Hrdayam Composed by Vagbhata, with the Commentaries (Sarvangasundara) of Arunadatta and (Ayurvedarasayana) of Hemadri Chaukambha Orientalia Varanasi, Reprint Edition 2019. Uttara Tantra Chapter 19. Sloka 1.
68. Karle, P. P., Dhawale, S. C., Navghare, V. V., & Shivpuje, S. S. (2021). Optimization of extraction conditions and evaluation of Manilkara zapota (L.) P. Royen fruit peel extract for in vitro α-glucosidase enzyme inhibition and free radical scavenging potential. Future Journal of Pharmaceutical Sciences, 7(1), 1-10.
69. Rao, M. R., Shivpuje, S., Godbole, R., & Shirsath, C. (2016). Design and evaluation of sustained release matrix tablets using sintering technique. International Journal of Pharmacy and Pharmaceutical Sciences, 8(2), 115-121.
70. Rao, M. R., Taktode, S., Shivpuje, S. S., & Jagtap, S. (2016). Optimization of Transmucosal Buccal Delivery of Losartan Potassium using Factorial Design. Indian Journal of Pharmaceutical Education and Research, 50(2), S132-S139.
71. Patre, N., Patwekar, S., Dhage, S., & Shivpuje, S. (2020). Formulation & Evaluation Of Piroxicam Bionanocomposite For Enhancement of Bioavailability. European Journal of Molecular & Clinical Medicine, 7(11), 9362-9376.
72. Wadher Shailesh, J., Patwekar Shailesh, L., Shivpuje Shivraj, S., Khandre Supriya, S., Lamture Sima, S., & Puranik, M. P. (2017). Stability Indicating Assay Methods for Simultaneous Estimation of Amoxicillin Trihydrate And Cloxacillin Sodium in Combined Capsule Dosage Form by UV-Spectrophotometric Method. European Journal of Biomedical, 4(10), 858-864.
73. Santosh A.Payghan Shivraj S. Shivpuje Shailesh L. Patwekar, Karna B. Khavane, Padmavati R. Chainpure. 2021; A Review on Different Preparation Method Used For Development of Curcumin Nanoparticles. International Journal of Creative Research Thoughts, 9(1):4088-4101.
74. Zeba Ashfaq Sheikh P. R. Chainpure, S. L. Patwekar, S. S. Shivpuje. 2019; Formulation and evaluation of Garciniacambogia and Commiphoramukul Herbal tablets used for Anti-Obesity. International Journal of Engineering, Science and Mathematics, 8(4): 180-195. 26. 75. Sheetal Rathod P. R. Chainpure, S. L. Patwekar, S. S. Shivpuje. 2019; A Study of Carica Papaya Concerning It's Ancient And Traditional Uses - Recent Advances And Modern Applications For Improving The Milk Secretion In Lactating Womens. International Journal of Research, 8(2):1851-1861.