



Clinical Research

A study on *Apabahuka* (frozen shoulder) and its management by *Laghumasha taila nasya*

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Abstract

Apabahuka is a disease that usually affects the *Amsa sandhi* (shoulder joint). It is produced by the *Vata dosha*. Even though the term *Apabahuka* is not mentioned in the *nanatmaja Vata vyadhi*, Acharya Sushruta and others have considered *Apabahuka* as a *Vataja vikara*. *Amsa shosha* (wasting of the shoulder) can be considered as the preliminary stage of the disease, where loss or dryness of *sleshaka kapha* from *amsa sandhi* occurs. For the present study, *Marsha nasya* with *Laghumasha Taila* was administered to 15 patients for seven days, and the following results were obtained. After treatment, 53.33% relief was found on *Bahupraspandita hara*, 26.66% on *Shoola*, 30.00% on *Stambha*, 60.00% on *Atopa*, and 37.50% on wasting of muscles. On the overall effect of therapy alone, one (6.60%) patient got marked improvement, eight (53.33%) got moderate improvement, four (26.66%) were improved, and two (13.33%) patients remained unchanged.

Key words: *Apabahuka, Marsha nasya, Laghumasha Taila, Vata vyadhi, Amsa shosha, Abhyanga, Swedana, Snehapana*

Introduction

Vata is considered as a chief factor for the physiological maintenance of the body. Factors provoking *Vata* result in the instantaneous manifestation of diseases, which can even prove to be fatal. Therefore, the *Vataja nanatmaja vyadhis* are of utmost importance, rather than the *vyadhis* produced by the other two *doshas*. Contradictory approaches to pacify this vitiated state have to be restored to, to maintain the equilibrium.

In the modern point of view, the diseases involving the neurological, musculoskeletal, psychosomatic, and gastrointestinal system disorders have more similarity with the *Vata vyadhi*. It indicates the wide ranging involvement of *Vata* in various systems of the body.

The economy of the country relies on its work force. *Apabahuka* is one such disease that hampers the day-to-day activity of an individual. The fact that *Vata vyadhi* is one among the *Ashta maha gada*,^[1] is itself explanatory, with regard to the consequences caused by *Apabahuka*. Even though a definite factor responsible for the manifestation of this disease is not mentioned, a set of etiological factors can be interpreted. On

analyzing the etiopathology, it may be interpreted that the disease *Apabahuka* manifests due to the depletion of tissue elements (*dhatu kshaya*) as well as *Samsrushta dosha*.

Apabahuka is considered to be a disease that usually affects the shoulder joint (*amsa sandhi*) and is produced by the *Vata dosha*. Even though the term *Apabahuka* is not mentioned in the *nanatmaja Vata vyadhi*, Acharya Sushruta and others have considered *Apabahuka* as a *Vata vyadhi*.^[2] *Amsa shosha* can be considered as the preliminary stage of the disease where loss or dryness of the *Shleshaka Kapha* from the shoulder joint occurs. The next stage, that is, *Apabahuka*, occurs due to the loss of *Shleshaka Kapha* and symptoms like *shoola* during movement, restricted movement, and so on, are manifested. Even as this is commented on in the *Madhukosha teeka*, it is mentioned that *Amsa shosha* is produced by *dhatukshaya*, that is, *shuddha Vata janya*, and *Apabahuka* is *Vata Kapha janya*.^[3]

Etiopathogenesis

Etiology (*Nidana*)

The causes (*hetu*) of *Apabahuka* may be classified into two groups. (i) *Bahya hetu* — Causing injury to the vital parts of the body (*marma*) or the region surrounding the *amsa sandhi*, which is also known as *bahya abhigataja* that manifests the *vyadhi* or disease first; (ii) *Abhyantara hetu* — Indulging in the etiological factors that aggravate *Vata* leading to the vitiation of *vata* in that region and is also known as *dosha prokopajanya* (*Samsraya*), which in turn leads to *karmahani* of *bahu*. The descriptions of *Nidana* are given below:

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Aharaja

Katu, Tikta, kashaya rasas, laghu sukshma, and sheeta guna cause vitiation of the *Vata*.

Viharaja

The exercises directly or indirectly influencing the shoulder or *amsa desha* should be considered here:

Plavana

Results in *Vata kopa* due to overexertion in the joint.

Bharavahana

Carrying heavy loads over the shoulders will cause *Vata prakopa* and deformity in the joint capsule. This leads to disease formation.

Balawat Vighraha

Wrestling with a person who is more powerful will cause *agahata* to the *amsapradesha* and *Vataparkopa* takes place. This manifests the disease.

Dukkha Shayya

Improper posture that creates a great amount of more pressure on the *amsasandhi* will disturb the muscular integrity, and provokes *vata*. This manifests the disease. Other *viharaja nidanas* as reported in the *Vatavyadhi* context may influence the condition by provoking *Vatadosha*. Even though a specific *bahya hetu* (external cause) has not been mentioned for *Apabahuka*, the general factors reported for *Vata prakopa* have to be analyzed and elicited.

To summarize, the above-mentioned *nidanas*, under *vihara*, especially involving the *amsa sandhi* and *marmabhighata* to *amsa*, lead to the development of *Apabahuka*.

Samprapti

In case of *Apabahuka*, two ways of vitiation of the *vata* can be considered. The etiological factors like *ruksha, laghu* and so on, and *atibharavahana* and the like cause vitiation of the *vata* directly. In another way, *Kapha prakopaka nidanas* like taking of *atisnigdha, atiguru dravya*, and so on cause an increase in the *vikruta Kapha*, which produces the *Kaphavrita-vata* condition. In both ways, the *vikruta vata dosha* gets accumulated in the bio channels (*srotas*) and manifests symptoms like the *stabdha poorna koshata*. In the *prakopa avasta*, the *Vata* produces symptoms like *koshtha toda* and *sancharana* and *prasara avastha* symptoms like *atopa* may also be produced. However, *Ashukaritva* being one among the symptoms of *Vata*, the symptoms produced by it are very quick in onset, and hence, the *dosha kriyakalas* of the *vyadhi* are ill-defined and cannot be observed properly.

Sthana samsraya avastha of the *vyadhi* occurs with the localization of the aggravated *Vata* in the specific *dhatu*, that is, *dosha dushya sammurachana*, which occurs in the specific organ of the body where *kha vaigunya* has previously taken place by the specific part of the *nidanas*, simultaneously with the *dosha vikruti*. *Shiro marma* is considered as the *uttamanga* and is mentioned as the seat or *moola* of all *indriyas*. *Shiro marma* performs all types of *cheshta* in the presence of the normal *vata* because, among the three *doshas*, only the *Vata* is responsible for all types of *cheshta*. The *Charaka samhita* has mentioned that when *shiro marma* gets affected, it produces symptoms like *chestahani*. In this case, the *sthanam samsraya* of the *dosha* can

be taken, as in *siro pradesha*. Usually in the *sthanam samsraya avasta*, the *poorvaroopa* of the *vyadhi* are manifested.

As *Apabahuka* is considered as a *vata vyadhi*, and *Vata* has the *ashukari guna*, the *poorvaroopas* like *bahupraspandita hara* and *shoola* may manifest mildly or are totally absent. However, the above-mentioned symptoms are clearly manifested in the *vyaktha avastha* or in the *roopa avastha* of the *vyadhis* in the *vyakta sthana*, that is, in the *amsa pradesha*. In this stage the *amsa pradesha* gets affected by the aggravated *Vata*, on account of which *Amsashosha* occurs in the initial stage by the decrease of the *Shleshaka Kapha*, which further leads to the manifestation of *Apabahuka*, with symptoms like *bahupraspandita hara* and *shoola*. Therefore, in the *Madhukosha* commentary of *Madhava nidana* it is mentioned that *amsa shosha* and *Apabahuka* are the two stages of the *vyadhi*.

Marma abhighata

Morbid *vyana vata* in another way may cause *abhyantara marmabhighata* or any external trauma to *amsapradesha* may also cause *bahya marmabhighata* to the *amsa marma* present in *amsadesha*. As *amsa marma* is a *snayu* and *vaikalyakara marma*, afflicting *snayu* will manifest *bahupraspanditahara*.

Even in modern medical science, the partial loss of blood supply in the area of insertion of tendons or some idiopathic cause can produce localized degeneration of the collagen. This induces an autoimmune response and cause a tear or distortion of the tendinous sheaths and ligaments. This obliterates the integral stability of the joint and results in restricted movement with painful and stiffened joints.

Chikitsa

The general line of treatment mentioned for *vatavyadhi* in Ayurvedic classics include *Snehana* (both internal and external), *Swedana*, *Mrudusamshodhana*, *Basti*, *sirobasti Nasya*, and so on. Charaka further states that, depending on the location and *dushya* (tissue element vitiated by *Vata*) each patient should be given specific therapies. *Vagbhata* has mentioned *Nasyakarma* in the *jatroordhva Vatavikaras*.^[4] Three major approaches are followed in the management of *vatavyadhi*.

1. Treatment of *Kevala Vata*
2. Treatment of *Samsrusta Vata*
3. Treatment of *Avruta Vata*

Ayurvedic classics explain the *chikitsa* of *Apabahuka* as follows.

1. *Nasya* and *uttarabhaktika Snehapana* are useful in the management of *Apabahuka*.
2. *Astanga Sangraha* mentions *Navana Nasya* and *sneha pana* for *Apabahuka*.
3. *Sushrutacharya* advises *Vatavyadhi chikitsa* for *Apabahuka*, except *siravyadha*.
4. *Chikitsa sara sangraha* advises *Nasya, Uttara bhaktika Snehapana*, and *Sweda* for the treatment of *Apabahuka*.
5. *Brunhana nasya* is indicated in *Apabahuka* by *Vagbhata*.

By considering the above references, the following can be stated as the line of treatment of *Apabahuka*.

1. *Nidana parivarjana*
2. *Abhyanga*
3. *Swedana*
4. *Uttarabhaktika snehapana*
5. *Nasyakarma*
6. *Shamanoushadhi*

Modern description

There are some clinical conditions of modern science, which may be compared with that of *Apabahuka*. These may be categorized as follows:

1. Periarthritis, frozen shoulder or adhesive capsulitis
2. Subacromial or subdeltoid bursitis
3. Subcoracoid bursitis
4. Painful shoulder
5. Bicipital tendinitis
6. Osteoarthritis of shoulder joint
7. Brachial plexus neuropathies

However, in this study, the clinical condition, namely, periarthritis or frozen shoulder or adhesive capsulitis has been taken to correlate with *Apabahuka*.

Periarthritis or frozen shoulder or adhesive capsulitis^[5,6]

This is a descriptive term used to indicate a clinical syndrome wherein the patient has a restricted range of active and passive glenohumeral motion. The Simmonds have reported on the tight inelastic tissues around the shoulder joint. They believed that the pathological changes in frozen shoulder were due to degeneration and focal necrosis of the supraspinous tendon. With revascularization, the tendon pathology could resolve. With inadequate vascular response, the tendons would continue to degenerate, developing tears of varying size, or a secondary biceps tendinitis could develop. In this condition, pain and stiffness of the shoulder joint are the cardinal symptoms leading to inability or loss of function of the affected upper limb. This may be achieved in three phases.

1. Painful phase
2. Stiffening phase
3. Thawn / Resolving phase

The patient gives a history of having noticed a slight painful catch in the region of the shoulder and upper arm for several months, gradually becoming aware of the inability to perform certain tasks, because of stiffness of the arm. Night pain, often awakening him after he has fallen asleep, is a common complaint. Frequently it radiates down the arm to the hand without being localized to any nerve distribution. Stiffness of the shoulder increases until all movements are lost.

In Ayurveda, therapies like *abhyanga*, *swedana*, *snehapana nasya karma*, *vasti karma*, and *shamana Aushadhi* are mentioned to combat the *Vata vyadhi*. In the present study *nasyakarma* with *Laghumasha taila*, in the form of *Marsha nasya* have been advised for patients suffering from *Apabahuka*. *Laghumasha taila* contains drugs like *Kapikacchu*, *Bala*, *Shatavari*, *Sita*, *Punarnava*, *Saindhava*, *Jingini*, *Sarshapa taila*, and *Masha*.^[7]

Aims and Objectives

1. To study the effect of *Laghumasha taila Marsha nasya* in *Apabahuka*.
2. To study the literature of the disease in view of Ayurveda and Modern medical science.

Materials and Methods

Source of data

Patients of either sex diagnosed with *Apabahuka* from the OPD and IPD of the ALN Rao Memorial Ayurvedic Medical College and Hospital, Koppa, were selected for the study. Out of the 18 patients, three patients were dropped in the initial stages of the study and 15 patients completed the course of treatment.

Criteria for selection of the patients

The patients presenting with the signs and symptoms of *Apabahuka* according to Ayurvedic texts were selected for the study. Patients of both sexes in the age group of 20 – 60 years were selected. The main criteria for diagnosis was the presence of clinical symptoms of *Apabahuka*, that is, *Bahupraspandita hara* and *shoola*. The symptoms of *Srotodushti* were also assessed along with the main symptoms for the selection of the patients.

Inclusion criteria

1. *Apabahuka* diagnosed according to the classical signs and symptoms described in Ayurveda.
2. Patients of both sexes within the age group of 20 – 60 years.

Exclusion criteria

1. Systemic diseases presented with *Apabahuka* as a complication
2. Patients with a history of fracture of the affected hand
3. Pregnancy and lactating women

Laboratory investigations

The modern laboratory investigations included for the clinical study are Blood for Hemoglobin %, Total count, Differential count, Erythrocyte sedimentation rate, Random blood sugar as routine investigations; Urine for sugar, albumin, and microscopic test; and X-Ray Shoulder joint — Anterior-posterior, lateral view — to rule out the history of fracture.

Study design

A randomized standard single blind clinical study has been adopted.

Treatment schedule

After diagnosis, the randomly selected patients were treated with *Marsha nasya* with *Laghumasha taila* in doses of 6, 8, or 10 drops, as required by the patients, for seven days. Out of the 18 selected patients, three patients were dropped from the study and the remaining 15 patients completed the course of the study.

Pratimarsha / Marsha nasya

When the *nasya dravya* is used in the minimum quantity (two *bindus*), it is called *Pratimarsha*. Usually the *sneha dravyas* are used. This is different from *marsha nasya* where in the quantity used will be 6, 8, or 12 *bindus*.

Method of Nasya Karma

Nasya Karma can be explained in the following three headings as reported in the classics.

Poorva Karma

This encompasses the following points like *Oushadhi sangraha*, *Nasya yantra*, *Atura vaya*, *Kala*, *Atura siddhata*, and

so on. The patient is instructed not to suppress the natural urges and go through the normal routine. Before taking the *Nasya Karma* he should not have any food. Subsequently, the patient is taken to a comfortable room, which is without dust, extreme breeze or sunlight. *Bahyasnehana* in the form of *mrudu Abhyanga* is performed to the *shiras* first and then over the *gala*, *kapola*, *lalata*, and *karna*. After *snehana*, a mild *swedana* is performed to the part of the body above the shoulders. The eyes of the patient should be taken care of by closing them with a band of cloth.

Pradhana Karma

Once the *poorva karma* is completed, the patient is made to lie down on the table in the supine position with legs slightly raised. Eyes should be covered with a cloth. With the help of tepid medicine, *panitapa sweda* is performed over the parts of the body above the shoulder, excluding the patient’s eyes. The head of the patient is then highly raised and medicine is poured in each nostril one after the other. The other nostril should be closed while administering the medicine in one nostril. The medicine should be slowly instilled in an uninterrupted manner called ‘*Avicchinna dhara*’. The patient is advised to inhale the medicine slowly and forcefully. The same procedure is repeated in both the nostrils. Care should be taken not to shake the head during the procedure. *Tapasweda* can be repeated conveniently.

After administration of the medicine, the patient is strictly advised not to swallow the medicine, but to spit it out. The spitting can be done after the smell and taste of the medicine disappears from the throat. Next, the patient is allowed to relax in the same posture for 100 *matra kalas* (30 – 32 seconds), without going to sleep.

Paschat karma

Pradhana karma is followed by *dhoomapana*, *gandoosha*, and *kavala graha*. The patient is advised to follow certain rules and regimen.

Criteria for assessment of the study

The improvements in the patients were assessed on the basis of relief in the signs and symptoms of the disease. To analyze the efficacy of the drug, scores were given for each symptom. According to the severity of the symptoms, the grading was given, as mentioned herewith:

Scoring pattern

Main symptoms:

<i>Bahuprasandita hara</i>	Score
Can do work without being affected	0
Can do strenuous work with difficulty	1
Can do daily routine work with great difficulty	2
Cannot do any work	3

<i>Shoola</i>	Score
No pain at all	0
Mild pain, can do strenuous work with difficulty	1
Moderate pain, can do normal work with support	2
Severe pain, unable to do any work at all	3

Associated complaints

Stambha (stiffness)	
No stiffness	0
Mild, has difficulty in moving the joints without support	1
Moderate, has difficulty in moving, can lift only with support	2
Severe, unable to lift	3
Atopa	
No <i>atopa</i>	0
Palpable <i>atopa</i>	1
Audible from a little distance	2
Amsha shosha (Wasting of muscles)	
No wasting	0
Mild wasting, can do work	1
Moderate wasting, works with difficulty	2
Severe wasting, cannot move	3
Sroto dushti	
No symptoms	0
Presence of only one symptom	1
Presence of two symptoms	2
Presence of more than two symptoms	3

The improvement is documented through statistical significance. The subjective and objective parameters are assessed by means of interrogation and by ascertaining the signs and symptoms before and after the treatment. The response of the drug is assessed weekly through interrogation, signs, and symptoms.

Statistical analysis

For assessing the improvement of symptomatic relief and to analyze it statistically, the observations were recorded before and after the treatment. The mean, percentage, SD, SE, and t-value (paired t-test) were calculated from the observations recorded.

Criteria for assessment of the overall therapy

Complete relief

One hundred percent relief in the complaints of patients, along with elevation of shoulder joint up to 180° and flexion and abduction of the joint up to 90°.

Marked improvement

More than 75% relief in the complaints as well as significant improvement in the elevation of joint up to 135°, and flexion and abduction up to 60°.

Moderate improvement

More than 50% relief in the complaints along with improvements in elevation of joint up to 90° and flexion and abduction of joints up to 30°.

Improvement

Twenty-five to fifty percent relief in the complaints.

Unchanged

Patients with less than 25% relief in their complaints were regarded as unchanged.

Observations

The observations made of the 18 patients with *Apabahuka* were as follows:

Maximum number of patients were obtained in the age group of 31 – 40 years, that is, 33.33%, followed by 26.66% patients in the age group of 41 – 50 years, and 20% patients in the age groups of 51 – 60 years and 20 – 30 years each. Most of the patients were male (60%). Most of the patients, that is, 47%, were from the Hindu community, followed by 29% from the Muslim community, and 24% from the Christian community. Most of the patients (38%) were laborers, followed by housewives (25%); the maximum number of patients (40%) were from the lower socioeconomic status group; maximum number of patients (58%) were nonvegetarian, followed by 42% who were vegetarian.

Results

The drug *Laghumasha taila Nasya* provided a moderately significant effect ($P < 0.01$) on the symptom *Bahupraspandita hara* (53.33%) and a mildly significant effect ($P < 0.05$) on *Shoola* (26.66%) [Table 1]. On *atopa* the therapy showed 60% relief, followed by 37.5% relief on wasting of muscles, and 30% relief on *stambha* [Table 2]. The therapy was mildly significant on both *Asthivaha* and *Majjavaha Srotodushti* ($P < 0.05$) and moderately significant on *Medovaha srotodushti* ($P < 0.02$) [Table 3]. Most of the patients, that is, 53.33% were moderately improved, followed by 26.66% improved, and 6.60% were markedly improved after completion of the therapy [Table 4].

Discussion

The present drug formulation *Laghumasha taila* contains drugs

like *Kapikacchu*, *Bala*, *Shatavari*, *Sita*, *Punarnava*, *Saindhava*, *Jingini*, *Sarshapa taila*, and *Masha*.

Mode of action

Laghu masha taila

Kapikacchu (*Mucuna prurita* Hook): Different varieties are available, with their potent action as *vata hara* and qualities such as, *snidha*, *madhura*, and *ushna*. *Dravya* is well known for its anti-parkinsonism effect (*Kampavata hara*) as it contains dopamine, and its seeds are rich in protein (Kerala or Tamilnadu germplasm), hence, it is utilized internally as a *taila*, which tones the muscle and acts as a nervine tonic, which is the most important requirement in *Apabahuka*.

Bala (*Sida cordifolia* Linn): It is generally considered as a nervine stimulant or nervine tonic. A better term can be given as a nervine stimulant. The term 'Bala' is applied because of its *balya* property of *moola*. In the *Laghu masha taila*, this serves the purpose of generating sufficient energy to the muscle tissue, and also by its effective supporting factors such as *madhura rasa* and *madhura vipaka* as a *vata hara*.

Shatavari (*Asparagus racemosus* Willd): This fasciculated tuberous root is utilized in different ailments, as it has the *vata hara* property. The absorption level of this drug through the *taila* during *nasya karma* is found to be excellent.

Sita Serves the function of enhancing the energy of the other *dravyas* and nourishes the *mastishka*.

Punarnava (*Boerhavia diffusa* Linn): 'Dhatu punarnavatwam,' a drug that brings new tissues in the body, helps in preventing the degeneration of tissues. In other words, it achieves the regeneration of *sapta dhatus* with its specific activities on muscle tissues.

Saindhava During *nasya*, the *taila* used has a fixed oil base.

Table 1: Effect of the therapy on main symptoms in 15 patients with *Apabahuka*

Main symptoms	Mean score		% of relief	't'	P value
	BT	AT			
<i>Bahupraspandita hara</i>	1.27	0.66	53.33	3.68	< 0.01
<i>Shoola</i>	1.20	0.94	26.66	2.25	< 0.05

Table 2: Effect of the therapy on associated symptoms of *Apabahuka* in 15 patients

Associated symptoms	Mean score		% of relief	't'	P value
	BT	AT			
<i>Stambha</i>	1.40	1.00	30.00	1.80	> 0.50
<i>Atopa</i>	1.60	1.00	60.00	2.44	> 0.50
<i>Amsha shosha</i> (Wasting of muscles)	1.38	1.00	37.50	2.05	> 0.50

Table 3: Effect of the therapy on *srotodushti* in 15 patients of *Apabahuka*

Srotas	Mean score		% of relief	't'	P-value
	BT	AT			
<i>Mamsa</i>	1.33	0.83	50.00	2.23	> 0.50
<i>Meda</i>	1.40	0.60	80.00	4.00	< 0.02
<i>Asthi</i>	1.46	1.13	33.33	2.62	< 0.05
<i>Majja</i>	1.40	1.00	33.33	2.44	< 0.05

Table 4: Overall effect of the therapy

Results	No. of Patients	%
Complete relief	0	0
Marked improvement	1	6.60
Moderate improvement	8	53.33
Improved	4	26.66
Unchanged	2	13.33

Therefore, the ideology of formulating the *taila* for its easiest absorption in the procedure of *Nasya karma* has been balanced by the addition of *Saindhava lavana*. *Saindhava lavana* has the potent action of facilitating easy absorption of the *taila* through its effective properties.

Jingini (*Odina wodier*): By its *madhura rasa* and *ushna virya* acts as *vata hara*, but *katu vipaka* helps in the easy digestion of the *taila* through the *nasya karma*.

Sarshapa taila (*Brassica comprestis* Linn): Acts as a base for the *dravyas* of the *Laghu masha taila*, and is helpful through its easy absorption activity due to the *teekshna*, *katu*, and *ushna* properties.

Masha kwatha (*Phaseolus mungo* Linn): A potent *dhatu vardhana dravya*, is supportive as a *vata hara* with its dominant *madhura rasa* and *ushnadi gunas*.

By observing the above-mentioned ingredients and their actions, it is evident that *Kapikacchu*, *Bala*, *Shatavari*, and *Masha* are the main ingredients which give the *balya brumhana* effects. *Sita* in a combination that acts as an energy enhancer by virtue of its *madhuratwa* (glucose). *Punarnava* with its *shotha hara* and *Rasayana karmas* rejuvenates the brain functions, and *Saindhava lavana* acts a *Kapha vilayana kari* and *sroto mukha vishodhana*.

The *Katu taila* is the main base ingredient for the other drugs (oil soluble). *Katu taila* is a *yoga vahi* and carries all essential ingredients into the system by virtue of its *teekshna*, *sukshma*, and *ashukari guna*.

Mode of action of the *Nasya karma*

Nasya karma is one of the therapeutic procedures of the *pancha karma*, wherein the drug is administered through the nasal route. This is one of the *pancha karma* procedures that not only alleviates the vitiated *doshas*, but also causes complete eradication of the vitiated *dosha* and the disease. The same is applicable to the *nasya karma* also. The *Nasya karma* especially exerts its effects on the *urdhvajatrugata pradesha*. Acharya Vagbhata has stated that, the '*Nasa hi shirasodwaram*,' that is, the nose, is the easiest and closest opening for conveying the potency of medicines to the cranial cavity. He is the first person to narrate the mode of action of drugs by *Nasya karma*. The drugs administered will reach the *Shringataka marma* and spread through the opening of the *shiras* of the eyes, ears, throat, and so on, to the head.

Acharya Sushruta opines that the *Shringataka marma*, is a *sira marma*, situated at the site of the union of the *siras*, supplying to the nose, ear, eye, and tongue. Acharya Charaka, while explaining the indication for *nasya* in *siddhithana*, has

emphasized that the *nasya* drug usually acts through absorption by the *Shringataka marma*. After absorption of the drug, it acts on the diseases of *Skanda*, *Amsa*, and *Greeva* and the *doshas* are expelled from the *shira pradesha*.

The absorption of the drugs is carried out in three media. They are;

1. By general blood circulation, after absorption through the mucous membrane
2. By direct pooling into the venous sinuses of the brain via the inferior ophthalmic veins
3. By direct absorption into the cerebrospinal fluid

Apart from the small emissary veins entering the cavernous sinuses of the brain, a pair of venous branches emerging from the *alae nasi* will drain into the facial vein. These ophthalmic veins on the other hand also drain into the cavernous sinuses of the meninges, and in addition, neither the facial vein nor the ophthalmic veins have any valves. Therefore, there are more chances of the blood draining from the facial vein into the cavernous sinus in the lowered head position.

The nasal cavity directly opens into the frontal, maxillary, and sphenoidal air sinuses. The epithelial layer is also continuous throughout the length. The momentary retention of the drug in the nasopharynx and the suction, causes oozing of the drug material into the air sinuses. These sites have rich blood vessels entering the brain and meninges through the existing foramina in the bones. Therefore, there are better chances of drug transportation via this path. The *shringataka marma* has been explained by recent authors as the middle cephalic fossa of the skull consisting of paranasal sinuses, meningeal vessels, and nerves. One can see the truth of the narration made by Vagbhata here — the drug administered enters the paranasal sinuses,^[7] that is, the *Shringataka*, where the ophthalmic vein and the other veins spread out. The sphenoidal sinuses are in close relation with the intracranial structures. Thus, there may be a so far undetected root between the air sinuses and the cavernous sinuses, establishing the transudation of fluids as a whole. The mentioning of the *Shringataka* in this context seems to be more reasonable.

As the procedure of *nasya* itself involves massaging and fomenting over maybe the *marmas* existing on the face and head, this also helps in the alleviation of *marmaksobha* and *vatashamana*.

The action of *nasya karma* depends upon the *dravya* used in it. Based on these, it is divided into *shodhana*, *shamana*, and *Brumhana*. In case of the *shamana nasya*, it alleviates the *dosha* and helps in reducing the *kshobha* of the *marma* and *indriya* caused by the vitiated *dosha*. *Brihmana nasya* provides nourishment to the *shiroindriya* and other organs and alleviates the vitiated *Vata*. Hence, it is useful in *vatajanya* ailments.

The following paragraph explains why Ayurveda has mentioned medicated *sneha dravya* (*siddha sneha*) in a majority of the *nasya karmas*. The nose is a highly vascular structure and its mucous membrane provides a good absorbing surface. Hence, *siddha sneha*, on their administration, spread along the nasal mucous membrane. An active principle along with *sneha* gets absorbed inside the olfactory and respiratory mucosa and from there is carried to different places. *Sneha* provides nourishment to the nasal structures and other organs of the head also. The networks of nasal blood and lymph vessels have many

communications with those of the subdural and subarachnoid spaces. This fact is one of the important factors contributing to the extension of the mentioned drugs from the nose into the cranial cavity.

The myelin sheath is the first covering of the nerve fiber. Neurolemma being the second. The myelin sheath is composed of lipid material. The blood–brain barrier is highly permeable for lipid substances and substances that are fat-soluble. Therefore, these substances can pass easily through the blood–brain barrier and can exert their actions. Certain lipids are used for providing energy to the nervous tissue. The lipid contents of the '*Laghumasha taila*' may pass through the blood–brain barrier easily due to their transport. Some of the active principles may reach certain levels in the nervous system where they can exert their *vataghna* property. *Laghumasha taila* provides nourishment to the nervous system and helps in removing the irritation. It may act as an anti-inflammatory agent also. On its nasal administration, it reaches different *shirogata indriya* and causes *vatashamana* and *Brumhana*.

To conclude, *nasya karma* helps in *Apabahuka* by its *vatashmana* and *Brumhana karma*. In other words, the *Laghumasha taila* acts as an anti-inflammatory nutritive and provides nourishment to the nerves.

Conclusion

The following conclusions can be drawn from the observations of the present study:

1. Strenuous physical work and direct injury are the predisposing factors in the manifestation of the disease *Apabahuka*
2. Maximum incidence of this disease was seen in the age group of 30–40 years
3. *Laghumasha taila* having a *Brimhana* effect, when used as *Marsha nasya*, brought out a moderate significant result in *Bahuprasandita hara* and a mild significant relief in *Shoola*
4. The size of the sample was small to draw a generalized conclusion. Therefore, the therapy can be tried in a large sample for an appropriate duration, to observe its proper efficacy.

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