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A Clinical Case Report on Management of Acute Episodes of Tamakashwasa in Pediatric Patient

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ABSTRACT:

Introduction: Bronchial asthma is a long-standing inflammatory condition of the airways that leads to repeated episodes of airflow obstruction. Diagnosis is based on clinical symptoms along with pulmonary function tests, with Spirometry and Peak Expiratory Flow Rate (PEFR) being the main assessments. Ayurveda considers the equivalent disease of the bronchial asthma is Tamaka Shwasa. the present clinical trail is planned to evaluate the effect of Shati Arka nebulization in acute episodes of Tamaka Shwasa in children. **Case Presentation:** A 11-year-old male from Davanagere presented to the Kaumarbhritya outpatient department at Tapovana Ayurveda Medical College and Hospital-Doddabathi.He reported experiencing cough and cold lasting 4–6 days, along with breathlessness persisting over the past two and half years. The diagnosis was made based on the clinical signs and symptoms along with the Global Initiative for Asthma (GINA) criteria for bronchial asthma. Trial drug Shati Arka was administered through nebulization with the dose of 3.5ml of Arka every 6th hourly for the duration of 3 days. **Result:** The PEFR reading had very good improvement from 170 to 190 L/Min. And the spirometric measurement (FEV1/FVC)changes from 86.8 % to 91 %. **Discussion:** Nebulization with Shati helps liquefy and expel phlegm from the respiratory passages, clear the Pranavaha Srotas, and improve airflow during asthma episodes. **Conclusion:** The findings of this study support the efficacy of Shati Arka in enhancing lung function and restoring vital capacity.

KEYWORDS: Spirometry, Nebulization, Shati Arka, Vital capacity

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INTRODUCTION:

Bronchial asthma is a long-standing inflammatory condition of the airways that leads to repeated episodes of airflow obstruction. Pathological changes include epithelial damage, collagen deposition beneath the basement membrane, thickening of the epithelium, and enlargement of mucus glands with excessive mucus secretion. These changes are associated with persistent airway inflammation and hyper-responsiveness[1]. Asthma is frequently linked to exposure to allergic triggers such as dust, pollen, or inhalants, though non-allergic factors and respiratory infections also play a role. Both intrinsic (non-allergic) and extrinsic (allergic) asthma have been documented. Environmental factors such as weather changes, climate variations, and emotional stress can worsen the condition. Clinically, bronchial asthma is characterized by symptoms like episodes of shortness of breath (*dyspnoea*), chest tightness, cough, and wheezing—especially during physical exertion. Diagnosis is based on clinical symptoms along with pulmonary function tests, with spirometry and peak expiratory flow rate (PEFR) being the main assessments. The management of childhood asthma often faces challenges because of multiple factors such as inadequate treatment, frequent flare-ups, and the high cost of medicines. As a result, many children remain untreated or continue to suffer from uncontrolled or severe asthma. In India, nearly 40–50% of pediatric asthma cases fall into this category[2]. It stands as a primary cause of hospitalization in children and a significant contributor to chronic school absenteeism at the elementary level[3]. Ayurveda considers the equivalent disease of the bronchial asthma is Tamaka Shwasa. It is described as a “Swatantra Vyadhi” (an independent disease entity) and one of the five types of Shwasa Roga. It is primarily a Kapha-Vataja disorder affecting the Pranavaha Srotas[4]. The disease is considered critical due to symptoms like prolonged expiration, wheezing, and severe breathlessness, which can be life-threatening. The condition worsens during cold, cloudy or windy weather and may also be aggravated by psychological factors such as anxiety, grief, or stress (Chinta, Shoka, Bhaya). If identified the condition in its early stages, it can be treated effectively.When the patient continues to be exposed to causative factors (Nidana), the disease persists and becomes chronic. These recurrent episodes are linked with variable airflow obstruction in the lungs, which is usually reversible with proper treatment. In Ayurveda, long-term management of Tamaka Shwasa (comparable to bronchial asthma) is described in detail. Several studies have reported encouraging results, but there is still a need for more practical, accessible, and affordable treatment methods, especially for children experiencing acute episodes of asthma. Nebulization has become an effective and simple method for drug administration in such acute conditions. With this in mind, the present clinical trail is planned to evaluate the effect of Shati Arka nebulization in acute episodes of Tamaka Shwasa in children.

CASE PRESENTATION:

Patient information: A 11-year-old male from Davanagere presented to the Kaumarbhritya outpatient department at Tapovana Ayurveda Medical College and Hospital-Doddabathi. The child, a 7th-grade student from a middle-class background, had a prior diagnosis of bronchial asthma. He reported experiencing cough and cold lasting 4–6 days, along with breathlessness persisting over the past two and half years. He also complained of difficulty in breathing triggered by coughing, frequent night-time awakenings, and a history of recurrent episodes of the common cold for the

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last three years. Breathlessness was noted to have started at the age of 9.

Past medical history: Revealed repeated upper respiratory tract infections, particularly during seasonal changes and cold weather.

A family history of asthma: was not significant

Personal history: He was a school going child of non- vegetarian Hindu family. He had loss of appetite with mild constipated bowel with normal micturition. He had history of disturbed sleep due to difficulty in breathing.

History of previous treatment: There was history of modern medication prior to attend the OPD.

Anthropometric Measurement: The height of patient was 143 cm while weight was 36 kilograms.

On General Examination:

Build: Thin
Nutrition: Poor
Pallor: Absent
Icterus: Absent
Cyanosis: Absent
Clubbing: Absent
Lymph node: Normal
Edema: Absent
B.P: 100/70
Pulse: 74/min
R.R: 24/min
Temp: 98.6 F

On Clinical Examination:

Inspection: No nasal polyps or signs of atrophy, Normal thoraco-abdominal movement, chest wall & overlying skin are normal, Chest was B/L symmetrical, no scar or chest deformities was seen. Breathing pattern: Shallow inspiration and prolonged expiration

Palpation: There was no tenderness overall chest. Trachea was centrally placed.

Percussion: Resonant sound present. Hepatic and cardiac dullness noted.

Auscultation: Air entry is equal on both sides and Polyphonic wheezes were auscultated bilaterally, Congestion was present.

Diagnosis: The diagnosis was made based on the clinical signs and symptoms outlined in both Ayurvedic texts and modern medical science, along with the Global Initiative for Asthma (GINA) criteria for bronchial asthma.

OBJECTIVES OF THE STUDY: To evaluate the effect of Shati Arka nebulization in the management of Tamaka Shwasa in children.

MATERIAL AND METHODS: A voluntary, signed, witnessed, informed consent and assent was taken from the participant and parents prior to the start of the clinical trial. Trial drug Shati Arka was administered through nebulization with the dose of 3.5ml of Arka every 6th hourly for the duration of 3 days. During treatment patient was monitored daily before and after each nebulization and After 7 Days of treatment (for relapse of acute exacerbation). Assessment of the effect of treatment was done based on the changes observed every 8th hourly in following subjective parameters and The objective parameters assessment was done for 2 times, that is before the initial nebulization on the first day and after the final nebulization on the third day.

RESULT:

Subjective parameters for assessment[5]:

I. Lakshanas of Tamakashwasa

1.Swasakrichrata-

'0'- No sign of swasakrichrata
'1'- Slight swasakrichrata after heavy work relieved by rest
'2'- Swasakrichrata on slight exertiion like walking
'3'- Swasakrichrata even at rest
'4'- Very severe Swasakrichrata and require medication / hospitalisation.

2. Ghurghurakam (Wheezing)-

'0'- No wheezing
'1'- Wheezing only at night

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'2'- Wheezing at night and occasionally during day time
'3'- Wheezing throughout the day

3. Krcchra bhasitam-
'0'- No difficulty in speaking
'1'- Difficulty in speaking during attack
'2'- Difficulty continuous soon after attack
'3'- Difficulty continuous for more time

4. Kasa- '0'- No cough
'1'- Cough dry without pain / wet with easy expectoration
'2'- Dry cough with pain / wet with expectoration with slight difficulty
'3'- Dry cough with severe pain stabbing or cutting / feeling of restlessness because difficulty in expectoration
'4'- Frequent coughing and due to which patient becomes unconscious

5. Anidra - '0'- Sound sleep
'1'- Undisturbed late sleep
'2'- Sleep disturbed in late night and early morning
'3'- No sleep

6. Pinasa- '0'- No pinasa
'1'- Pinasa duing attack and subside 1- 2 days after attack
'2'- Pinasa during attack and persists for a week after attack.
'3'- Pinasa very often even without attack.
'4'- Pinasa always persisting

7. Visuskasyata

'0'- No visuskasyata
'1'- Occasional visuskasyata
'2'- Very often visuskasyata
'3'- Always visuskasyata

Table-1: Effect of therapy on Subjective parameters

Sl.No.	Parameters	Before treatment	After treatment
1.	Swasakrichrata	2	0
2.	Ghurghurakam(Wheezing)	2	1
3.	Krcchra bhasitam	1	0
4.	Kasa	3	0
5.	Anidra	2	0
6.	Visuskasyata	3	1

II. Beckers Asthma Score[6]: Changes seen in the Beckers ASTHMA Score will be noted during each assessment points.

Score	Respiratory Rate (per min.)	Wheezing	I/E Ratio	Accessory Muscle Use
0	<30	None	1:1.5	None
1	30-40	Terminal expiration	1:2	1site
2	41-50	Entire expiration	1:3	2 sites
3	>50	Inspiration and entire expiration	>1:3	3 sites or neck strap muscle use
Score < 4 =mild; Score>4 to <7 = moderate; Score > 7 = severe(needs PICU)				

Table-2: Effect of therapy on Beckers ASTHMA Score

Sl.No.	Parameters	BT	AT
1.	Respiratory rate	2	1
2.	Wheezing	2	1
3.	I/E Ratio	2	0
4.	Accessory Muscle Use	2	0

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Objective parameters for assessment:

I. Peak Expiratory Flow Rate Value:

BT	AT
170 L/Min	190 L/Min

Note: L/Min(Litres per Minute)

II. Spirometric measurement: FEV_1/FVC Value

BT	BT
86.8 %	91 %

DISCUSSION:

Bronchial asthma in Childhhod period oftenly made panic to parents because of its frequent acute breathlessness episodes. These episodes arise due to long standing inflammatory conditions of airways. Even Ayurveda states similar view regarding breathlessness that is ShwasaKrchrata due to excess accumulation of Kapha in Pranavaha Srotas in turn obstruct the Srotas (airway) and results in hindrance to movement of Vata. As per treatment principles mentioned in Charaka samhita[7], Acharya's given prime importance for Nasya Karma especially in Urdwajatrugata Roga's and some systemic disorders like Shwasa Roga. Various types of Nasya's like Navana Nasya, Rechaka Nasya, Dhuma Nasya etc., been advised. Among them, Dhuma Nasya is nasal administration of drugs through inhalation form. So, Dhuma Nasya is having similar mode of administration as that of nebulization. Thus, in order to search an Ayurvedic Drug to be used for inhalation which is as effective as modern inhalation therapy and have least side effects. Hence, decided to make a case study with an objective that " To evaluate the effect of Shati Arka nebulization in the management of Tamaka Shwasa in children". The drug *Shati* (*Hedychium spicatum* Buch-Ham) is mentioned as *Shwasahara*[8] (relieving asthma).The Shati has Katu-Tikta-Kashaya Rasa (pungent, bitter, astringent taste), Laghu-Tikshna Guna (light and sharp qualities), Ushna Virya (hot potency), and Katu Vipaka (pungent post-digestion effect)[9]. These properties help pacify Kapha and Vata, making it effective in asthma. Nebulization with Shati helps liquefy and expel phlegm from the respiratory passages, clear the Pranavaha Srotas, and improve airflow during asthma episodes. Under GCMS analysis, Shati Arka had result that the presence of compounds like Ethyl cis-p-methoxycinnamate, 2-Propenoic acid, Eucalyptol. Ethyl p-methoxy cinnamate isolated from a rhizome family plant exhibits anti-asthmatic effect by lowering the expression of TGF-beta and fibrosis in the bronchial mucosa of an asthma rat model[10], suggesting it could be a potential treatment for asthma. 2-propenoic acid having anti-inflammatory effect which in turn helps in reducing congestion during acute exacerbation of asthma. And Eucalyptol has significant anti-inflammatory action in asthma and it is evidently used as mucolytic agent in upper and lower airway diseases. The data of above case was collected from the subject based on the symptom scores outlined in the assessment criteria. The data was collected both before and after the intervention in the study. The subject had improvement in Swasakrichrata, Kruchrabhasitam, Kasa, Anidrata and there were slight presence of wheezing and Vishushkasyata noticed. The PEFR reading had very good improvement from 170 to 190 L/Min. And the spirometric measurement (FEV_1/FVC)changes from 86.8 % to 91 %. No adverse effects are reported in this case and no exacerbation seen on follow up after 7 days of treatment completion.

CONCLUSION:

In the present study, Shati Arka demonstrated notable effects following administration via nebulization across almost all assessment criteria, indicating a high concentration of active constituents and a rapid onset of action. Shati Arka Nebulization also led reduction in elevated respiratory and pulse rates. Data showed

greater improvement in symptoms such as Swasakrichata, Kasa, Ghurghurkam, Krichrabhasitam, and Peak Expiratory Flow Rate with FEV_1/FVC ratio. Inhalation therapy is one of the oldest and most effective methods for managing respiratory tract disorders. It is now widely accepted that the safest and most efficient way to treat lung conditions is through direct drug delivery to the airways. Thus, the findings of this study support the efficacy of Shati Arka in enhancing lung function and restoring vital capacity.

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