ISSN: 2322 - 0902 (P)
ISSN: 2322 - 0910 (O)

International Journal of Ayurveda and Pharma Research

Research Article

A CLINICAL STUDY ON *KSHARAKARMA* IN THE MANAGEMENT OF *NASAPRATINAHA* WITH SPECIAL REFERENCE TO HYPERTROPHIED INFERIOR TURBINATES

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ABSTRACT

Nasal obstruction or stuffy nose, is one of the commonest presenting complaints in otorhinolaryngology clinics. If defects of the nasal septum are excluded, most commonly the problem can be attributed to the dysfunction of the nasal turbinates, mostly the inferior turbinates. Although every person experiences some degree of turbinate dysfunction at some point in life, persistent dysfunction is also not uncommon, involving approximately 50% of the population. In the short-term, the cases respond well to medical line of management which mainly constitute the use of decongestants, but their prolong use is not indicated because of health reasons. Similarly, the other medicines used, have only short-term benefits; once the inferior turbinates undergo submucosal fibrosis, then they become incapable of decongestion with medical line of management and those chronic cases of nasal obstruction need to be managed by surgical therapies only. Over the years, many surgical procedures have been employed for turbinate reduction, but incidences of complications, recurrence etc. along with the cost-factor mean that still there is much to be achieved in the management of hypertrophied turbinates of nose. *Ksharakarma* is a popular procedure of chemical cautery in Ayurveda, which has been used for centuries as a minimal invasive procedure for reduction of enlarged tissues. This study has been conducted to manage nasal obstruction, termed as *Nasapratinaha* in Ayurveda, due to hypertrophied turbinates, by application of *Ksharakarma* with significant results.

KEYWORDS: *Ksharakarma, Nasapratinaha, Hypertrophied Turbinates.*

INTRODUCTION

Nasal disorders are among the most troublesome and irritating problems. Owing to increased pollution, changed lifestyle, allergens etc. in today's industrial world, the incidences of nasal disorders have increased rapidly. In the Ayurvedic classics detailed description of *Nasa Rogas*, i.e. diseases of nose are explained. '*Nasapratinaha'* is one such, with clinical feature of nasal obstruction.[1,2] Among the various causes of nasal obstruction, enlarged nasal turbinates, especially the inferior turbinate, is very common.[3] This problem is faced by most of us and while the use of medical line of treatment has limitation for prolonged use because of health purpose, surgical approaches too have not only failed to achieve desired results in all cases, but are also surrounded by controversies.[4]

'*Kshara Karma'* is a popular treatment modality in Ayurveda based on the property of *Kshara* by which body tissues or fleshy masses can be destroyed. Ayurvedic classics have considered *Kshara* to be superior to Shastras and Anushastras.[5] Use of *Kshara* has been advocated in *Nasaarsha* and *Nasaarbuda* also.[6]

Keeping in mind the above considerations, *Ksharakarma* has been deemed to be an effective remedy and hence employed for the management of nasal obstruction due to hypertrophy of inferior turbinates in my study.

MATERIALS AND METHODS

Aims and objectives of the study: To evaluate the effect of *Ksharakarma* in the management of nasal obstruction (*Nasapratinaha*) due to hypertrophied inferior turbinates.

Source of data

1. Patients: 20 Patients with clinical features of hypertrophied inferior turbinates were selected from the OPD and IPD of Govt. Ayurvedic College Hospital, Guwahati-14.

2. Trial drug: *Kshara* was prepared from *Apamarga* plants collected from the nearby areas of *Jalukbari*. Drug selection, collection and subsequently preparation of *Kshara* was done strictly according to the guidelines of Sushruta Samhita.

Diagnostic criteria: Patients were diagnosed on the basis of history, signs and symptoms of hypertrophied inferior turbinates. Inspection was done with Anterior Rhinoscopy, probing, cold spatula test and measurement of the size of the inferior turbinates.

Inclusion criteria

a. Patients diagnosed with nasal obstruction due to hypertrophied inferior turbinates.

b. Age group: 15-60 years.

c. Patients fit for application of *Kshara*.

Exclusion criteria

a. Nasal obstruction due to any condition other than hypertrophied turbinates.

b. Hypertrophied turbinates associated with systemic diseases.

c. Hypertrophied turbinates associated with other inflammatory conditions of the nose.

Assessment criteria

Patients were assessed with subjective and objective parameters formulated for *Nasapratinaha* due to hypertrophied inferior turbinates:-

Subjective parameters: i. Nasal obstruction, ii. Nasal discharge, iii. Loss of smell perception, iv. Discomfort in nose, v. Headache & facial pain, vi. Congestion in nasal mucosa.

Objective parameters: i. Anterior rhinoscopy, ii. Pictorial presentation, iii. X-ray PNS, iv. Size of inferior turbinates.

Laboratory investigations: i. Routine blood test, ii. Random blood sugar, iii. Absolute eosinophilic count.

Research design: 20 patients were selected for the study. A detailed history regarding the aetiological factors, personal habits, living status, occupation etc. were recorded. Diagnosis was confirmed by Anterior rhinoscopy, cold spatula test, probing and measurement of the inferior turbinates and aided with radiological findings. All the cases were documented in the clinical case sheets designed for the purpose.

Method of *Ksharakarma*: *Apamarga Kshara* was prepared at the Rasashala of Govt. Ayurvedic College. Patients selected for the study were subjected to application of *Kshara* according to *Trividh Karma*-

1. *Poorvakarma*: Patient was asked to come for treatment in empty stomach. Lidocaine 15% spray was sprayed into the nostrils to anaesthetize the turbinates in order to avoid sneezing reflex. Patient was placed in supine position with the head extended by placing a pillow under the shoulders or by adjustments in the dental chair to expose the nasal cavity properly; proper visualization was achieved using headlight or dental lamp. Nasal cavity was then properly cleaned with cotton piece soaked in normal saline. Posterior part of the nostril was packed with a gauze piece with the help of nasal packing forceps. An X-Ray plate of adequate size was cut and inserted into the nostril along the septum to prevent accidental injury to the septum by the *Kshara* application.

2. *Pradhan Karma*: The nasal cavity was exposed using Thudichum Nasal Speculum and secretions over the turbinate were wiped out using gauze piece. *Kshara* was taken with Jobson probe rolled with cotton and was applied over the anterior (medial) surface of the exposed inferior turbinate. After 1-minute of administration the probe was withdrawn and the *Kshara* was wiped out. Lemon juice was applied over the treated turbinate to neutralize the remaining *Kshara. Ghrita* was applied over the burnt wound using the probe rolled with cotton.

3. *Paschat Karma*: The X-Ray plate and posterior gauze packing were withdrawn. The patient was kept under vigilance for the next four hours with careful monitoring of vital data and changes in the clinical features. The patient then released with instructions to avoid exposure to hot and cold air or breeze, dust, smoke etc. and to take light food.

Duration of the study: Patients were monitored for the changes caused due to *Kshara* application immediately after the application, and on 3rd, 7th, 15th and 21st days after the same. The effect of the treatment in terms of Subjective and Objective findings were observed and recorded on 1st day, 7th day and 21st day after the *Kshara* application in the proforma of *Nasapratinaha* designed for the clinical trial. These 21 days were considered as the duration of the treatment. Follow-up was done every 15 days for the next 2 months.

Criteria for assessment of treatment: Assessment of treatment were made before and after the treatment based on, 1. Nasal obstruction, 2. Nasal discharge, 3. Loss of Smell Perception, 4. Discomfort in Nose, 5. Congestion of Nasal Mucosa and Turbinates, 6. Headache, 7. X – Ray PNS, 8. Size of the Inferior turbinate- measured using compass-caliper having adjustable knob.

OBSERVATION AND RESULTS

Age: Age wise distribution of the patients showed that maximum number of patients (40%) belonged to the age group of 15-25 yrs, after which were 35-45 yrs group i.e. 25% ,followed by the 25-35 yrs group with 15% patients and the age group of 45-60 yrs had the least contribution with 20%.

Sex: Out of the 20 cases, incidence of hypertrophied inferior turbinates was observed in 15 male (75%) and 05 female (25%) patients.

Religion: 85% patients were Hindus, 10% were Muslims and 5% were Christians.

Socio-economic status: Most subjects were from middle class (60%), followed by lower class (35%) and the upper class (5%).

Habitat: Habitat wise distribution of the 20 patients showed that, 60% were residents of urban areas and 40% were from rural areas.

Occupation: Out of the 40 Patients, 40% were students, 20% were Housewives, 10% were agriculturists, 10% were teachers, and the groups of Govt/Private service, Businessman, Coolie and commercial drivers each contributed 5%.

Diet: 11 patients were non-veg (55%) and 9 were veg (45%).

***Prakriti*:** *Prakruti* wise distribution showed that 45% were of *Vatakaphaja*, 35% *Kaphapittaja*, whereas rest 20% were of *Vajapittaja prakruti.*

***Nidanas*:** Distribution of *Nidanas* in the 20 patients showed that, 80% had Raja *Sevana* and *Dhoom Sevana* each, 50% had exposure to *Avashyaya*, 20% had *Pratishyaya* followed by the rest 10%, who had experienced *Ambu Krida.*

Table 1: Effects of *Ksharakarma* (immediately after application)

Clinical features	Mean		% reduction in Mean score	S.D. of Mean (±)	S.E. of Mean(±)	't' value	P value	Remarks
	BT	AT						
Nasal obstruction	3.1	1.85	40.32	0.44	0.1	12.5	<0.001	S
Nasal discharge	1.95	1.5	23.10	0.68	0.15	3.0	<0.01	S
Impairment of smell	1.3	0.9	30.77	0.5	0.11	3.63	<0.01	S
Headache & Facial pain	0.8	0.7	12.50	0.79	0.18	0.56	>0.05	NS
Discomfort in nose	2.2	2.0	09.09	0.89	0.2	1.0	>0.05	NS
Congestion of nasal mucosa	1.2	1.15	04.17	0.89	0.2	0.25	>0.05	NS
Size of inferior turbinate (mm)	3.4	2.2	35.29	0.41	0.09	13.33	<0.001	S

Table 2: Effects of *Ksharakarma* (after 7 days of application)

Clinical features	Mean		% reduction in Mean score	S.D. of Mean (±)	S.E. of Mean(±)	't' value	P value	Remarks
	BT	AT						
Nasal obstruction	3.1	1.3	58.06	0.83	0.19	9.47	<0.001	S
Nasal discharge	1.95	1.15	41.03	0.83	0.19	4.21	<0.001	S
Impairment of smell	1.3	0.85	34.62	0.6	0.13	3.46	<0.01	S
Headache & Facial pain	0.8	0.45	43.75	0.50	0.11	3.18	<0.01	S
Discomfort in nose	2.2	1.1	50.00	1.07	0.24	4.58	<0.001	S
Congestion of nasal mucosa	1.2	0.45	62.5	0.71	0.16	4.69	<0.001	S
Size of inferior turbinate (mm)	3.4	1.85	45.59	0.69	0.15	10.33	<0.001	S

Table 3: Effects of *Ksharakarma* (after 21 days of application)

Clinical features	Mean		% reduction in Mean score	S.D. of Mean (±)	S.E. of Mean(±)	't' value	P value	Remarks
	BT	AT						
Nasal obstruction	3.1	0.95	69.35	0.72	0.16	13.44	<0.001	S
Nasal discharge	1.95	0.95	51.28	0.97	0.22	4.5	<0.001	S
Impairment of smell	1.3	0.6	53.85	0.73	0.16	4.37	<0.001	S
Headache & Facial pain	0.8	0.3	62.5	0.61	0.14	3.57	<0.01	S
Discomfort in nose	2.2	0.75	65.91	1.15	0.26	5.58	<0.001	S
Congestion of nasal mucosa	1.2	0.35	70.83	0.74	0.17	5.0	<0.001	S
Size of inferior turbinate (mm)	3.4	1.5	55.88	0.72	0.16	11.88	<0.001	S

Effects on Nasal obstruction: The mean of Nasal obstruction reduced from 3.1 to 1.85 with 40.32% mean reduction which was statistically significant at the P value <0.001. Changes after 7 days of application showed that the mean of Nasal obstruction had reduced from 3.1 to 1.3 with 58.06 % mean reduction which was statistically significant at the P value <0.001. Changes after 21 days of application showed that the mean of Nasal obstruction had reduced from 3.1 to 0.95 with 69.35 % mean reduction which was statistically significant at the P value <0.001.

Effects on Nasal discharge: The mean of Nasal discharge reduced from 1.95 to 1.5 with 23.1% mean reduction which was statistically significant at the P value <0.01. Changes after 7 days showed that the mean of Nasal discharge had reduced from 1.95 to 1.15 with 41.03 % mean reduction which was statistically significant at the P value <0.001. Changes after 21 days of application showed that the mean of Nasal discharge had reduced from 1.95 to 0.95 with 51.28 % mean reduction which was statistically significant at the P value <0.001.

Effects on Impairment of smell: The mean of Impairment of smell reduced from 1.3 to 0.9 with 30.77 % mean reduction which was statistically significant at the P value <0.01. Changes after 7 days of application showed that the mean of Impairment of smell had reduced from 1.3 to 0.85 with 34.62 % mean reduction which was statistically significant at the P value <0.01. Changes after 21 days of application showed that the mean of Impairment of smell had reduced from 1.3 to 0.6 with 53.85 % mean reduction which was statistically significant at the P value<0.001.

Effects on Headache and Facial pain: The mean of Headache and Facial pain reduced from 0.8 to 0.7 with 12.5 % mean reduction which was statistically not significant (P value>0.05). Changes after 7 days of application showed that the mean of Headache and facial pain had reduced from 0.8 to 0.45 with 43.75 % mean reduction which was statistically significant at the P

value<0.01. Changes after 21 days of application showed that the mean Headache and Facial pain had reduced from 0.8 to 0.3 with 62.5 % mean reduction which was statistically significant at the P value <0.01.

Effects on Discomfort in Nose: The mean of Discomfort in nose reduced from 2.2 to 2.0 with 09.09% mean reduction which was statistically Not significant [P value >0.05]. Changes after 7 days of application showed that the mean of Discomfort in nose had reduced from 2.2 to 1.1 with 50 % mean reduction which was statistically significant at the P value<0.001. Changes after 21 days of application showed that the mean of Discomfort in nose had reduced from 2.2 to 0.75 with 65.91% mean reduction which was statistically significant at the P value <0.001.

Effects on Congestion of nasal mucosa and turbinate: The mean of Congestion of nasal mucosa and turbinate reduced from 1.2 to 1.15 with 04.17% mean reduction which was statistically Not significant [P value of >0.05]. Changes after 7 days of application showed that the mean of Congestion of nasal mucosa and turbinate had reduced from 1.2 to 0.45 with 62.5 % mean reduction which was statistically significant at the P value <0.001. Changes after 21 days of application showed that the mean of Congestion of nasal mucosa and turbinate had reduced from 1.2 to 0.35 with 70.83 % mean reduction which was statistically significant at the P value <0.001.

Effects on Size of inferior turbinate: The mean of Size of inferior turbinate reduced from 3.4mm to 2.2 mm with 35.29 % mean reduction which was statistically significant at the P value <0.001. Changes after 7 days of application showed that the mean of Size of inferior turbinate had reduced from 3.4mm to 1.85mm with 45.59 % mean reduction which was statistically significant at the P value <0.001. Changes after 21 days of application showed the mean of Size of inferior turbinate had reduced from 3.4 mm to 1.5 mm with 55.88% mean reduction which was statistically significant at the P value <0.001.

Effects on Overall Signs & Symptoms: In 30% patients no improvement was seen, in 60% patients mild improvement was seen, in 10% patients moderate improvement was seen.

CONCLUSION

Nidana explained in the Ayurvedic classics seems to be initiating or precipitating factors for *Nasapratinaha*. *Vihara Sambhandi Nidanas* like exposure to dust (Raja), smoke (*Dhooma*), cold breeze (*Sheetavayu*) and *Nidanarthakara Roga* like *Pratishyaya* have significant role in causing *Nasapratinaha*. Patients of Allergic Rhinitis constituted the bulk of the subjects. *Samprapti* of *Nasapratinaha* is complex, as various known, unknown, exogenous, or endogenous etiological factors are involved in its pathogenesis. *Apamarga Kshara* was found to be very effective in reliving the severity of the disease. The results were encouraging to start with just after the application of the *Ksharas*, but pronounced after 7days and 21days of assessment. Significant improvement in features of Allergic Rhinitis was also seen in some patients. Results imply that *Ksharakarma* can be recognized as a potent and worthwhile procedure in the management of Nasal obstruction (*Nasapratinaha*) due to Hypertrophied Inferior Turbinates. Lifestyle modification, avoidance of causative factors, Yoga etc. can contribute tremendously in maintaining the patency of the nose.

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Cite this article as:
Jyotirmoy Sarmah, Hareswar Mahanta, Dipti Rekha Sarma. A Clinical Study on Ksharakarma in the Management of Nasapratinaha with special reference to Hypertrophied Inferior Turbinates. International Journal of Ayurveda and Pharma Research. 2017;5(1):24-27.

Source of support: Nil, Conflict of interest: None Declared

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