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Role of *Pradhmana* (*Churna*) *Nasya* and *Shirolepa* in *Ardhavabhedaka* w.s.r to Migraine - A Clinical Pilot Study

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ABSTRACT

Ardhavabhedak is one of the *Shiroroga* which can be correlated with migraine in modern health care system. It is a type of Headache characterized by moderate to severe throbbing pain, generally associated with nausea, photophobia and phonophobia. Its cardinal feature is 'half sided headache' which is also explained by commentator *Chakrapani* as *Ardha Mastaka Vedana*. According to International headache society, Migraine constitutes 16% of the primary headache and affects about 10-20% of the general population. As per *Acharya Sushruta Ardhavabhedaka* occur due to vitiation of *Tridosha*. While *Acharya Charaka* had mentioned that vitiated *Vata*/*Vata* - *Kapha* are involved in manifestation of the disease, while *Acharya Vagbhatta* believed it occurs due to vitiated *Vata*. Till now there is no effective management present in modern science as they provides the symptomatic treatment. But Ayurveda acts on roots of the disease, it does *Samprapti Vighatan* and cures the disease. *Nasya Karma* (Errhine Therapy) is considered as the best therapeutic intervention in *Shirogata Roga* by Acharya Charaka. In present pilot study, an attempt is made to treat the patient of *Ardhavabhedaka* with *Pradhmana Nasya* along with *Shirolepa*.

Key words: *Ardhavabhedaka, Pradhmana (Churna) Nasya, Shirolepa, Migraine.*

INTRODUCTION

According to International headache society, migraine is the most common neurovascular headache and is a common disabling primary headache disorder. In the global burden of disease survey 2010, it was ranked as the third most prevalent disorder and 7th highest specific cause of disability worldwide.[1] The world health organization (WHO) ranks migraine among the world's most disabling medical illness. It is three times more common in women than men. Migraine being a primary headache, affects one in seven globally.[2] characterized by a unilateral, pulsatile, throbbing sensation, it limits day-to-day activities of daily living. Ranked third most prevalent and seventh highest specific cause of disability worldwide (GBD 2012),[3] migraine is currently the leading cause of Years Lived with Disability/Disease (YLD) among individuals under 50 years with a male, female ratio of 1:3. *Vata* alone or along with *Kapha* affects the head and produces severe unilateral pain in the neck, eyebrow, temples, ear, eye, and forehead. Pain is acute, similar to a blow from sharp weapons, pricking, or splitting, and when severe, it impairs the functions of the eye and ear. Pain is paroxysmal, occurring once in ten days, twelve days, or daily.[4]

This phenomenon can be closely read in line with the series of events such as vasodilatation, secondary extravasation, edema, mast cell degranulation, and cortical spreading depression that is triggered by the

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release of neuropeptides from the trigeminal innervation in migraine.

In *Yogratnakara* has described the following treatment measures for *Shiroroga*: *Snehana*, *Upanaha*, *Svedana*, *Dhumpana*, *Lepa*, *Langhana*, *Parisheka*, *Agnikarma*, *Raktamokshana*, and *Shirobasti*.[5]

In *Bhaishajya Ratnavali*, general line of treatment for *Shirah-Shoola* has been described which are *Svedana*, *Nasya*, *Dhumpana*, *Virechana*, *Lepa*, *Vamana*, *Langhana*, *Shirobasti*, *Raktamokshana*, *Agnikarma*, *Upanaha*, *Purana Ghrita* and *Shashtika Shali*.[6]

Panchakarma can be used in various aspects, i.e., it can be used in curative aspect, palliative aspect and in nourishing aspect.[7,8] Nasal medication is known as *Nasya* which delivers drugs directly to the brain. *Nasya* has its special features because nasal administration needs only little quantity of medicine and it is directly administered into the nose from where it can reach up to the brain and provides greater action.[9] Various modalities of *Nasya* which can be applied in various disease conditions in various forms viz. *Marsha Nasya* (high dose medication through nasal route) *Pratimarsha*, *Avipedaka Nasya* and *Dhuma Nasya*. Previously many clinical trials have been conducted showing the role of various *Nasya*. Still the use of *Pradhmana Nasya* has limited exposure. So here is an attempt to see the role of *Pradhmana Nasya* and *Shirolepa* in the management of *Ardhavabhedaka*.

Aim and Objective

To evaluate the effect of *Pradhmana* (*Churna*) *Nasya* and *Shirolepa* in the management of *Ardhavabhedaka* (migraine).

Materials and Methods

Source of patient

The patients suffering from *Ardhavabhedaka* (migraine) attending the OPD of Pt. Khushilal Sharma Govt. Ayurvedic Hospital Bhopal were screened and allocated to the study. Overall, 10 patients were included in the study fulfilling the diagnostic, inclusion and exclusion criteria. A detailed history taking and physical examination were carried out in these patients. The clinical data along with the elaborated assessment of the condition were recorded in specially designed case proforma. Among 10 patients, 7 completed the treatment 3 patients did not complete the whole treatment due to unknown cause.

Intervention Period: 14 days

Study Design

The present study is a pilot clinical study conducted in the department of Panchakarma of Pt. Khushilal Sharma Govt. Ayurvedic College and Institute Bhopal.

Inclusion Criteria

- Patients between 16 to 60 years of age
- Patients with signs and symptoms of *Ardhavabhedaka* according to Ayurveda Classics and modern text.
- Disease chronicity in between 5 years.
- Patients those fit for *Nasya Karma*.
- Patients who have given written consent to participate in the study.

Exclusion Criteria

- Patients having referred pain in one half of head due to pathology of eye, ear, nose, throat, teeth.
- Patients having any other chronic system disease like renal failure, TB, heart disease etc.
- Other neurological disorders.
- Head Injury, Childhood headache, headache due to Benign/malignant, growth, Lactating and Pregnant women's.
- Patients who are not willing to give written consent to participate in the study

Assessment Criteria

Patients were observed for 15 days. Assessment was done before the medical interventions.

Then, Patients were assessed on the 1st,7th day and 15th day. Final assessment was done after completion of the therapy that is on the 15th day. The disease is assessed by graded according to

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HIT- 6Tm. test (Headache impact test)

Gradations of Subjective Parameters

SN	Severity of Headache	Score
1.	No Headache	0
2.	Tolerable headache	1
3.	Do not disturb the routine work	2
4.	Disturb the routine work	3
5.	Intolerable headache	4

SN	Nature of headache	Score
1.	Avedana	0
2.	Manda Vedana	1
3.	Sambheda Toda	2
4.	Shastra/Vajrapata Vedana	3
5.	Chakshurindriya/Shrotrendriya Vinasha	4

SN	Photophobia	Score
1.	No photophobia	0
2.	Photophobia only during mild exposure to light	1
3.	Photophobia only during exposure to light	2
4.	Continuous photophobia throughout the day	3
5.	Continuous photophobia throughout the day and night	4

SN	Phonophobia	Score
1.	Nil	0
2.	Mild (does not interfere with usual activities)	1
3.	Moderate (inhibits, but does not prevent usual activities)	2
4.	Sever (some time prevent all activities)	3
5.	Very sever (unbearable)	4

SN	Vomiting	Score
1.	Nil	0
2.	Only if headache does not subside	1
3.	Vomiting 1-2 times	2
4.	Vomiting 2-3 times	3
5.	Forced to take medicine to stop vomiting	4

SN	Vertigo	Score
1.	Nil	0
2.	Feeling of giddiness	1
3.	Patient feels as if everything is revolving	2
4.	Revolving signs + black outs	3
5.	Unconscious	4

SN	Frequency of Headache: According to Acharya Videha	Score
1.	Nil	0
2.	Once in 30 days	1
3.	Once in 15 days	2
4.	Once in 5 days	3
5.	Once in 3 days	4

SN	Duration of Headache	Score
1.	No headache	0

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2.	1-3 hours	1
3.	4-12 hours	2
4.	13-24 hours	3
5.	Over 24 hours/continuous	4

SN	Nausea	Score
1.	Nil	0
2.	Occasionally	1
3.	Moderate, but does not disturb the routine work	2
4.	Severe, disturbing routine work	3
5.	Severe enough, small amount of liquid regurgitating from mouth	4

Criteria for Overall Assessment of Intervention

Percentage of improvement	Effect of Therapy
< 25%	No improvement
25% - 49%	Mild improvement
50% -74%	Moderate improvement
75% - 99%	Marked improvement
100%	Cured

Treatment with duration

Purva Karma - *Sthanik Abhyanga* with *Tila Tailam* and *Nadi Swedana*

Pradhana Karma -

1. *Pradhamana Nasya* with *Krishna Tila* and *Vidanga Churna* - for seven sittings, with an interval of 1 day between each sitting.[10]
2. *Shirolepa* with *Krishna Tila* and *Vidanga Churna* -14 days

Paschat Karma - *Triphala Gandhusa*

Ingredients of *Lepa* and *Nasya*

Ayurvedic properties and action of composition

1. *Vidanga*[11] (*Embelia ribes*), (*Chitratandul, Vayavidanga*)

It is used in *Krimi Roga*, *Vata Kapha Vikar*, *Udarasool*, *Adhyaman*, and *Vibandha*.

Rasa - Katu, *Kashaya*,

Guna - Laghu, *Ruksha*, *Thikshna*

Virya - Ushna Vipaka- Katu

Chemical composition - Embelin, Christembine, Quercitol, Tannin.

Action - *Vata Kapha Samak*, *Krimighan*, *Vishnasak*, *Agnimandhyahar*.

2. *Krishna Tila*[12] (*Sesamum indicum*)

It is *Balya*, *Keshya*, *Twacha* and *Varna Hitkari*, *Vatnasak*, *Dant Vikar Nashak*.

Rasa - Katu, *Tikta*, *Madhur*, *Kashaya*

Guna - Guru Snigdha

Virya - Ushna

Vipaka - Katu

Chemical Composition - Vitamin B complex, Sesamin

Action - *Vata Hara*, *Kapha Pittakrit*, *Aganiprdiptikar*, *Grahi*, *Himasparsi*

Method

Administration of *Nasya* therapy may be classified under the following three headings.

1. *Purvakarma* (Pre-measures)
2. *Pradhanakarma* (*Nasya* therapy)
3. *Paschatkarma* (Post measures)

After local *Snehan* and *Nadi Swedan* at neck, shoulder and arm region. *Pradhamana Nasya*, *Churna* (Powder of drugs) is administered by Nasal passage with the help of *Naadi Yantra* (6 *Angula Naadi*, open ended on both sides). The *Churna* (Fine powder) of required the drug is kept at one end and air is blown from the other end, so that the medicine could enter into the

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nostrils.[13] After *Nasya Triphala Gandusha* is advised to combed the remaining morbid *Dosha*.

After the elimination of *Doshas*, patient is advised to take warm water and light food and to stay in a room devoid of wind.[13]

Shirolepa- Medicinal paste which is prepared either by boiling method or triturating method and is applied on the vertex, then over right side, back side, left side and again at the center of the head in respective order. The paste is evenly applied all over the scalp. Thickness of paste was 1 *Angula*.

RESULT

The values of data were expressed as a percentage of relief and mean-standard error of the mean. The data were analyzed by Student's *t*-test for comparing before and after treatment obtained scores. The level of significance are expressed as $P > 0.05$ as insignificant, $P < 0.05$ and 0.01 as significant, $P < 0.001$ as highly significant.

SN	Symptoms	Mean		MD	SD	SE	% Relief	T-test	P value	Result
		BT	AT							
1.	Severity of headache	2.71	0.86	1.85	0.69	0.26	68%	3.752	0.0028	Very significant
2.	Nature of headache	2.29	0.43	1.86	0.53	0.20	81%	5.307	0.0002	Extremely Significant
3.	Photophobia	2.14	1	1.14	0.58	0.22	53%	3.360	0.0057	Significant
4	Phonophobia	2.29	1.14	1.15	0.69	0.26	50%	2.573	0.0244	Significant
5.	Vomiting	1.14	0.71	0.43	0.49	0.18	37%	1.341	0.2046	Not significant
6.	Frequency	1.86	0.71	1.15	0.49	0.18	61%	3.577	0.0038	Extremely Significant
7.	Duration	2.14	1.14	1	0.58	0.22	46%	2.488	0.0028	Significant
8.	Nausea	1.57	0.71	0.86	0.49	0.18	54%	2.449	0.0306	Significant

Severity of Headache - The mean score of severity of headache in this study, before treatment was 2.71 and after treatment it was reduced to 0.86 So the mean difference was 1.85, with percentage relief of 68% which was statistically very significant (P=0.0028).

Nature of Headache - The mean score of nature of headache in this study, before treatment was 2.29 and after treatment it was reduced to 0.43. So the mean difference was 1.86, with percentage relief of 81% which was statistically extremely significant (P=0.0002)

Photophobia - The mean score of photophobia in this study, before treatment was 2.14 and after treatment it was reduced to 1. So the mean difference was 1.14, with percentage relief of 53% which was statistically significant (P=0.0057).

Phonophobia - The mean score of phonophobia in this study, before treatment was 2.29 and after treatment it was reduced to 1.14. So the mean difference was 1.15, with percentage relief of 50% which was statistically significant (P=0.0244).

Vomiting - The mean score of vomiting in this study, before treatment was 1.14 and after treatment it was reduced to 0.71. So, the mean difference was 0.43, with percentage relief of 37% which was not significant (P=0.2046).

Frequency - The mean score of frequency in this study, before treatment was 1.86 and after treatment it was reduced to 0.71 So the mean difference was 1.15, with percentage relief of 61% which was statistically significant (P=0.0038)

Duration - the mean score of duration in this study, before treatment was 2.14 and after treatment it was reduced to 1.14 So the mean difference was 1, with percentage relief of 46% which was statistically significant (P=0.0028).

Nausea - The mean score of nausea in this study, before treatment was 1.57 and after treatment it was reduced to 0.71 So the mean difference was 0.86, with percentage relief of 54% which was statistically significant (P=0.0306).

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Overall assessment	No. of Patients	Percentage
Complete relief	00	00
Marked improvement	1	14%
Moderate improvement	2	28%
Mildly improved	4	57%
No improvement	0	00

Adverse Effects: There were no any adverse effects or adverse drug reaction was noted during and after the study duration.

DISCUSSION

Ardhavabhedaka is a type of *Shiroroga* with the cardinal feature of unilateral headache. This disease can be correlated to Migraine based on the clinical manifestations. In present study *Shirah-Shoola* (headache) was taken as chief complain and all patients were found with these symptoms. Along with headache there were associated complaints like nausea, vomiting, vertigo, phonophobia and photophobia. Among this nausea and vomiting indicates vitation of *Rasavaha Srotasa*. Photophobia and phonophobia is not specified as symptoms in *Ardhavabhedaka*, but in the progressive stage of disease, loss of vision and hearing impairment (*Nayana* and *Shravana Vinashyet*) may be present as complication. Hence, photophobia and phonophobia may be considered as systemic manifestations of the disease. In the present study, the result shows, 68 % relief in headache, 81% relief in nature of headache, 61% relief in frequency of headache, in vomiting, vertigo, phonophobia and photophobia result found was statistically significant. All these patients had to take analgesic medicine before treatment but after treatment none of the patients had to take analgesics for the same.

Probable mode of action of *Nasya*

In *Nasya Purva Karma*, *Abhyanga* and *Swedana* were done. *Doshas* aggregate and become *Mruduta* due to *Abhyanga* and *Vilayana* (liquification) due to *Swedana*. Modern science describes *Abhyanga* and *Swedana* as increasing the local blood flow and liquefying mucus, respectively. Vasodilatation causes an increase in blood vessel permeability, which speeds up medication absorption.

In *Pradhana Karma*, the patient lies head-low and receives the medicine in *Churna* form through *Pradhamana Nadiyantra*(powder of drugs) is administered (inhaled) by Nasal passage with the help of *Nadi Yantra* (*Shadangula Nadi* both side open ended).[14] so that the medicine may enter into the nostrils. As a result, the medications enter the *Shringataka* and spreading via *Siras* to other regions such as *Netra* and *Shirah* where they eliminate the morbid *Doshas*.[15] Transnasal drugs in powder form may stimulate the limbic system and hypothalamus.[16] The action of *Nasya* explained in *Ayurvedic* Classic *Ashtanga Sangraha* as the medicines administered through nostrils can reach up to the brain and it draws out the entire vitiated *Doshas.*[17] This correlation may be due to the wide spectrum of *Nasya* as it can be applied to various disorders of head and neck in various forms.

Vidangadi Pradhmana Nasya helps in treating *Ardhavabhedaka* by restoring the vitiated states of *Vata* and *Kapha*. *Nasya's* qualities, such as *Katu*, *Laghu*, *Snigdha*, and ush ana *Tikshna*, have the ability to reduce vitiated *Dosha*. *Krishna Tila* has properties of '*Yogavahi'* & *Sukshma* which help in cleansing *Srotas*, thereby improving functions of *Srotas*, which in turn helps in nourishment and formation of good quality tissues. Due to the *Vata* and *Kapha Doshas* being mostly aggravated in *Ardhavabhedak*, *Vidanga* and *Krishna Tila* have the ability to effectively combat the *Doshas* which are responsible for the disease. This medication may be administered as *Shodhana Nasya*. Since the issue is head-related, NASA is the closest option for *Shodhan Krama*. *Nasya* is an easy-to-use and successful treatment for *Ardhavabhedak*

This type of *Nasya* is instilled using medicated *Churna* (Powder) for *Shirovirechana*. It is mentioned as *Dhmaapana* in *Charaka Samhitaa* and *Pradhamana* in *Sushruta Samhitaa*.

Shirolepa - It relaxes mind and body, cure headaches, reduces body heat, prevents greying of hair, improves

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vision, improves memory and is also useful in Insomnia, depression and other stress related ailments. Drugs used for *Thalapothichil* (*Shirolepa*) can be altered according to different disease condition.

Conclusion

A clinical trial with *Vidangadi Pradhmana Nasya* and *Shirolepa* as external application has shown encouraging results in them management of *Ardhvabhedaka*. No complication was observed in the patients at the end of the study. So, this treatment protocol can be a good option for the management of *Ardhvabedhaka*. In the current study, as the sample is very small and the follow-up period is short, to arrive at a conclusion about the effectiveness and safety of the treatment, a clinical trial with a big sample size and a long follow-up period will be needed.

In the future, the study may prove to be a significant advancement in the treatment of *Ardhavbhedaka* (Migraine).

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