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CASE REPORT

The Clinical Effect of *Shirish Pushkaradi Yoga* in the Management of *Tamaka Shwasa* – A Case Study

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ABSTRACT

Introduction: Bronchial Asthma (*Tamak Shwasa*) is the most common allergic disorder in the childhood and leading cause of hospitalization. It affects school attendance and school performance. It can also disrupts sleep, play and other activities, and growth of the child. It's symptoms closely resemble with symptom of *Tamaka Shwasa* in Ayurveda which is due to disturbance in equilibrium of *Kapha* and *Vata* with *Pitta Dosha,* apart from *Ama.* According to the Ayurveda *Chikitsa Siddhanta,* it is explained that *Virechana, Kapha-Vatahara* drugs, and *Vata-anulomana* are the prime line of treatment in *Tamaka Shwasa.*

Methods: This is a single case study, where in a 13-year-old female child, from rural area presented with the complaints of breathlessness and cough for 8 years of age and used antihistaminics and inhaler for relief. The symptoms aggravated with intake of cold food items - weather, relieved on medication. Respiratory examination revealed bilateral expiratory and inspiratory wheeze. The patient was prescribed capsule *Shirish Pushkaradi Yoga* with lukewarm water and was advised proper diet and regimen according to the disease and patient's present conditions and the importance of *Pathya* in the case of *Tamaka-Shwasa.*

Results: Significant amount of reduction in all the clinical signs and symptoms (cough, breathlessness quantity of sputum, difficulty in speech, body position, use of accessory muscles, respiratory rate, breath sound, and peak expiratory flow rate) was seen.

Discussion: The ingredients of capsule *Shirish-Pushkaradi Yoga* have mainly *Vata Kapha-hara* action and thereby normalize the *Gati* of *Vata Dosha* by removing obstruction caused by *Kapha.*

1. INTRODUCTION

The most common reason for hospitalization for children is bronchial asthma (*Tamak Shwasa*), the most prevalent allergic condition among children. School attendance and performance are impacted. In addition, it can interfere with a child's ability to play, sleep, or engage in other activities, which could stunt their growth. Bronchial asthma is a chronic inflammatory illness of the airways that cause hyper – responsiveness, breathing difficulties chest tightness, and coughing, especially at night or in the early morning, are common symptoms of bronchial asthma. Its symptoms closely mimic those of *Tamaka Shwasa* in *Ayurveda,* which, in addition to *Ama,* is caused by an imbalance of the *Doshas Pitta* and *Kapha.* According to *Ayurveda,* bad eating habits produce *Agnimandya* and are accountable for *Annavahasrotodushti,* which is the fundamental reason for the start and development of *Tamaka Shwasa's* pathogenesis because *Moolasthana* is *Pittashtana.* The condition is caused by *Pittashtana* and is localized in *Kapha Sthana.* It is distinguished by a predominance of *Kapha* and *Vata Dosha* symptoms. *Virechana, Kapha-Vatahara* medications, and *Vatanulomana* are described as the main lines of treatment in *Tamaka Shwasa* in the *Chikitsa Siddhanta* of *Tamaka Shwasa*.[1] So taking view of this *Shirish Pushkaradi* is formulated which contains ingredients such as *Shirish, Pushkarmoolaa, Mulethi, Jatamansi, Trikatu,* and *Yashad Bhasma. Pushkarmoolaa* is *Agrya Aushadhi* for *Shwasa, Kasa*, *Hikka,* and *Parshwashoola.* The other ingredients in this capsule are *Vata – Kapha Hara* in action. Hence, the aim of this study is to evaluate the efficacy of *Shirish Pushkaradi*

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Yoga in the management of *Tamaka Shwasa* which needs to be assessed.

1.1. Details of Patient

- Source of patient: O.P.D of Institute
- Date of registration: 13 October 2022
- OPD No.: 33202200004418

1.2. Presenting Complaints

A 13-year-old female child presented in OPD of Kaumarbhritya Department. The child was pre-diagnosed for bronchial asthma. She had complaint of cough and cold for 6 days and difficulty in breathing for 3 days along with fever and chest congestion. These symptoms were on and off for 8 years of age.

1.3. Brief History

Patient had above complaint for the past 6-year exacerbation of these symptoms occurred even with slight change in weather mainly in rainy and winter season. Other aggravating factors are exposure to dust and smoke. Dyspnea and cough were increased in mid night and made patient to awake several times in night. . Cough was more in morning. Physical activity also caused shortness of breath and other complaints mentioned above. The patient had taken allopathic medications and nebulization but relief was only for a short period, symptoms continued to occur; frequency of the appearance of signs and symptoms was also increased. A slight change of weather or diet triggered acute exacerbations of the disease. At present, the patient is on inhaled bronchodilators and anti-inflammatory drugs. The patient was willing for Ayurvedic treatment.

1.4. Personal History

Patient is a second child of non-consanguineous marriage [Table 1]:

a) Age: 13 years
b) Diet: Vegetarian
c) Sleep: Disturbed (due to breathing difficulty)
d) Bowel: Irregular
e) Micturition: Normal
f) Appetite: Normal
g) Weight: 49.3 kg
h) Height: 145.2 cm
i) Body mass index: 23.4 kg/m^2
j) Activity: Less active
k) Temp.: 98.4 f
l) P. R.: 80/min.

1.5. Past History

Patient lives in village. She had history of repeated exposure to pesticide and history of repeated hospitalization for breathing difficulty and cough and got relief after nebulization and meter dose inhaler [Table 2].

1.6. Family History

- The patient's mother was a known case of *Tamaka Shwasa.*

1.7. Birth History

- Patient was delivered full term normal delivery, birth weight - 2.5 kg. Cried soon after birth, no history of neonatal intensive care unit admission.

1.8. Immunization History

- Patient followed vaccination for age according to national immunization program.

1.9. Growth and development

- All the milestones were achieved as per age.

1.10. Respiratory System Examination

1.10.1. On inspection

Chest was bilaterally symmetrical. There is no any chest deformity and scar was found. On examination, respiratory rate was 20/min.

1.10.2. On palpation

Movement of chest and vocal fremitus was bilateral symmetrical. No any tenderness was found.

1.10.3. On auscultation

Bilateral expiratory and inspiratory wheeze were found.

2. MATERIALS AND METHODS

- Source of data: Patient suffering from *Tamaka Shwasa* was selected from O.P.D Kaumarbhritya of National Institute of Ayurveda.
- Study design: A single case study.

2.1. Treatment

Capsule *Shirish – Pushkaradi* was given with lukewarm water for 90 days. Contents of Shirish Pushkaradi Yoga were *Shirish* (Albizia lebbeck), *Mulethi* (Glycyrrhiza Glabra), *Pushkarmoola* (Inula racemosa) each 125 mg, *Jatamansi* (Nardostachys Jatamansi) 62.5 mg., *Trikatu* 50 mg, and *Yashad bhasma* (ZnO) 12.5 mg.

2.2. Dose and Duration

Shirish Pushkaradi Yoga was given in a dose of 500 mg. twice a day with lukewarm water. The duration of trial was 3 months and follow-up was done on every 15th day during 2 months of clinical trial and final follow-up was done 1 month after completion of clinical trial.

2.3. Criteria for Assessment of Results

In the view of the present case was diagnosed as *Tamaka Shwasa*, assessment was done by subjective parameters such as *Kasah* (Cough), *Shwasakricchta* (Dyspnea), *Ativativra Vega Shwasa* (frequency of dyspnea), *Peenasa* (Coryza), *Anidra* (Insomnia), *Parshve Avagruhyate* (Chest pain), and *Ghurghuruka* (Wheezing) on day 1st, 15th, 30th, 45th, 60th, and 90th. Objective parameters such as complete blood count, erythrocyte sedimentation rate (ESR), total eosinophil count (TEC), serum IgE (S. IgE), spirometery (forced expiratory volume exhaled in the first second [FEV1]/forced vital capacity [FVC], and peak expiratory flow rate [PEFR], FVC) was done before and after treatment [Figures 1 and 2].

2.4. Performa for subjective criteria

The protocol required information on each subject to be collected using a printed pro forma (informed consent/case record form) [Table 3].

3. RESULTS AND OBSERVATION

3.1. Subjective Criteria

1. *Kasah* - Patients had *Kasa* continuously which disturbed the work before the treatment. After 15 days, *Kasah* occurred only after

exercise/exertion, then after 30th day, *Kasa* on exercise/exertion, later on 45th day and on follow-up 60th day with medication and on 90th day, i.e., after the 1 month of post-medicinal trial follow-up period, it was also absent.

2. *Peenasa* - Initially, patients had *Peenasa* before starting of *Shwasakrichta* episode, which prolonged for a week even after the *Peenasa* subsides. After 15 days of medicament, *Peenasa* presents only during the episode of *Shwasakrichta* (dyspnea). After 30th day of medicament, *Peenasa* was absent and later, on 45th day and 60th day of follow-up period during medicament, it was absent. During the 1-month post-medicament follow-up period, i.e., on 90th day, it was absent.
3. *Parshve avagruhyate* (Chest tightness) - Patients had *Parshve avagruhyate* (chest tightness) before starting the medication. After intervention, during the follow-up period on 15th, 30th, 45th, and 60th, it was absent. After post-interventional period of 30 days, i.e., on 90th day, it was not present.
4. *Shwasakrichta* (Dyspnea) - Patients had *Shwasakrichta* (Dyspnea) on even a walk of 100 m before starting the medicament. After follow-up period of 15th day, it was still present as previous but later follow-up on 30th and 45th day, it was mild, occurs on exertion only. On 60th day of follow-up, it was cured. During the post-interventional period of 30 days, i.e., on 90th day, it was still absent.
5. *Ativativra Vega Shwasa* (Frequency of *Shwasavega*) - Patients had *Ativativra Vega Shwasa* (*Frequency of Shwasavega*), i.e., Dyspnea 1-2 attacks per week and there is no symptoms between the two attacks of *Shwasa*. It was present after the 15 days of medicament. However, later follow-up on 30th and 45th day, it was mild, occurrence only on exertion. On 60th day of follow-up, it was subsided. During the post-interventional period of 30 days and after, i.e., on 90th day, it was still absent.
6. *Ghurghuraka* (Wheeze) - Patient had come with Ghurghuraka (Wheeze), usually loud throughout expiration and inspiration. It was present throughout expiration and inspiration even after the 15 days of medicament but not so loud. Later follow-up on 30th, 45th, and 60th day, it was absent. During the post-interventional period of 30 days and after, i.e., on 90th day, it was still absent.
7. *Anidra* (Insomnia) - This symptom, 1-2 times awakening during the night time due to bout of asthma, was present before the treatment. On medicament, after 15th day disturbance in the sleep was absent. During the subsequent follow-up on 30th, 45th, and 60th day, it was absent. After post-medicament follow-up period of 30 days, i.e., on 90th day, it was still absent.

3.2. Objective criteria

The patient was evaluated based on the objective criteria before and after the course of treatment. The bilateral wheezing had stopped. In addition, the number of times an inhaler was used per day was lowered to zero. The patient's condition progressively got better. S. IgE was reduced from 998.30 to 390.097 as shown in Table 4, and ESR was also dropped from 59 to 11, as shown in Table 4, and all of the scoring of the symptoms is listed in Table 3. There was a notable improvement in all assessments.

On investigations (Hematological and Spirometry)

1. After treatment the level of Hb% was increased from 11.9 to 12.6.
2. After treatment total leukocyte count decreased 14.26–10.62/cu mm
3. ESR was reduced to 59 mm/h to 11 mm/h
4. Level of TEC was reduced from 620 cu mm to 380 cu mm
5. S. IgE was reduced from 998.30 IU/ml to 390.097 IU/ml
6. Ratio of FEV1/FVC in % was increased from 62% to 78%.
7. PEFR was increased from 134 L/min. to 180 L/min.
8. FVC was increased to 2.46 L/min to 2.78/min.

4. DISCUSSION

Tamak Shwasa is a *Pranavaha Sroto Vyadhi.* (1) Environmental factors (smoke, dust, fumes, cold exposure, climate change, etc.); (2) Endotoxins *(Amajanya)*; (3) Vital organ trauma or failure (heart failure, respiratory failure, brain injury, stroke, etc.); and (4) Secondary to other diseases such as anemia, hemorrhoids, bleeding diathesis, are the causative factor of *Tamaka Shwasa.* These endotoxins are chronic in nature and tend to build up over time. Basically, they are substances that have not been metabolized but nonetheless function like poisons. This *Srotorodha* is the outcome of an imbalance between the humors *Vata* and *Kapha,* both of which are responsible for physiologic processes. As a result, medications that are helpful in removing the obstruction and maintaining the physiological equilibrium of *Vata* and *Kapha* as well as possessing (*Laghu, Ruksha, Tikshna Guna, Ushna Virya, Katu Vipaka, Deepan, Pachana, Vatanulomna, Sroto sudhikara,* and *Rasayana* properties helped in *Samprapti Vightana* of the disease. In *Ayurveda,* the use of *Shirisha* is specifically advised for *Kasa* and *Shwasa* (diseases of the respiratory system) and has been considered to be the best *Vishaghna* (antiallergic).[2] *Shirisha's* pharmacokinetic qualities (*Madhura, Tikta, Kashaya Rasa, Anushana Veerya,* and *Katu Vipaka*) will be helpful in reversing the aggravated *Kapha* and *Vata Doshas*. Its *Vishaghna* characteristic aids in breaking the pathology at several stages by neutralizing the antigens. *Shirisha's* three albizia saponins, also known as saponins, are what give the medication its antiallergic properties.[3]

To test Nardostachys jatamansi's ethanolic root extract's ability to treat depression, experts used swiss albino mice that had been exposed to whole-body electron beam radiation to produce depression.[4] By reducing stress, *Jatamansi* helps fight the condition. The recurrence of asthma attacks is significantly influenced by stress. *Mulethi* contains glycyrrhizin, which has the effect of promoting tracheal mucus secretion and clearing up upper respiratory tract congestion.[5] Capsaicin, a substance that causes coughing, can also be inhibited by the active substance liquiritin apioside.[6] Following mucus plug secretion, *Pushkarmoola* smooths the inflamed bronchial tree. The Inula racemosa root's alantolactone and inulin extract had the strongest antibacterial and anti-inflammatory effects.[7] To prevent the damage of respiratory epithelium due to recurrent episode of acute attack, *Yashad bhasma* plays very vital role in treating. In a mouse model of allergic airway inflammation, zinc supplementation reduced airway hyperresponsiveness and S. IgE levels. This suggests that zinc supplements may have an anti-inflammatory impact by inhibiting the NF-kB pathway, which results in a drop in S. IgE levels.[8] The generation of the free radicals considered to worsen asthma is inhibited by trace elements such as zinc, which is necessary for antioxidant enzymes to function.[9] As an immune system modulator, zinc lowers the inflammatory response. It has been proposed that zinc deficiency may result in an increase in Th2 helper T-cell activity and a decrease in Th1 helper T-cell activity in asthma.[10] To maintain the major therapeutic principles in the systemic circulation for a longer duration, the drug *Trikatu* is added as a bioavailability agent.

5. CONCLUSION

After analysis of all data, it is concluded that Capsule *Shirish Pushkaradi Yoga* shows its effectiveness in the treatment of *Tamaka Shwasa* and gives better relief to the patient. There were no adverse

effects found during the course of medication.

6. DECLARATION OF PATIENT CONSENT

The authors attest that they have all the necessary patient consent form. The patients are informed that their names and initials would not be published and that, despite our best efforts to keep our patients' identities anonymous.

7. ACKNOWLEDGMENTS

Nil.

8. AUTHORS' CONTRIBUTIONS

All the authors contributed equally in design and execution of the article

9. FUNDING

Nil.

10. ETHICAL APPROVALS

This study is not required ethical clearance as it is review study.

11. CONFLICTS OF INTEREST

Nil.

12. DATA AVAIBALITY

This is an original manuscript and all data are available for only review purposes from principal investigators.

13. PUBLISHERS NOTE

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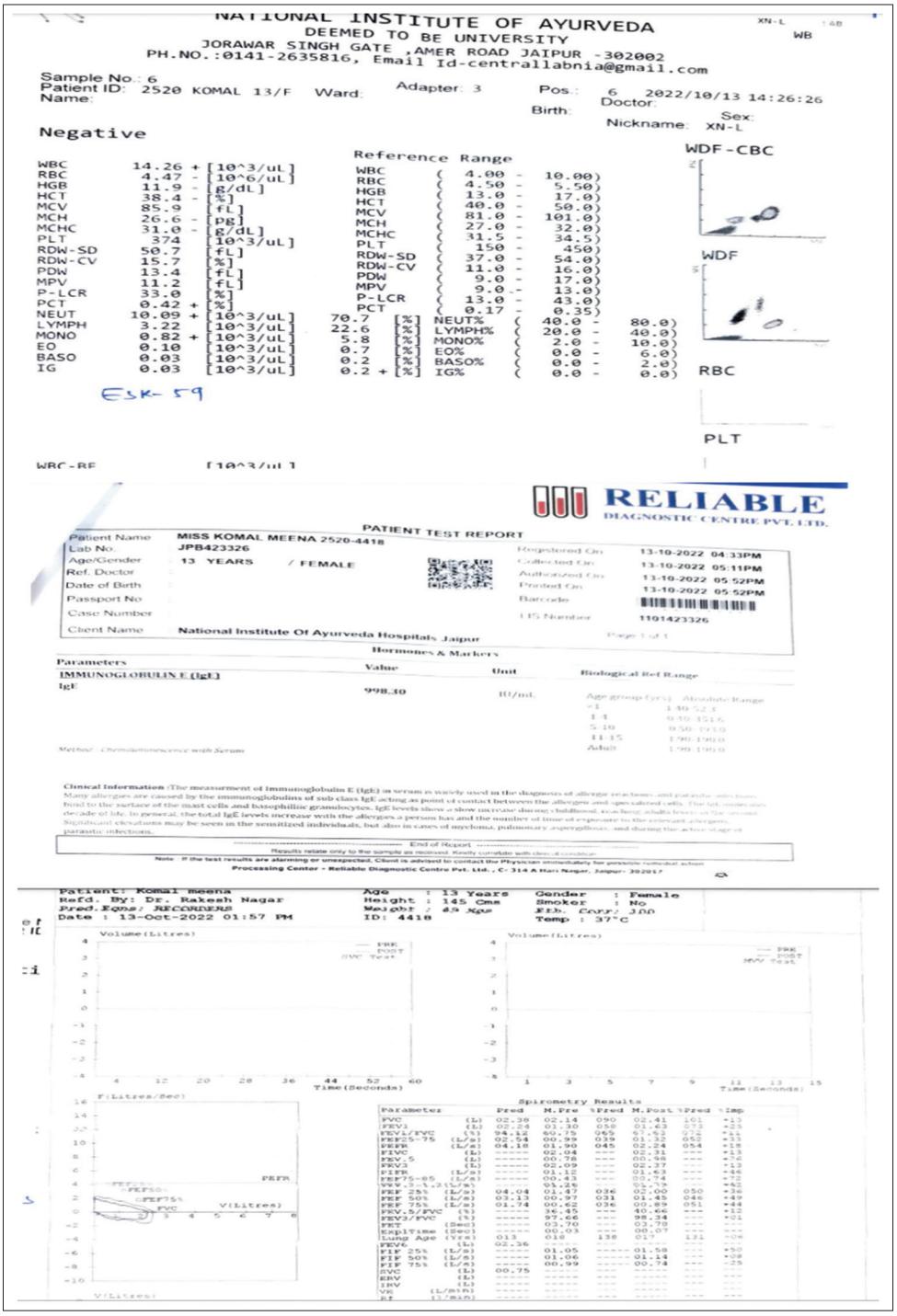

Figure 1: Before treatment

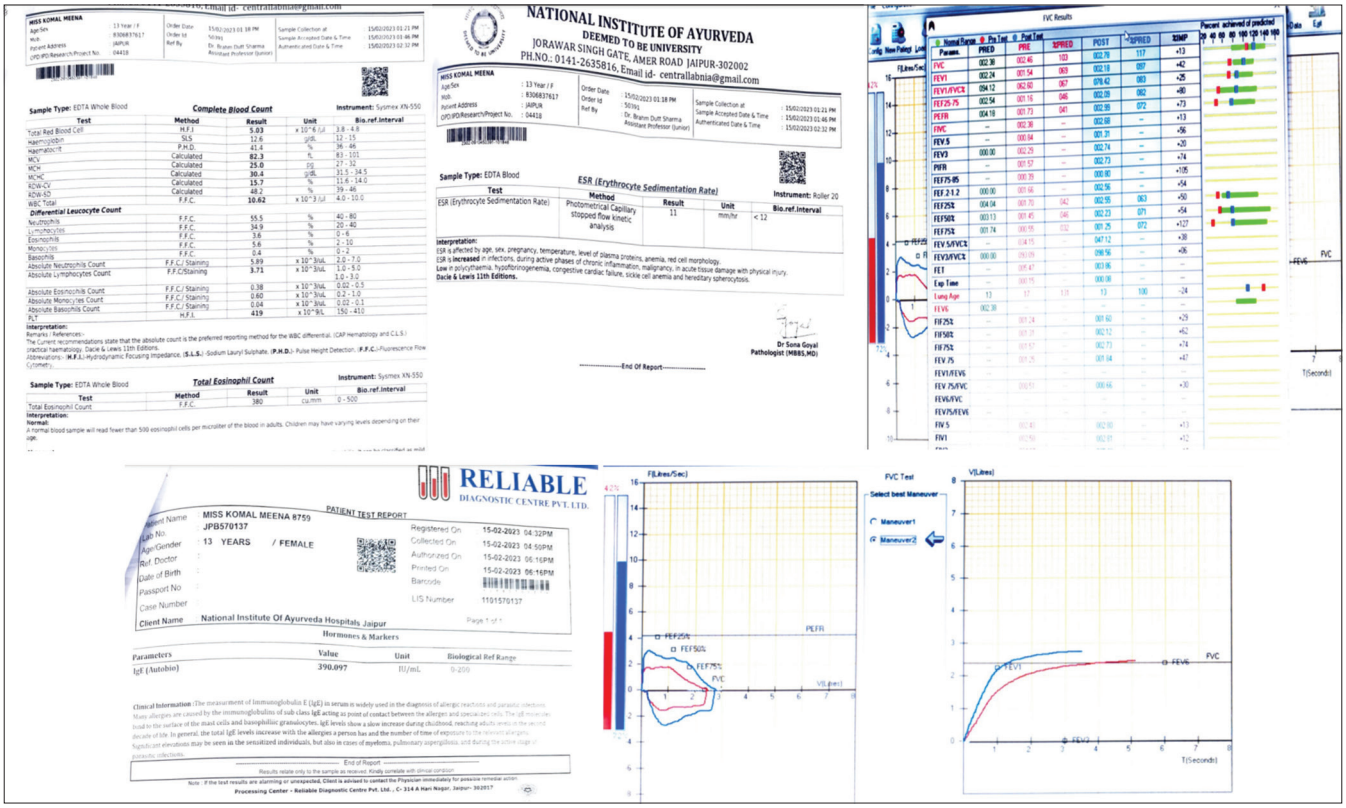

Figure 2: After treatment

Table 1: Physical examination based on Ayurveda

Ashtavidha Pariksha **(Eight-fold examination)**	***Dashavidha Pariksha*** **(10-fold examination)**
Nadi (~Pulse) – *Kapha-pittaja*	*Prakriti* (~physical constitution) – *Kapha-pittaja*
Mala (Stool) – *Sama* (Sticky stool)	*Vikriti* (~morbidity) – *Vata- Kapha*
Mutra (Urine) – *Anavila* (Normal)	*Sara* (~essence of all *Dhatus*) – *Rasa Sara*
Jihwa (Tongue) – *Malavita* (Uncoated tongue)	*Samhanana* (~compactness) – *Madhayam*
Shabda (Sound) – *Spashta* (Clear sound)	*Pramana* (~anthropometry) – *Madhayam*
Sparsha (Touch) – *Anushna-sheeta* (Normal)	*Satmya* (~suitability or homologation) – *Madhyam*
Drika (Eyes) – *Samanya* (Normal)	*Satva* (~psyche) – *Madhyam*
Akriti (Built) – *Madhyama* (Medium)	*Ahar Shakti* (~intake of food) – *Madhyam*
	Vyayama Shakti (~capacity of exercise) – *Avara*
	Vaya (Age) – *Balyavastha*

Table 2: Timeline of event

Year	Incidence/Intervention
2014	Patient had symptom of sneezing, cough, running nose in early morning for 2 years. Hence, she was prescribed some antihistaminic and antibiotics by local practitioner.
2016	Patient experienced worse condition after having cold items and during cold season. She was on continued medicine.
2017	Patient gradually developed breathing difficulty, fever, and cough occasionally.
2018	Patient got worse during seasonal variation. Patient was consulted in the medicine department in nearby hospital. Where she was diagnosed as allergic asthma and she was put on short acting bronchodilator inhaler and antihistaminic.
2019	Patient was getting more episodes of dyspnea. Hence, she got hospitalized multiple time and was on nebulization and meter dose inhaler.
2020–2022	Patient had no improvement with this. Hence, she was further consulted to homeopathy treatment for 2 years. However, did not get any improvement.
13 October 2022	The patient was willing to reduce the dose and frequency of MDI. Hence, she visited to outpatient department of National Institute of Ayurveda, Jorawar singh gate Jaipur for these problem and was advised to take capsule *Shirish Pushkaradi Yoga* one capsule, twice a day with lukewarm water for 3 months along with bronchodilators in reduced dose. There was marked improvement in patient condition after 3 months of therapy.
15 January. 2022	Patient was advised to stop capsule *Shirish Pushkaradi Yoga*. Patient was on 1 month of observational period.
15 February 2022	All the investigations were repeated after 3 months and that revealed decreased levels of all parameters.

Table 3: Performa for the subjective criteria

S. No.	Symptom	Before be treatment	During follow-up				
			15th day	30th day	45th day	60th day	90th day
1.	Kasah (cough)						
	G_0 - Absent						
	G_1 - After exercise						
	G_2 - Continuous, disturb work						
	G_3 - Continuous, disturb normal working						
2.	Peenasa (Coryza)						
	G_0 - No Peenasa						
	G_1 - Peenasa present before attack and subsides 1-2 days after the attack						
	G_2 - Peenasa present before attack persist for more than a week after the attack						
	G_3 - Peenasa Persistently present even without attack						
3.	Ghurghuraka (Wheeze)						
	G_0 - Absent						
	G_1 - Moderate- often at the end of expiration						
	G_2 - Loud throughout the expiration						
	G_3 - Usually loud throughout Inhalation and Expiration						
4.	Parsva avagruhyate (Chest tightness)						
	G_0 – Absent						
	G_1 - Chest tightness during Attack						
	G_2 - Chest tightness very often Without attack but Relieved by local snehan and swedana.						
	G_3 - Persistent chest pain						
5.	Shwasakrichta (dyspnea)						
	G_0 - Absent						
	G_1 - Mild, Shwasakrichta Occurs on exertion.						
	G_2 Shwasakrichta occurs, after Walking of 100 m distance.						
	G_3 Occurs, at rest						
6.	Ativativra Vega Shwasa (Frequency of swasavega)						
	G_0 - Absent						
	G_1-1-2 attacks/week and 1-2 Attack in night/month, No Symptom between attack.						
	G_2-1 attack/day, 1-2 attack in night/week, attack affects The activity.						
	G_3-1-2 attack/day, 1-2 attack in night/week, attack affects the activity.						
7.	Anidra (Insomnia)						
	G_0 - Never (sleep not disturbed)						
	G_1 - Awake 1-2 time in night due to bout of asthma						
	G_2 - Awake more than 3-4 times in night due to bout of asthma						
	G_3 - Unable to sleep due to bout of asthma						

Table 4: The objective criteria

S. No.	Investigation	Before treatment	After treatment
1.	Hb (g %)	11.9	12.6
2.	TLC/cu mm.	14.26	10.62
3.	ESR in mm/h	59	11
4.	S. IgE IU/ml	998.30	390.097
5.	Total eosinophil count cu.mm	620	380
6.	Spirometry		
	a. FEV1/FVC (%)	62	78
	b. PEFR (L/min.)	134	180
	c. FEV1	1.63	2.18
	d. FVC	2.46	2.78

Hb: Hemoglobin; TLC: Total leukocyte count; ESR: Erythrocyte sedimentation rate; S. IgE: Serum IgE; TEC: Total eosinophil count; FEV1/FVC: Forced expiratory volume/ Forced vital capacity; PEFR: Peak expiratory flow rate; FEV1: Forced expiratory volume in 1 s; FVC: Forced vital capacity