

Review Article

## **Synergistic Effect of *Trayodashanga Guggulu* and *Yoga Basti* in the Management of Low Back Pain with Special Reference to *Gridhrasi***

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### **ABSTRACT**

The back is a complex structure serving various functions like weight bearing and locomotor functions including walking to standing. It serves as major supporter of body structures and transmits loading force to the lower limbs through the sacroiliac joints having its fundamental functioning unit as an articular triad composed of two zygapophyseal joints which are located posteriorly and intervertebral disc located anteriorly.

In the present day to-day life, due to its anatomic lordotic curvature, busy professional and social life, improper sitting posture in working places, continuous and over exertion, over-straining during travelling by automobile vehicles and sports activities creates undue pressure over the spine, which ultimately puts pressure over lumbosacral area.

*Gridhrasi* is a *shula pradhana vatavyadhi* where *vedana* or pain is the predominant feature. The gait of the patient also changes as it produces intense pain interfering with the functional capability of low back region and lower limbs of the body.

In the management of *Gridhrasi*, the utility of *Basti* as *chikitsa* is explained well by different *acharyas*. *Basti* including both *nirooha* and *anuvasana* have peculiar properties and mode of action for the alleviation of aggravated *vata*. Hence *Yoga Basti* will help to manage the disease as *Gridhrasi* is *vata* predominant *vyadhi* in an effective manner.

**Key words** - *Gridhrasi*, lumbar spine, Lumbar radiculopathy, *Yoga basti*.

### **INTRODUCTION**

Back pain is one of the most common which occurs in world wide. Back pain mostly caused due to the lordotic curvature which is normally seen in the cervical and lumbar spine. It is aggravated due to sedentary life style, straining in the work place. [1,10]

Day by day the incidence of low back pain is increasing. It affects millions of people world-wide. There are several treatment options available for low back pain. Although no single therapy meets the demand of the patient, has been most effective. It is seen in clinical practice that

80% of people experience at least 1-2 episodes of back pain in their life time. With prevalence ranging from 15% -70% of patients with a single episode of low back pain recover within one month. Remaining 30% recover within 3-4 months. Only 10% of the population will have severity and they seek medical treatment. [2]

In *Ayurveda* the low back pain is termed as *katishulam*, *katigraham*, *gridhrasi* in different contexts according to the structures involved. *Vata dosha* is found as a main *dosha* in producing low back pain. Hence more than 90% of cases suffer from degeneration due to *vata*. [3]

Two different treatment modalities are applied in the treatment of low back pain namely *shodana* and *shamana*. In *shodana chikitsa*, *basti* is given more importance because it directly pacifies the aggravated *vata*, which is the primary reason for low back pain. *Shamana chikitsa* are also advocated along with *shodana chikitsa*. Usually *guggulu* preparations are taken into consideration for the acute management of pain due to its pain alleviating property. <sup>[4]</sup>

#### **AIMS AND OBJECTIVES:**

Aim of the study is to establish the synergistic effect of *trayodasanga guggulu* and *yoga basti* in the management of *gridhrasi* with special reference to low back pain. To show the synergistic effect of the above mentioned drugs and procedures, the mode of action of the drugs are clearly described with reference to *Ayurvedic* classics.

To analyse and establish logically, whether there would be a significant difference when the *shodhana* and *shamana kriya* applied separately and both the procedures applied simultaneously for the alleviation of low back pain.

#### **MATERIALS AND METHODS**

This article is conceptual, all the available references from *Ayurvedic* literatures that have been collected and compiled and some references are taken from the corresponding websites. This article is compared with the effectiveness of *trayodasanga guggulu* and *yoga basti* in the management of lumbago.

To conclude the study all available *Ayurvedic* references are taken into consideration and a humble attempt has been made to draw conclusion. The following materials are taken

- *Yoga basti* (*madhu, saindava lavana, sneha, kalka and kwatha*) <sup>[13]</sup>
- *Trayodasanga Guggulu* (*oral 750-1500 gm in divided doses daily*)
- *Dasamoola kashaya* (*kwatha dravya for kashaya basti*)
- *Dhanwantara taila* (*for anuvasana basti*)

#### **YOGA BASTI:**

It is a total of eight *bastis* are given as follows

I day – *anuvasana basti* (*with dhanwantara taila madhyama paka*)

II, IV and VI Day – *niruha basti* (*dashamula kashaya, eranda taila, madhu, saindhava lavana, kalka dravya*)

III, V, VII and VIII day – *anuvasana basti*

Thus in *Yoga basti* three *niruha bastis* and five *anuvasana bastis* are given for a period of eight days. According to *Charakacharya*, *Yoga basti* is half of *Kaala basti* i.e. eight *bastis* are given <sup>[6]</sup>

#### **BODY OF THE TOPIC:**

*Basti* is one among five procedures of *Panchakarma*. *Panchavidha shodana karmas* are explained in *Ayurveda* which are also known as *Panchakarma* that includes, *vamana, virechana, anuvasana basti, asthapana basti* and *nasya*. Here *basti* because of its unique effects and benefits is considered as king of treatments. As it has a complex mode of action it is unique. Its mode of action has been explained very clearly in our texts along with many similarities which make it easier to understand. This article deals with the mode of action of *vasti* based on our *Samhithas* and modern science.

*Basti* expresses itself in terms of *veerya* and *prabhava*. Among *tridoshas vata* is considered to be important as it has the capacity to move itself and also to move other *doshas*. Hence it is the main reason for any diseases related to *Sakha gata, koshta gata, marma, urdhwa and sarvanga gata rogas*. *Basti* Since it is the primary treatment for *vata*, it is considered as *chikitsardha*. The mode of action of *basti* travels from *nabhi, kati, parshwa, kukshi* and removes *doshasangata* of that part and eliminates the *purisha* along with the vitiated *doshas*. In the presence of all these symptoms it is known as *samyak krita vasti*. Hence *guda, nabhi, kati, parshwa, kukshi* and *basti* are the organs in close relation with *basti*. <sup>[7,8]</sup>

The mode of action of *basti* depends upon its ingredients. The main ingredients

of *basti* are, *saindhavam*, *maksheekam*, *sneham*, *kalkam*, *kwatham* and *avapam*

**SAINDHAVAM:**

*Saindhavam* due to its *sukshma guna*, reaches the micro-channels of body. Due to the presence of *tikshna guna* it breaks down the *malasanchaya* and *doshasanga* and due to its *snigdha guna* it liquefies the *doshas*.

**MADHU:**

It forms homogenous mixture with the *saindhava lavanam* which becomes easy to be absorbed by the body.

**SNEHAM:**

Its *snigdha guna* helps eliminating the *dosha* and *mala*. *Sneha guna* helps raising the permeability of cell membrane for the elimination of *dosha* and *mala*. It also protects the mucosa of organs from getting irritated by irritant drugs of *vasti*.

**KALKA, KWATHA AND AVAPA:**

It has the function of *utkleshanam* and *doshaharanam*. It does the *vigatana* of *samprapti* and *rogas*.<sup>[9]</sup>

Based on the X-ray study revelation, it is been found that the *Asthanapana basti* reaches upto illeocaecal junction. Hence *niruha basti* reaches throughout the parts of large intestine. So thus, the given *basti* reaches *nabhi*, *kati pradasha* and *parshwa sthana* after which due to the *virya* of *basti*, *dosha-malasanachayam* is broken. Then this *virya* is passed on to *kapha* and *pitta dosha sthana* and brings the body to its normal healthy state.<sup>[6]</sup>

**TRAYODASANGA GUGGULU:**

*Trayodashanga guggulu* is a very famous medicine in clinical practice for low back pain. It is available in the form of tablet. *Trayodashanga guggulu* contains *guggulu* (*Commiphora mukul*) as its base. It is been used widely in *Ayurvedic* clinical practice for joint and bone related disorders. Apart from *guggulu* it contains 13 other ingredients. So its nomenclature is *trayodashanga guggulu* (as it contains 13 ingredients). It is mainly advocated in the treatment of lumbago, lumbar spondylolisthesis, lock jaw, knee joint pain and in all varieties of arthritis. Some clinical

practitioners also use in lordosis, spondylosis of lumbar and cervical origin, degenerative and inflammatory arthritis, musculo-skeletal disorders. Its effects are seen particularly on *vata dosha*, which is the primary cause of joint and bone related disorders, as *asthi* (bone) is the seat of *vayu*.<sup>[11]</sup>

It is administered along with gruel, warm water, alcohol, milk of meat soup on the basis of *dosha* which is dominant in that disorder.

**ADVERSE DRUG REACTION:**

As it does not have known side effects but sometimes it causes gastric irritation when it is very effective when the patient presents with complaints of weakness and pain of musculo-skeletal origin.

**MEDICINAL PROPERTIES OF TRAYODASANGA GUGGULU:**

It is used for following medicinal properties

- Anti-inflammatory
- Anti-arthritis
- Carminative
- Anti-gout
- Analgesic
- Muscle-relaxant
- Anti-oxidant
- Adaptogenic

**Dosage:**

The dosage of *trayodashanga guggulu* varies from 750mg to 1.5 grams

**DASAMOOOLA KWATHAM:**

In all sorts of low back pains, the *Dashamoola Kashaya* (decoction of 10 herbal roots) administered along with *Eranda Tailam* can be used.

**ERANDA TAILA-**

Latin name: *Ricinus communis* Linn.

*Rasa: Madhura, kashaya, katu*

*Guna: guru, snigdha, tikshna, sukshma*

*Virya: Ushma*

*Vipaka: madhura*

*Doshagnata: Vatakaphaghna*

*Karma: deepana, vrishya, shoolaghna, sothaghna, adbhagadoshahara.*

*Rogagnata: vatarakta, gulma, hridroga, gridhrasi, pakshaghata, jeerna jwara.*

### **Chemical composition:**

Castor oil consists of the glycerides of ricinoleic, isoricinoleic and di-hydroxy stearic acids. (Wallis 1967)

### **Action and Uses:**

Root and bark are used for purgation in nervous disorders, rheumatic disorders such as low back pain. (Pharmacognosy-CCRAS) Banarjee et al (1978) have also reported that apart from its purgative action, the plant possesses efficiency in treating chronic rheumatic diseases. After administration through oral route, it is converted into ricinoleic acid by pancreatic lipase, which acts as bowel irritant, stimulates the glands of intestine and muscular coat causing purgation. Its action begins within 4 to 5 hrs producing liquid stools without gripping pain.

Use of *Eranda taila* in *Vata* disorders especially *Gridhrasi*, *Katishula*, *Pristhashoola*, *Sandhishula* is well explained by the *Acharyas*. With its *snigdha*, *guru* and *ushna guna*, *eranda taila* pacifies *vata* aggravation. Due to the presence of *Tikshna*, *Sukshma guna*, *Katu rasa* and *Ushna virya* it alleviates *Kapha dosha*. When *Vata* is vitiated due to *Kapha avarana*, *Eranda taila* is useful as it has both the functions of removing the *avarana* and pacifying *Vata*. *Eranda taila* takes out the *Tridoshas* as well as *Malas* which are accumulated in *Pakvashaya* by *Sramsana karma*. *Eranda taila* has both *Snigdha* and *Ushna* *guna* and thus has the action of *Pachana* and *Snehana*. It is seen that most of the substances which perform the *Pachana karma* are not *Snigdha* but *Eranda taila* is been used for both *Virechana* and *Amapachna karma*.<sup>[7]</sup>

### **DHANWANTARA TAILA:**

Dhanwantharam Thailam (Oil) is medicated oil prepared for *Vatavyadhis* in *Ayurveda*. It is used both internally (through oral route) and externally for the purpose of massage. Both its intake through oral route and application externally are beneficial in the treatment of paralysis, monoplegia, hemiplegia, diplegia, quadriplegia, and wasting due to disuse or lower motor neuron

origin. It helps in strengthening of muscle fibres, ligaments, tendons, and other tissues of the body. It also serves as nervine and neuroprotective, which plays a crucial role in the process of neuro-protection and promoting the natural functions of the nervous system. It also provides support to the musculoskeletal system, hence helpful in the pain related disorders like arthritis, degenerative arthritis, knee pain, synovitis, low-back pain, and spondylosis. Its results are more significant on the regions of pain and numbness because of the use of sesame oil as its base, which is *vata shamaka* by nature. It is also found helpful in treating disorders of puerperium, children, urinary tract, uterus, herniation, and hydrocele.<sup>[12]</sup>

## **DISCUSSION**

### **PROBABLE MODE OF ACTION OF BASTI:**

#### **Classical Explanation:**

- *Basti* is the best treatment for *Vāta Dōṣa* as said by Ācārya Caraka – ‘*Bastih Vātaharānām*’. It is the best amongst *Pañcakarma* because it controls the *Vāta*. *Vāta* is the chief in three *Dōṣās* and it is the controller of *Pitta* and *Kapha*.<sup>[5]</sup>
- *Basti* enters the *Pakvāśaya* which is the main *Sthāna* of *Vāta Dōṣa* and which is the originator of all *Vikārās*. By subsiding the *Vāta*, all *Vikārās* located in the other parts of the body also become allayed just as by the eradication of the roots of a plant; the stem, branches, sprouts, fruits, leaves etc. also vanish.<sup>[5]</sup>

#### **MEDICATED ENEMA:**

Medicated enema is used for bowl cleaning.

#### **WATER BASED SOLUTIONS:**

Plain water can be used, simply functioning mechanically to expand the colon thus prompting evacuation. It also have a neutral concentration gradient, it neither draws electrolytes from the body, as happens with plain water, nor draws water into the colon, as occur with other enema. Salt water solution can be used when a longer period of retention of medicated

enema is desired, such as it helps to soften an impaction. Enema comes from inject. The first enema was mentioned in the medical literature by an Egyptian Ebers Papyrus in 1550 BC.

#### MODERN VIEW:

The enteric nervous system is one of the main divisions of the nervous system and consists of a mesh like system of neurons that governs the function of the GIT system. During the embryonic development, the enteric nervous system is formed from the same chunk of tissues from which the central nervous system is formed. The tissue is called as neural crest. The fact that these two system share the same origin make it less surprising to find that they contain some of the same types of cells, neurotransmitters, brain proteins and one affects the other it is now usually referred to as separate from the autonomic nervous system since it has its own independent reflex activity. Enteric nervous system consists of some 500 million neurons so called as second brain. The enteric nervous system is embedded in the lining of GIT system beginning in the oesophagus and extending down to the anus. The neurons of enteric nervous system are collected under two types of ganglia.

- Myenteric (Auerbach's plexus)
- Submucosal (Meissner's plexus)

The enteric nervous system is capable of autonomic functions such as the co-ordination of reflexes. Although it receives considerable innervations from the autonomic nervous system, so it can do and operate independently on brain and spinal cord. It possesses neurotransmitters and proteins that zap message between neurons.

- Major neurotransmitters like serotonin, dopamine glutamate, norepinephrine and nitric oxide are found in the gut.
- Also two dozen small brain proteins called neuropeptides are there along with major cells of immune system.
- The brain send signal to the gut by talking to a small number of command neurons which in turn sends signals to the gut interneuron.

- Both command neurons and inter neurons are spread throughout the two layers of the gut.
- Enteric nervous system works in synergism with the central nervous system
- Stimulation of *basti* either by chemo or mechano-receptors may lead to activation of concerned part of central nervous system which precipitates result accordingly.
- Again it is mandatory for a drug to stay in long time contact to the receptor e.g. Like in proton pump inhibitor where drug interacts and flush out from circulation it is known as HIT and RUN MODULE of pharmacodynamics.
- The rectum acts as a temporary storage site for feces. As the rectal walls expand due to the materials filling it from within, stretch receptors from the nervous system located in the rectal walls stimulate the desire to defecate. If the urge is not acted upon, the material in the rectum is often returned to the colon where more water is absorbed from the feces.
- Drugs are absorbed rectally in aqueous solution form which is faster than oral absorption and more over the absorbed drug directly enters into systemic circulation, thus avoiding hepatic intervention. However the site of drug absorption is very important here. The drugs absorbed in upper part of rectum enter portal circulation where as the drugs absorbed in lower parts of rectum enter general circulation. [14]

#### MECHANISM OF ACTION:

The mechanism of action of *Trayodashanga Guggulu* follows.

- It increases the energy content because of its mitochondrial health upgradation.
- It stimulates the growth of bone forming cells by producing more osteoclasts and osteoblasts.
- It inhibits the pro-inflammatory cytokines, activity of xanthine oxidase, hydrogen peroxide and renal microsomal lipid peroxidation process

- Blocks the action of histamine, enhances the level of dopamine, decreases the resistance of HIV virus, scavenges the free radicals
- As it has flavonol constituents it has anticlastogenic effects
- As it has potassium salts it produces diuretic effect

In *trayodasanga guggulu* the constituents like *shatavari*, *ashwagandha* and *guduchi* have rejuvenating properties that provides strength to tissues. *Shunti* and *Ajamoda* helps improving the digestive fire and *Babbul* has its action on *Asthidhatwagni*. Ghee with its *Yogavahi* property helps in absorbing and penetrating the drug. *Ajwain* and *Shatapushpa* does *deepana*, *pachana*, *vatanulomana*, *vedanasthapana* and *vatahamana* in the body. [11]

#### PROPERTIES:

- *Guru, snigdha guna*
- *Madhura rasa*
- *Madhura vipaka*
- *Ushna virya*

#### DHANWANTARAM TAILA:

*Dhanwantharam taila* pacifies *Vataprakopa* acting as a nerve tonic, analgesic, neuro-protective, anti-arthritis, anti-inflammatory and Anti-paralytic. Its intake through oral route helps treating a wide range of nerve related disorders and disorders of the musculoskeletal system. Its administration through oral route acts on improving the functions of nerves, bones, ligaments, tendons, joints, muscles and connective tissues.

Application of *dhanwantara taila* externally, provides relief of pain, numbness, and swelling. It helps in providing strength to the muscles and joints. [12]

#### Ayurvedic Properties:

DOSHA KARMA (Effect on Humors)	Pacifies mainly VATA DOSHA
Dhatu (Tissue) Effect	MAMSA, ASTHI
Organs Effect	Nerves, Muscles, Bones, Joints, Ligaments, Tendons & Connective Tissues
Main Indication	Vata Disorders

#### DASAMOOLA KWATHA:

##### BENEFITS:

Ingredients of *Dasamula Kwatha* pacifies *Kapha* and *Vata*, but may lead to the aggravation of *Pitta Dosha*. [6]

DOSHA KARMA (Effect on Humors)	Pacifies KAPHA DOSHA & VATA DOSHA and likely to increase PITTA DOSHA
Organs Effect	Mainly Lungs, and then Stomach, Intestine, Nerves, Muscles, Bones & Joints
Main Indication	Tridosha hara mainly vata shamaka

This combination is found highly efficient in the treatment of:

- *Kati Shula / Kati Graha* – lumbago / Stiffness in the low lumbo-sacral region / Spondylolisthesis /pain in the Sacro-iliac region / strain in the low back region
- *Trika Shula* – Pain in sacral region / Coccydynia (tail bone pain)
- *Gridhrasi* – Sciatica / leg pain / Inter-vertebral disc prolapsed (IVDP)
- *Spik shula* – Buttock pain / Piriformis syndrome
- *Janu shula* – Mild to moderate inflammatory and degenerative pain (arthritis) of knee joint

- *Vidbandha (Malabaddhata)* – Constipation

#### RESULT

By referring all the available classical texts it is found that when *shodhana* and *shamana kriya* used separately the result is just manageable. But when it is used simultaneously the effect is synergistic in the management of low back pain. The drug like *trayodasanga guggulu*, *dhanwantara taila* and the ingredients of *yoga basti* provides a cost-effective and affordable treatment in the management of low back pain in comparison with microdiscectomy, herniectomy etc.

## CONCLUSION

- The conclusion is an essence of whole study. The following points can be concluded on the basis of results, observations and through discussion in the present context.
- *Gridhrasi* is one of the crippling disorders commonly seen. *Gridhrasi* affects a large group of people of the society. It can be correlated with lumbar radiculopathy described in modern medical science. Lumbar radiculopathy occurs due to the compression or irritation of sciatic nerve. Though the modern medicine has both medicinal and surgical approach towards this disease but most of the time patient suffers from recurrence, neurological deficit and also having many complications.
- It is seen in the clinical practice that the result seen when *shodhana* and *shamana* are used separately, differs and becomes synergistic when *shodhana* and *shamana* are used combinedly.
- *Trayodasanga Guggulu* is a widely used medicine for joint disorders.

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