

CLINICAL EVALUATION OF BASTI AND NASYA IN PAKSHAGHATA (HEMIPLEGIA)

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ABSTRACT

Pakshaghata (Hemiplegia) is a severe blow to the sufferer's life. In the current era, the changing life-style & work related stress has made people more prone to Stroke disorders. *Pakshaghata* has been enlisted amongst the 80 *Nanatmaja vata vyadhi* & is considered to be prominent of all. Basti karma is the ultimate treatment modality advised for Vata vyadhi . *Nasya karma* also has a role in vata vyadhi , as there is vikruti in *Mastishka marma* sthana. Hence these two treatment principles were taken up for the study along with the *Shamanaushadhi*.

Key words : *Pakshaghata , Hemiplegia, Kala basti, Nasya, Vata vyadhi*

INTRODUCTION

In terms of population, India ranks second only to China. Recent rapid socioeconomic changes have led to a concomitant change in people's lifestyle, leading to work-related stress and altered food habits, raising the risk of hypertension. Those factors coupled with an increase in the average life expectancy, are expected to have an impact on the occurrence of stroke disorder in India.

According to statistical data every year 114 per 100,000 people get stroke but ranges from 81 to 150 per 100,000 in

different studies. Due to stroke or stroke related complication 12% deaths occur in England & Wales. In India this data is more horrible as 64000 deaths occur per year. Out of these mortality rate 5000 deaths is under the age of 65. On the basis of morbidity out of all cases 45% patient of stroke can live independently and 22% patients become dependent on others for their day to day work for whole of their life but approximately 20% patients require admission in institutions or hospitals.⁽¹⁾

The disease Hemiplegia is characterized by more or less sudden paralysis affecting one side of the body as well as sensory, motor, visual and speech functions. Hemiplegia has three types of mode of onset i.e. sudden, recurrent and gradual. There are lots of causes of Hemiplegia such as Cerebro Vascular Accident, Carotid insufficiency, thrombosis, hypertensive encephalopathy, haematoma, contusion, growth, etc.⁽²⁾

Pakshaghata can be correlated with Hemiplegia of modern medicine. *Pakshaghata* has been enlisted amongst the eighty types of Nanatmaja Vata Vyadhi and is considered to be prominent of all Vata Vyadhi. This disease has been described in almost all Ayurvedic literature under Vata Vyadhi.

Pakshaghata may be defined as loss of voluntary functions of one side of the body. According to *Acharya Charaka in Pakshaghata morbid Vata beholds either side of body, dries up Sira and snayu of that part rendering it dead and producing Cheshta Nivritti along with Ruja and Vakstambha.*⁽³⁾

Acharya Sushruta has described this ailment more precisely. He has considered pathological involvement of

the joints of one half of the body along with sensory loss of affected part in Pakshaghata.⁽⁴⁾ The Pittanubandhita and Kaphanubandhita Lakshana of Pakshaghata have been mentioned in Madhava Nidana.⁽⁵⁾

In Ayurvedic Classics, Dhatu Kshaya Janya Vata vyadhi and Margavarana Janya Vata vyadhi are categorized. The Lakshana of Dhatu Kshaya or Margavarana are accordingly manifested and identified. Acharya Sushruta describes Lakshana of Pakshaghata and Lakshana of Ardita as separate entity, where as according to Acharya Charaka, Lakshana of Pakshaghata and Ardita can coexist together.

Pakshaghata is a severe blow to the sufferer's life. The patients not only suffer physically but also go through a severe mental depression due to inability to attend such duties which are essential for his day to day life and maintenance of his own cleanliness. Such persons irrespective of religion, age, sex or socioeconomic status, face a very miserable and dependent life. This disease makes the person not only disable but also makes him burden to the family.

Ayurveda has broadly classified treatment into three parts, i.e., *Nidana Parivarjana*, *Shodhana* and *Shamana Chikitsa*. Many therapeutic principles have been recommended in Ayurvedic classics for the treatment of *Pakshaghata*. For *Vata Dosha*, *Snehana*, *Swedana*, *Mrdu Samshodhana* are selective therapies. *Vasti Karma* is the ultimate treatment modality advised for *Vata Vyadhi*. *Nasya Karma* does have a role in *Vata Vyadhi*, since there is *Vikruti* in the *Mastishka Marma Sthana*, *Nasya Karma* is generally advisable.⁽⁶⁾

There are lots of studies on *Pakshaghata* in different institutes, but maximum of those thesis have performed with the subjects who were fresh or with less chronicity. So there was a need of study with the subjects with more chronicity to evaluate the efficacy of Ayurvedic therapy. Hence the study was taken up for the "*Clinical Evaluation of Basti and Nasya in Pakshaghata (Hemiplegia)*".

SAMPRAPTI GHATAKA IN PAKSHAGHATA

- *Dosha* – *Vata (Pradhanatha – Prana , Vyana , Udana)*
- *Dushya* – *Dhatu – Rakta , Mamsa Upadhatu – Sira , Snayu , Kandara*

- *Agni* – *Jatharagni & Dhatwagni*
- *Ama* – *Jatharagni mandya janya & Dhatwagnimandya janya*
- *Srotas* – *Raktavaha , Vatavaha*
- *Sroto dushti* – *Sanga , Vimarga gamana (Asruk srava janya)*
- *Udbhava sthana* – *Pakwashaya*
- *Adhishtana* – *Shiras (Mastishka)*
- *Vyakta sthana* – *Shareerardha (dakshina or vama)*
- *Sanchara sthana* – *Rasayani, vatavaha nadi (sanjyavaha, cheshtavaha nadi)*
- *Rogamarga* – *Madhyama*
- *Vyadhi swabhava* – *Ashukari (Asrk srava) Chirakari (Margavarana)*
- *Sadhya* – *Asadhyata – Krchrasadhya / Yapya*

OBJECTIVES

To evaluate clinically the efficacy of *Basti & Nasya karma* on *Pakshaghata*.

MATERIALS AND METHODS

- Study Design : Clinical trial
- Source of data: Total of 40 patients attending the OPD & IPD of post graduate department of *Kaya chikitsa*, *Ayurveda Mahavidyalaya Hubli* , were selected randomly for the study.

INTERVENTION:

The study was a clinical trial to assess the efficacy of *Kala basti* with *Dashamoola Kashaya*, *Yavanyadi kalka (Asthapana)* & *Sahacharadi taila*

(Anuvasana) in Group A and Nasya with Karpasasthyadi taila in Group B. Both the groups received Amapachana with Gandharva hastadi kashaya⁽⁷⁾ till nirama lakshana & Vaatagajankusha rasa ⁽⁸⁾ as shamanaushadhi for a period of 30 days with Maha Manjishthadi Kashaya ⁽⁹⁾ as Anupana.

INCLUSION CRITERIA:

1. Patients with classical signs & symptoms of Pakshaghata.
2. Patients of either sex & age group between 20 – 60 years.
3. Chronicity of > 6months

EXCLUSION CRITERIA :

1. Patients with uncontrolled metabolic & other systemic disorders.
2. Patients suffering with degenerative disorders of brain or any intra cranial infectious disease.

3. Comatose patients .
4. Patients suffering with HIV or HbsAg.

ASSESSMENT CRITERIA :

The assessment was made based on the improvement in the Subjective & Objective parameters before and after the treatment.

Subjective Parameter :

1. Motor functions of lower & upper extremity.
2. Language & speech.

Objective Parameter :

1. Higher Mental Functions
 - a) Appearance & Behaviour
 - b) Memory
 - c) Orientation
 - d) Intelligence
2. Strength , Tone of Muscle
3. Deep tendon reflexes , Superficial tendon reflexes
4. Gait

Scoring for different parameters was done as follows;

<p>Motor functions of Arm : 0 = No drift ; limb holds 90 (or 45) degrees for full 10 seconds. 1 = Drift ; limb holds 90 (or 45) degrees, but drifts down before full 10 seconds; does not hit bed or other support. 2 = Some effort against gravity; limb cannot get to or maintain (if cued) 90 (or 45) degrees, drifts down to bed, but has some effort against gravity. 3 = No effort against gravity; limb falls. 4 = No movement.</p>	<p>Motor functions of Leg : 0 = No drift ; leg holds 30 – degree position for full 5 seconds. 1 = Drift ; leg falls by the end of 5 second but does not hit bed. 2 = Some effort against gravity; leg falls to bed by 5 seconds, but has some effort against gravity. 3 = No effort against gravity; leg falls to bed immediately. 4 = No movement.</p>
<p>Language : 0 = No aphasia. 1 = Mild to Moderate aphasia</p>	<p>Dysarthria : 0 = Normal 1 = Mild to Moderate dysarthria</p>

2 = Severe aphasia; all communication is through fragmentary expression. 3 = Mute ; global aphasia; no usable speech or auditory comprehension.	2 = Severe dysarthria
<u>Consciousness:</u>	
Orientation: 0 = Alert ; keenly responsive 1 = Not Alert; but arousable by minor stimulation 2 = Not Alert.	Level of consciousness (commands): The patient is asked to open & close the eyes & then to grip 0 = Performs both tasks correctly. 1 = Performs one task correctly. 2 = Performs neither tasks correctly.
Level of consciousness (Question): The patient is asked the month & his/her age, 0 = Answers both questions correctly. 1 = Answers one question correctly. 2 = Answers neither question correctly.	
<u>Co- ordination:</u>	
Finger – nose test: 0 = Absent 1 = Present in one limb 2 = Present in two limbs	Finger – finger test: 0 = Absent 1 = Present in one limb 2 = Present in two limbs
Strength: 0 = Normal 1 = Partial paralysis 2 = Complete paralysis	Tone of muscle: 0 = Normal 1 = Hypotonic 2 = Hypertonic
Grade of reflex: 0 = Absent 1 = Present 2 = Exaggerated 3 = Clonus	Gait: 0 = Walks without support 1 = Walks with support like stick,wall etc 2 = Walks with slight help 3 = Bed ridden
Sitting from lying down: 0 = Without support, 1 = With support, 2 = Unable	

INVESTIGATIONS:

- Routine haematological, biochemical investigations and urine analysis were carried out.
- CT scan / MRI of brain was done only if needed.

RESULTS :

The clinical study showed significant improvement in the signs & symptoms of *Pakshaghata (Hemiplegia)*, thereby

improving the quality of life of the patients.

Basti provided highly significant results in three parameters i.e, *motor function of upper and lower extremities & gait* and not significant in co-ordination (Finger – finger test) and reflexes. Whereas, in other parameters *basti* had significant results.

Nasya provided highly significant results in *Motor function of lower extremity, orientation* and significant results in motor functions of upper

extremity , level of consciousness and gait. Whereas, in other parameters *Nasya* showed insignificant results.

Table showing the comparative effect of therapies in Group A and Group B

Sl. no	Parameters of Assessment	No.of pts	Group A			Group B			t'	p'	Remarks
			Mean	S.D (±)	S.E (±)	Mean	S.D (±)	S.E (±)			
1	Motor functions of upper extremity	40	0.8	0.52	0.11	0.3	0.47	0.10	3.17	>0.01	S
2	Motor functions of lower extremity	40	0.75	0.44	0.09	0.55	0.51	0.11	1.32	>0.10	NS
3	Dysarthria	40	0.35	0.48	0.10	0.25	0.44	0.09	0.67	>0.10	NS
4	Orientation	40	0.6	0.99	0.22	1.75	1.16	0.26	3.35	>0.01	S
5	Level of consciousness (command)	40	0.35	0.48	0.10	0.4	0.50	0.11	0.31	>0.10	NS
6	Level of consciousness (Question)	40	0.4	0.50	0.1	0.35	0.48	0.10	0.31	>0.10	NS
7	Co – ordination (F- N test)	40	0.3	0.47	0.10	0.15	0.36	0.08	1.12	>0.10	NS
8	Co – ordination (F – F test)	40	0.25	0.44	0.09	0.1	0.30	0.06	1.24	>0.10	NS
9	Strength of muscles	40	0.35	0.48	0.10	0.15	0.36	0.08	1.46	>0.10	NS
10	Tone of muscles	40	0.3	0.47	0.10	0.15	0.36	0.08	1.12	>0.10	NS
11	Reflex	40	0.25	0.55	0.12	0.15	0.36	0.08	0.67	>0.10	NS
12	Gait	40	0.8	0.41	0.09	0.25	0.44	0.09	4.06	>0.001	HS
13	Sitting from lying down	40	0.35	0.48	0.10	0.3	0.47	0.10	0.32	>0.10	NS

DISCUSSION :

Pakshaghata is included under the Akarmanyata Pradhana vata vyadhi

because its cardinal feature is Chesta nivrutti .Pakshaghata is a vata dominant disease & due to vata,

symptoms like Paksha hanana, Ardhakaya vichetana/Sharirardha Achetana, Anyatra paksha vimoksha, Sandhi bandhana vimoksha, Ruja , Vaksthambha, Hasta pada sankocha, Toda, Shoola, Kampa are present, but due to association of Pitta dosha , Daha, Santapa, Murcha can also be found and due to involvement of Kapha dosha , Shaithilya, Shotha, Guruta may also be there.

PROBABLE ACTION OF BASTI DRAVYA :

Sahacharadi Taila ⁽¹⁰⁾

Sahachara has *Nadibalya* and *shothahara* properties, so it reduces the post ischemic oedema, which is the root cause of depriving condition of patient after stroke. Along with this *Sahachara* gives strength to the nervous tissues by preventing the further demyelination and start remyelination. *Devadaru* has *Shothahara* and *Vedanashamaka* properties, Due to these properties it reduces the oedema of body and relieves the pain, so patient gets symptomatic relief. *Shunthi* is well known *Kapha vata Shamaka Dravya*. It stimulates the nerve fibres and on the other hand it prevent the over excitation of centres of brain. So it

regulates the higher mental function like coordination, orientation, consciousness etc. *Sahachardi taila* has *Ushna veerya* and *Kapha Vatahara* properties and its *Prabhava* is *Adhobhaga Vatahara*. Due to this it is Srotoshodhana, and due to removal of Aavarana it leads to Vatanulomana. Being a *Sneha* it can penetrate into micro-channels. Thus, *Sahachardi Taila is acting at the level of Rasa, Rakta, Mamsa, Meda and Majja dhatu.*

Yavanyadi Kalka ⁽¹¹⁾

Yavani is *shothahara, vatanulomana* and *vedanashamaka* so it may act on motor functions. *Madanaphala* is *Vyavayi, Vikasi, Teekshna* and *Urdhwagami* (ch.ka.1), but when used in *Asthapana basti* it works as *Vatanulomana*, thus it hastens the action of basti along with madhu. *Vilwa* has excellent *Shothahara* and *vedanashamaka* properties as well as it work as tranquilizer so it reduces the spasm of muscle. *Kushta* has *anti-spasmodic, sajnasthapana* properties. So it may act on the coordination of patient. *Vacha Sajnasthapana* (ch.su.4) and *medhya*; it may act on Indriya, Mastishka, Prana and Udana to restore the lost consciousness. *Musta* is *Medhya, Nadibalya, anti-inflammatory*

(*shothahara*) in properties. So it may remove Mastishka dourbalya and restore higher mental functions. *Pippali* is also *Medhya* so it may also act on higher mental functions.

Dashamoola Kashaya ⁽¹²⁾

In *Dashamoola kashaya*, *Vilwa* has anti-inflammatory (*shothaghna*) and analgesic (*vedanashamaka*) properties as well as it work as tranquilizer, so it reduces the spasm in muscle. *Agnimantha*, *shyonaka* and *patala* reduces the over excitation of nerves, by this way it relaxes the muscles and relieves the pain. *Gambhari* works on higher mental centres and increase the memory. *Shalaparni* give strength to the nervous tissue. *Kanthakari* and *Gokshura* lessen the inflammation of brain tissue and promote the intellectual, but on the other hand it works as the tranquilizer. Collectively Dashamoola Kashaya causes *Srotoshuddhi* and Sahacharadi Taila Anuvashana given later, readily penetrates the open srotas and promotes strength, complexion etc. *Srotoshodhana* is a principle of management of *Avrita Vata*.

DISCUSSION ON PROBABLE MODE OF ACTION OF BASTI:

Madhu contains sucrose and lot of enzymes; Saindhava contains sodium chloride and other ions, which help in generating the action potential. Madhu has got ambiphilic action. Salt helps in electrolyte exchange. The emulsion nature of the solution has got a cleansing, healing effect. The Kalka, which has got irritant properties along with other ingredients, may induce colonic distention. This distention stimulates pressure, which produces evacuatory reflex. There may be a chance of release of catecholamine also.

Though Basti is administered in the Pakvashaya, it has action throughout the body. According to *Susruta*, a properly given Basti remains in the Pakvashaya, Shroni and below Nabhi and through the Srotas, the Veerya of Basti Dravya is to the entire body. Similarly, though Vasti remains in the body only for a short time and is excreted along with Mala by action of Apana Vayu, due to the Veerya, the Dosha / morbid factors situated from the head to foot are also forcibly thrown out of body.

Vasti is having two actions, expelling the Dosha and nourishing the body. All these actions of Vasti can be well

explained on the basis of known physiological and pharmacological actions.

The gastro intestinal tract has a nervous system all of its own called the 'enteric nervous system'. It lies entirely in the wall of gut, beginning in the esophagus and extending all the way to anus. The number of neurons in this enteric system is about 10 crores almost exactly equal to the number in the spinal cord. It especially controls gastrointestinal movements and secretions. The two plexuses in enteric system are Mesenteric plexuses and Submucosal plexuses. The sigmoid, rectal and anal regions of the large intestine are considerably better supplied with parasympathetic fibers than other portions. They are mainly stimulatory in action and function especially in the defecation reflexes.

The blood vessels of the gastro intestinal system are part of a more extensive system. Most of the absorption in the large intestine occurs in the proximal half of the colon giving the name of this portion the absorbing colon. Absorption through the gastro intestinal mucosa occurs by active transport and diffusion. Water is transported through the intestinal

membrane entirely by the process of diffusion. Further more this diffusion obeys the usual law of osmosis therefore when the chyme is diluted in water is absorbed through the intestinal mucosa into the blood through Villi by osmosis. On the other hand water can also be transported in the opposite direction from the plasma into the chyme. This occurs especially when hyper-osmotic solutions are discharged from the stomach. The rectum has rich blood and lymph supply and the drugs can cross the rectal mucosa like other lipid membranes. Thus unionized and lipid soluble substances are readily absorbed from the rectal mucosa.

PROBABLE MODE OF ACTION OF NASYA DRAVYA

Karpasasthyadi Taila⁽¹³⁾

Majority of the ingredients of *Karpasasthyadi taila* has *Tikta rasa* and *laghu guna* which help in clearing the *srotas*. *Katu vipaka, Ushna virya* and *Tikshhna guna* produce *Draveekarana (vilayana)* and *chedana of vitiated kapha*. *Madhura rasa, sheeta veerya* and *snighdha guna* helps to nourish the *Dhatus*. Here *ajadugdha* was used for the preparation because it should not vitiate Kapha but nourish & tone

the Dhatu and being *Rasayana dravya* increases local immunity. In Karpasasthyadi taila, *Karpasasthi*, *Bala*, *Masha* gives strength to the nervous tissue and control hyperesthesia. *Bala* and *Rasna* have shothaghna properties and reduce the feeling of pain. *Chavya*, *shigru*, may act on the infarct inside the blood vessels of the brain. By reducing the infarct it establish the blood supply to the brain tissue. *Punarnava* act as a diuretic and reduce the brain tissue inflammation. On the other hand punarnava has *Lekhana* property, so it may act on fat embolism to establish the proper blood supply.

DISCUSSION ON PROBABLE MODE OF ACTION OF NASYA:

According to Charaka, Nasa is the gateway of Shiras. The drug administered through nose as Nasya reaches the brain & pacifies Dosha responsible for producing the disease. The drug reaches Shringhataka (Sira Marma). Indu in his commentary on Ashtanga Sangraha has opined Shringhataka as the inner side of middle part of the head i.e. Shiraso Antarmadhyam. It spreads in the Murdha, Marma, Netra (eye), shrotra (ear), Kantha (throat), Siramukha

(opening of the vessels, etc.) and pacifies the morbid Dosha in supra clavicular region clearing Uttamanga.

Whenever there is irritation, the circulation to local area increases. The Nasya with Karpasasthyadi Taila irritates the nasal mucosa leading to an oedematous response with local hyperemia which enhances drug absorption. Since the drug administered itself being fat in nature hence there is no functional Blood-Brain barrier for Karpasasthyadi Taila. So it can be said that there is a much close relation between Shiras & Nasa.

CONCLUSION :

After systematic and prompt clinical trial, the following conclusions were drawn taking into consideration observations, Results and Discussions.

1. *Pakshaghata* a *vata vyadhi* (Hemiplegia) which is a Neuro – muscular disorder can be managed through Ayurvedic treatment modalities effectively.
2. Subjects with *Pakshaghata* (Hemiplegia) who may face social embarrassment can be navigated by promptly following Ayurvedic treatment modalities.

3. Subjects with less chronicity responded better than the subjects with more chronicity.
4. *Dashamoola kashaya, yavanyadi kalka and sahacharadi taila basti along with Vatagajankusha rasa and Maha manjishthadi kashaya as Anupana* internally provided highly significant results in three parameters of assessment i.e. motor function of upper and lower extremities and gait and not significant in co-ordination (Finger – Finger test) and reflexes. Where as in other parameters Basti showed significant results.
5. *Karpasasthyadi taila Nasya along Vatagajankusha rasa and Maha manjishthadi kashaya as Anupana* internally provided highly significant results in motor function of lower extremity, orientation and significant results in motor function of upper extremity, level of consciousness and gait. Whereas in other parameters *Nasya* showed insignificant results.
6. So better result can be obtained with *Basti with Dashamoola kashaya, yavanyadi kalka and sahacharadi taila basti along with Vatagajankusha rasa and Maha manjishthadi kashaya as Anupana* internally, Basti can helps in

better improvement of Pakshaghata symptoms.

7. Considering the deep seated nature of the disease, its chronicity, involvement of shiro marma, longer duration of therapy may be required for even more admirable results.

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