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Case Study

AYURVEDIC MANAGEMENT OF TREE-NUT AND PEANUT ALLERGY WITH ATOPIC MANIFESTATIONS

Sahil Gupta[1]*, Tanvi Sood[2]

*[1]BAMS, MHA, CEO, IAFA, Gohana, Haryana.

[2]Lecturer, RGGPG Ayurvedic College and Hospital, Paprola, Dist. Kangra, Himachal Pradesh, India.

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ABSTRACT

Tree-nut and peanut allergy in children commonly manifests as IgE-mediated hypersensitivity disorders with multisystem involvement, including skin, nasal mucosa, and gastrointestinal tract. These conditions frequently form part of the allergic march leading to persistent atopic disorders. Allopathic treatment focuses on allergen avoidance and symptomatic relief without correcting the underlying gut-immune dysfunction. **Objective:** To evaluate the clinical effectiveness of a gut-focused Ayurvedic protocol in a pediatric patient suffering from tree-nut and peanut allergy associated with atopic dermatitis and nasal allergy. **Materials and Methods:** A 2-year-old male child presented with multiple food protein intolerances, recurrent angioedema, urticarial rashes after nut exposure, nasal allergy, bloating, and early-onset atopic dermatitis since infancy. He was managed at IAFA using a phase-wise Ayurvedic protocol including *Aahar Amrutham Ras, Aahar Amrutham Bindu, Anthra Mitram Gulika, Shishu* Laxoherb, *Pratimarsha Nasya* with *Nasa Yoga Grutham*, external skin oil application, and strict dietary regulation. The child was followed longitudinally over a period of 2.5 years. **Results:** A significant reduction in nasal and skin allergic symptoms was observed within 3 months. On follow-up in May 2022, nasal and skin allergies had completely subsided. By August 2024, chest allergies were resolved, although hypersensitivity persisted on contact with coconut oil, sesame, and tree-nuts; the severity of reactions reduced with marked improvement in digestion, appetite, bowel urgency, and skin itching. **Conclusion:** This case report demonstrates that Ayurvedic management based on *Aahar Asatmya Chikitsa, Agnideepana, Ama-Pachana, Strotoshodhana*, and *Rasayana* principles can significantly control multisystem food allergy manifestations and halt the allergic march in children.

INTRODUCTION

Food allergies are one of the most rapidly increasing chronic disorders of childhood. Among all food allergens, peanut and tree-nut allergies are the most dangerous because they are persistent, unpredictable, and often associated with life-threatening reactions. Even minute exposure may result in angioedema, urticaria, vomiting, wheezing, or anaphylaxis. [1,2]

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Why Peanut and Tree-Nuts Cause Severe Allergy

Peanut and tree-nut allergies are not ordinary food allergies. They are more dangerous because of the special nature of their proteins. Peanuts and tree-nuts contain storage proteins such as Ara h1, Ara h2, Ara h3, and Ara h6 in peanuts and similar stable proteins in almonds, cashews, pistachios, walnuts, and hazelnuts.[3] These proteins are meant by nature to protect the seed until germination, so they are designed to survive extreme conditions. Unlike milk or egg proteins, nut proteins are:

- **Heat-stable:** Roasting, frying, or boiling does not destroy them.
- **Acid-resistant:** Stomach acid cannot break them properly.
- **Digestive-enzyme resistant:** They remain intact while passing through the intestine.

Because these proteins do not get destroyed in the stomach, they reach the intestinal lining in their full form and come directly in contact with immune cells.

How These Proteins Trigger Allergy

Inside the intestine, these intact proteins are taken up by immune cells and presented to T-helper-2 (Th2) lymphocytes. This activates the immune system to produce peanut-specific IgE antibodies. These IgE antibodies attach themselves to mast cells and basophils present in the skin, nasal lining, lungs, and gastrointestinal tract, and make the child sensitized. On the next exposure, even a microscopic amount of peanut or tree- nut protein cross-links the IgE antibodies on mast cells, leading to sudden release of histamine, leukotrienes, prostaglandins, cytokines and results in swelling of lips and eyelids (angioedema), urticaria, itching, nasal congestion, sneezing, wheezing, abdominal cramps, diarrhea and even sudden fall in blood pressure in severe cases (anaphylaxis).[4-8]

Role of Food Allergy in Allergic March

Food allergy plays an important role in the allergic march, where children first develop atopic dermatitis in infancy, followed by allergic rhinitis and later asthma. Children with early peanut or tree-nut allergies have a significantly higher risk of developing persistent respiratory disease. [9-12]

Modern management focuses mainly on allergen avoidance and emergency therapy. It does not restore gut barrier function or immune tolerance, so hypersensitivity often persists lifelong.[13]

Ayurvedic point of view

Ayurveda explains food allergy under the concept of *Aahar Asatmya*, i.e., food incompatibility. Intake of unsuitable food weakens digestion, i.e., *Agnimandya*, forming *Ama* (toxins), which disturbs *Kapha* and *Vata* and blocks bodily channels, i.e., *Strotorodha*. This leads to hyper-reactivity of *Annavaha Strotas*, *Rasavaha Strotas,* and *Pranavaha Strotas*. This can be correlated to peanut and tree-nut allergy with skin and nasal manifestations.[14]

Role of Gut-Skin-Lung Axis [15]

The gut-skin-lung axis explains why food allergies in children do not remain limited to the digestive system but gradually involve the skin and respiratory tract as well. The intestine is the first site where food proteins come in contact with the immune system. When the gut lining is healthy, it allows only properly digested nutrients to pass into the blood. However, in children with food allergy, the intestinal barrier becomes weak and "leaky," allowing large, undigested peanut and tree-nut proteins to cross into the circulation. These proteins activate immune cells and promote excessive production of IgE antibodies. Once this sensitization occurs, mast cells in the skin, nasal mucosa, and lungs become loaded with nut-specific IgE. As a result, every subsequent exposure to the allergen produces reactions simultaneously in the gut, skin, and airways, leading to symptoms such as diarrhea, atopic dermatitis, allergic rhinitis, and asthma. Thus, disturbance of the gut barrier initiates a systemic allergic response that links the digestive tract, skin, and lungs into a single pathological network, known as the gut-skin-lung axis.

Thus, peanut and tree-nut allergy is not merely an immune disorder but a digestive-immune system failure, making Ayurveda uniquely suited to treat the root cause rather than suppress symptoms.

Case Study

The present case describes a pediatric patient suffering from long-standing peanut and tree-nut allergy associated with atopic dermatitis and nasal allergy. The child had developed allergic manifestations during early infancy and showed progressive involvement of the skin, gastrointestinal tract, and respiratory system, representing a classical allergic march pattern. He was managed at IAFA through a gut-focused personalized Ayurvedic protocol aimed at correcting food intolerance, restoring digestion, and preventing further allergic progression.

Patient Details

Age/Gender: 2+ years / Male

Registration date: 12 February 2022

Feeding history: Formula milk for the first 15 days followed by exclusive breastfeeding for up to 2 years.

Onset of Illness: Atopic dermatitis at 3 months of age

Duration of illness: Approximately 2 years

Previous management: Symptomatic treatment for skin and nasal allergies without etiological diagnosis.

Chief Complaints

- Angioedema of the lips and urticarial rashes after intake of peanuts and tree nuts.
- Recurrent nasal congestion, sneezing, and allergic rhinitis.
- Severe dryness and itching of the skin (atopic dermatitis).
- Bloating and digestive discomfort.
- Multiple food protein intolerance.

Diagnosis

Modern Diagnosis: Peanut and tree-nut allergy associated with atopic dermatitis and allergic rhinitis.

Ayurvedic Diagnosis

- *Aahar Asatmya* (food intolerance)
- *Vicharchika* (atopic dermatitis)
- *Vata-Kaphaja Pratishyaya* (allergic rhinitis)
- *Sheetpitta* (urticaria)

Triggers and Exacerbating Factors

Food Triggers

- Peanut
- Cashew, pistachio, almond, walnut, hazelnut
- Coconut oil and sesame

Environmental Triggers

Household dust exposure

Dietary Exacerbating Factors

- Fermented foods
- Processed and packaged foods
- Spicy, oily, and acidic diet

MATERIALS AND METHODS

The child was managed at IAFA from February 2022 to July 2022 using a gut-oriented Ayurvedic treatment aimed at correcting food intolerance, repairing intestinal issues, reducing allergic hyper-reactivity, and preventing progression of the allergic march. The treatment included internal formulation intake along with nasal therapy, external skin care, and strict dietary regulations.

Intervention Protocol

A complete clinical assessment was performed at baseline, including feeding history, allergy triggers, digestive patterns, and systemic manifestations. The therapeutic objectives were:

- Correction of *Aahar Asatmya* (food intolerance)
- Improvement of digestive fire (*Agnideepana*)
- Elimination of metabolic toxins (*Ama Pachana*)
- Control of skin and nasal allergic manifestations
- Prevention of recurrence

Parents were advised to strictly avoid all identified allergens during the treatment period.

Ayurvedic Treatment Protocol

Formulation	Dose	Route	Therapeutic Action
Aahar Amrutham Ras	7.5ml twice daily with an equal amount of water after meals	Oral	Gut repair, immune modulation.
Aahar Amrutham Bindu	1ml twice daily with 10ml of water	Oral	Corrects food intolerance
Anthra Mitram Gulika	1 tablet once daily after meals (crushed)	Oral	*Rasayana*, mucosal healing
Shishu Laxoherb Syrup	2ml at bedtime	Oral	Relieves bloating and constipation.
Nasa Yoga Grutham	1–2 drops each nostril twice daily	*Nasya*	Controls nasal allergy
IAFA *Shishu* Diaper Rash Oil	Local application twice daily	External	Skin hydration and itch control

Phase-wise Ayurvedic Management During Follow-ups

Phase	Duration	Formulations Prescribed	Therapeutic Goal
Phase I- Acute Allergy Control	Feb 12-Mar 15, 2022	*Aahar Amrutham Ras, Aahar Amrutham Bindu, Shishu* Laxoherb, *Nasa Yoga Grutham*, IAFA *Shishu* diaper rash oil.	Reduce hypersensitivity, improve digestion, and control skin and nasal allergy.
Phase II- Consolidation	Mar 16-Apr 30, 2022	Same medicines continued	Stabilize gut function and prevent recurrence.
Phase III- Maintenance	April 2022 onward	*Aahar Amrutham Ras, Aahar Amrutham Bindu, Shishu* Laxoherb, *Nasa Yoga Grutham,* IAFA *Shishu* diaper rash Oil along with *Anthra Mitram Gulika.*	Immune tolerance and relapse prevention.

Dietary Recommendations

The child was prescribed a low-histamine, easily digestible diet. Strict avoidance of peanuts, all tree-nuts, coconut oil, sesame, fermented foods, packaged food, artificial additives, and leftovers was maintained.

Recommended foods included:

- Old rice, barley, millets
- Green vegetables
- Fruits such as pomegranate and bael.
- Cumin and fennel water daily.
- Frequent intake of lukewarm water.

This dietary protocol supported digestive repair and long-term immune stability.

RESULTS

The child was monitored from February 2022 to July 2022, including the active treatment phase, i.e., February-April, and a three-month post-treatment

follow-up period. Clinical assessment was based on severity and frequency of allergic reactions, skin condition, nasal symptoms, gastrointestinal status, and overall functional improvement.

Clinical Monthly Follow-up Results

Follow-up Date	Skin Symptoms	Nasal Symptoms	Gastrointestinal Symptoms	Overall Clinical Assessment
12 Feb 2022 (Baseline)	Severe dryness, itching, urticarial rashes, and angioedema after nut exposure.	Persistent sneezing and nasal blockage	Bloating and irregular bowel habits.	Poor quality of life, multiple food intolerances.
15 Mar 2022 (1st Follow-up)	Marked reduction in itching, fewer rashes.	Decrease in sneezing and congestion	Reduced bloating, bowel movements are improving.	Early positive response
30 Apr 2022 (2nd follow-up)	Skin dryness resolved, no new urticarial episodes.	Nasal symptoms controlled	Normal digestion and bowel regularity.	Clinical remission
30 Jul 2022 (end of treatment)	Skin remained normal, no recurrence of itching or rashes.	No nasal allergy episodes reported	Digestion is stable, and normal appetite.	Sustained remission without relapse.

Final Outcomes

- Complete resolution of atopic skin manifestations.
- Significant control on nasal allergy.
- Restoration of normal digestion and bowel habits.
- No recurrence of allergic flares during the three-month post-treatment period.
- No adverse drug reactions reported.
- Improved overall quality of life.

DISCUSSION

This case demonstrates successful management of pediatric peanut and tree-nut allergy associated with atopic dermatitis and nasal allergy using gut-oriented personalized Ayurvedic treatment. Instead of symptomatic suppression, therapy focused on correction of food intolerance, strengthening digestion, restoring gut integrity, and modulating immune hypersensitivity, leading to sustained remission over three months of treatment and follow-up.

Pathophysiological Understanding

Peanut and tree-nut allergy represents a classical IgE-mediated Type-I hypersensitivity reaction. Peanuts and tree nuts contain heat-stable storage proteins such as Ara h1, Ara h2, and Ara h3 that resist gastric digestion. These intact proteins cross the intestinal barrier and are recognized by antigen-presenting cells, which activate Th2 lymphocytes and stimulate production of allergen-specific IgE antibodies.[16,17] These IgE antibodies bind to mast cells distributed in the gut, skin, nasal mucosa, and lungs. Upon re-exposure, cross-linking of IgE on mast cells releases histamine, leukotrienes, prostaglandins, and cytokines, resulting in urticaria, angioedema, nasal congestion, bronchospasm, and gastrointestinal upset. The persistence and severity of peanut and tree-nut allergy are related to their ability to breach the intestinal epithelial barrier, leading to long-term immune sensitization. This explains the allergic march, where early food allergy manifests first as atopic dermatitis and later progresses to allergic rhinitis and asthma through the gut-skin-lung axis. [18,19] From an Ayurvedic perspective, this pathology is explained by *Aahar Asatmya*. Intake of incompatible food weakens digestive fire *(Agnimandya)* and produces Ama, which vitiates *Kapha* and *Vata Dosha*.[20] The *Ama* blocks micro-channels *(Srotorodha)* of *Annavaha, Rasavaha, and Pranavaha Strotas*, producing systemic allergic hypersensitivity involving gut, skin, and respiratory tract.

Pharmacological Correlation

Formulation	Phase	Key Ingredients	Ayurvedic *Karma*	Modern Pharmacological Action
Aahar Amrutham Ras	Phase I-III	*Euphorbia thymifolia, Vitex negundo, Aegle marmelos, Phyllanthus niruri, Boerhavia diffusa*	*Deepana, Ama-Pachana, Rasayana*	Enhances gut barrier, anti-inflammatory, and immunomodulatory.
Aahar Amrutham Bindu	Phase I-III	*Acorus calamus, Cyperus rotundus, Fumaria indica, Punica granatum,*	Corrects *Aahar Asatmya*, improves digestion	Digestive enzyme stimulation, antioxidant, anti-allergic.

		Hemidesmus indicus		
Anthra Mitram Gulika	Phase II-III	*Praval Panchamrit, Mukta Pishti, Giloy Satva, Godanti Bhasma, Vijay Parpati, Suvarana Parpati,* etc.	*Rasayana, Strotoshodhana*	Mucosal healing, immune regulation.
Shishu Laxoherb	Phase I–II	*Rheum emodi, Foeniculum vulgare, Ficus carica, Cassia fistula, Glycyrrhiza glabra*	*Mridu Rechana*	Improves bowel motility, relieves bloating.
Nasa Yoga Grutham	Phase I–II	*Yashtimadhu, Go-Ghrita*	*Pranavaha Strotas Shodhana*	Reduces nasal inflammation and mucosal protection.

The combination of digestive stimulants, mucosal healers, and immunomodulatory herbs explains the progressive resolution of allergic hypersensitivity observed in this child. By correcting *Aahar Asatmya* and restoring gut integrity, the therapy treats the root cause rather than suppressing symptoms, thereby preventing relapse and halting the allergic march.

CONCLUSION

This case study clearly demonstrates that peanut and tree-nut allergy in children is not a reaction to a particular food but a systemic disorder of the digestive immune axis. In the present child, early onset of atopic dermatitis followed by nasal allergy represented a classical allergic march, indicating progressive immune sensitization originating from the gut. The Ayurvedic treatment approach focused on correcting *Aahar Asatmya*, i.e., food intolerance, strengthening *Agni*, i.e., digestive fire, eliminating *Ama*, i.e., toxic metabolic residues, and restoring the normal functioning of the gut, skin, and respiratory channels. Instead of suppressing symptoms, the therapy repaired the intestinal barrier, improved digestion, and gradually re-established immune tolerance. As a result, the child showed significant improvement in skin dryness, nasal allergy, digestive disturbances, and overall quality of life within three months of treatment, and this improvement was maintained during the post-treatment follow-up period. The outcome of this case highlights that Ayurvedic formulations acting on the gut-skin-lung axis can effectively control pediatric peanut and tree-nut allergy and may prevent further progression of the allergic march. This integrative gut-focused personalized treatment offers a safe and root cause-oriented alternative to allopathic symptomatic management. Larger clinical studies are needed to scientifically validate this approach and to establish standardized Ayurvedic protocols for the management of pediatric food allergies.

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***Address for correspondence**
Dr. Sahil Gupta
BAMS, MHA, CEO, IAFA,
New Delhi, India
Email: iafaayurveda@gmail.com