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A Comparative Clinical Study on the Efficacy of *Kala Basti* and *Kati Basti* Along with *Nirgundighan Vati* in the Management of *Gridhrasi* (Sciatica)

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ABSTRACT:

The most common disorder which affects the movement of legs, particularly in the most productive period of life i.e 30 to 50 years is the problem of back ache which turns into Sciatica. The signs and symptoms of Sciatica can be correlated to *Ghriddhrasi*. Analgesics or surgery are the only remedies for this disease, which may sometimes produce systemic side effects. *Acharya Charak* has described *Basti* as the line of treatment in *Ghriddhrasi*. So *Kala Basti* is selected. As *Nirgundi* acts as *Rujapha* and *Vatashleshma prashmani*. So *Nirgundi Ghan Vati* is selected for *Shaman* drug. *Kati Basti* is selected to break local *Samprapti*, as it is a type of *Bahirparimarjin Chikitsa*.

Aim: To compare the effect of *Kala Basti* and *Kati Basti* along with *Nirgundi ghana Vati* in the management of *Gridhrasi*.

Material and methods: For present study, 30 Patients of *Gridhrasi* were randomly divided into 2 groups from the OPD & IPD of Govt. Akhandanand Ayurved Hospital, Ahmedabad.

Result: 13.33% of patients had Complete remission, Marked improvement was found in 13.33% and 40% of the patients had Moderate improvement. 33.33% of the patient showed Mild improvement.

Conclusion: *Kala Basti* with *Nirgundi taila as Anuvasana* and *Erandmool Kwath in Niruha Basti* followed by *Shamana* therapy with *Nirgundi ghan Vati* provided better results in *Ghriddhrasi* especially *Vatakaphaj Ghriddhrasi*.

Keywords: *Ghriddhrasi, Kala Basti, Kati Basti, Shaman, Nirgundighan Vati.*

INTRODUCTION

Vata is responsible for all the functions of the body comprising *Gati*¹ i.e movement and *gandhan* i.e sensation. These two functions are performed by all parts of the body

but legs utilize these functions to a maximum extent particularly the voluntary moments. A normal daily life without legs is almost impossible for any human being because movement of legs is very important but these are



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the most neglected part of the body that is vulnerable to many diseases. With the advancement in life style busy, professional and social life, improper sitting posture in offices, over exertion and continuous jerking movements during travelling and sports, all these factors create undue pressure to the Spinal Cord. The most common disorder which affects the movement of legs, particularly in the most productive period of life i.e 30 to 50 years is the problem of back ache which turns into *Ghridhrasi* (Sciatica). According to *Ayurveda Vata* is the governing factor and responsible for all the *Chestas* i.e *Gati* (movement). *Acharya Charaka* has described *Gridhrasi*² as *Nanatmaja(Vata)* and *Samanayaja Vyadhi*. (*Kaphanubandhi Vata*) Among *Ekadasha Indriyan* described in *Ayurvedic* classics, *Padendriya Karmahani* occurs in *Gridhrasi* leading to symptoms³ like *Gridha* (Vulture like gait). In *Vatanubandhi*⁴ *Gridhrasi* symptoms like *Stambha* (stiffness), *Ruk* (pain), *Toda* (pricking pain), *Graha and Spanda in Sphika* (pelvis), *Kati* (lumbar), *Uru*, *Janu* (knee), *Jangha* (thigh), and *Pada* (foot) are present in ascending order. In *Kaphanubandhi*⁴ symptoms like *Arochaka* (anorexia), *Tandra*(sleepiness) and *Gaurava* (heaviness) are found. *Acharya Sushruta* has mentioned *Sakthikshepa Nigraha*⁵ i.e. restricted lifting of leg as the main symptom.

In modern science, analgesics or surgery or physiotherapy or bed rest are the only remedies for this disease, which may sometimes produce several systemic side effects. With the help of *Ayurvedic* principles in context to *Gridhrasi*, here an effort has been made to find out a safe and complete solution for the disease.

According to *Acharya Charaka*⁶, *Doshas* alleviated by *Shamana* may aggravate again, but *Doshas* eliminated by *Shodhana* do not reoccur in vitiated form. *Gridhrasi* is *Vatavyadhi*, and our classics have described *Basti*⁷ as an important line of treatment in all *Vata Vyadhis*, and is considered as *Ardhachikitsa*⁸. Therefore, once *Vata* is controlled by *Basti*, all these factors are automatically regulated and total body equilibrium is achieved. Hence, *Basti* is called as *Sarvarthakari*⁹

For present study *Kala Basti* (Group A) was selected as *Anuvasana* with *Nirgundi Taila* and *Niruha Basti* with *Erandmool Kwath*. *Acharya Charaka* has mentioned *Nirgundi Taila* for all types of *Vata Vyadhi*¹⁰ and has called *Erandmool* as *Vrishyavataharanam*¹¹. *Acharya Dalhana* has mentioned *Nirgundi* as *Rujapha* and *Vatashleshma prashmani*. So *Nirgundi Ghan Vati* was selected as

Shaman drug after the completion of *Kala Basti*. This complete treatment (*Shodhana* and *Shamana*) can improve the quality of the life of patient suffering from *Gridhrasi* (Sciatica). *Kati Basti*, is a type of *Bahirparimarjin Chikitsa* in which hot oil is retained over the lumbar region which acts locally to break local *Samprapti* (pathogenesis) of the disease along with *Shaman*. The present study was aimed to compare the efficacy of *Kala Basti* along with *Nirgundi ghana Vati* in one group and *Kati Basti* along with *Nirgundi ghana Vati* in the second group for the management of *Gridhrasi* (Sciatica).

MATERIAL AND METHODS

The study was started after obtaining Ethical clearance from Institutional Ethical Committee, Vide Certificate No.33 dated 25/06/2016 at Govt. Akhandanand *Ayurvedic* College Ahmedabad. The clinical trial was registered under CTRI (Clinical Trials Registry of India) with CTRI no CTRI/2017/02/ 007850 (Registered on 14/02/2017). Informed written consent of the patient was taken before starting the intervention.

For present study 30 patients fulfilling the clinical criteria for the diagnosis of *Gridhrasi* were randomly selected irrespective of age, sex, religion etc. from OPD & IPD of Govt. Akhandanand *Ayurveda* Hospital & Govt. Maniben *Ayurveda* Hospital Ahmedabad. Table 1 : Inclusion and Exclusion Criteria

Diagnostic Criteria:

- Criteria for diagnosis were done based on signs and symptoms available in the *Ayurvedic* classics for *Gridhrasi* i.e presence of *Stambha* (stiffness), *Ruk* (pain), *Toda* (pricking pain), *Graha and Spanda in Sphika* (pelvis), *Kati* (lumbar), *Uru*, *Janu* (knee), *Jangha* (thigh), and *Pada* (foot)
- According to modern medical science¹² S.L.R. test and Lasegue's sign was carried out.

Investigations:

- 1- **Haematological examination:** Hb%, TLC, DLC, ESR and other investigations, if required.
- 2- **Urine Examinations:** Routine and Microscopic(To rule out other pathologies)
- 3- **Radiological Assessment:** X-ray- LS Spine (AP and Lateral view)

Main investigation carried out was X-ray to ensure the diagnosis of the disease.

Design Of Group And Management:

Study design: The research study was designed of Open label parallel clinical trial with Random sampling method. After diagnosis patients were categorized into two group i.e Group A & Group B.(Table 2) (Table 3) *Kala Basti Karma*

Basti Pradan Kala: *Niruha Basti* in *Jirnanna Kala* (empty stomach)*Anuvasan Basti* after meal at noon time.

Parihara kala¹⁶ : *Parihara kala* in *Basti* is double to the number of days it is administered.

Follow Up:

After completion of the treatment in both groups, patients were advised to visit weekly for follow up for 15 days.

Criteria For Assessment:

The indoor patients were examined daily and outdoor patients weekly. Change was observed in signs and symptoms by using proper clinical methods before and after treatment. The detail of score given to each sign and symptom and clinical test carried out is described below.

Statistical Analysis:

The information gathered on the basis of above observations was subjected to statistical analysis. The Wilcoxon's Signed Rank test was carried out for all non parametric data (i.e for subjective criteria) to analyze the effect of therapy. The obtained results were interpreted as:

- Insignificant - $p > 0.05$
- Significant - $p < 0.05$
- Significant - $p < 0.01$
- Highly Significant - $p < 0.001$

Criteria For Assessing The Total Effect:

Assessment was done by observing clinical improvement in signs and symptoms of the disease as per performa. All the signs and symptoms were given scores depending upon their severity before and after the treatment. The total effect of the therapy was assessed considering the overall improvement in signs and symptoms. For this purpose, following categories were maintained.

OBSERVATIONS

In the present study total 30 patients of *Gridhrasi* were registered, All patients completed the treatment along with follow up.(Table 4)(Table 5)

RESULTS

Table 6 shows Effect of *Kala Basti* + *Shaman* on cardinal symptoms. Table 7 shows Effect of *Kala Basti* + *Shaman* on associated symptoms. Table 8 shows Effect of *Kala*

Basti + *Shaman* on Clinical tests. Table 9 shows Effect of *Kati Basti* + *Shaman* on cardinal symptoms. Table 10 shows Effect of *Kati Basti* + *Shaman* on associated symptoms. Table 11 shows Effect of *Kati Basti* + *Shaman* on clinical tests. Table 12 shows Overall effect of Treatment

DISCUSSION

Gridhrasi (Sciatica) being a *Nanatmaja Vyadhi¹⁷* is mainly having *Vata* and *Vata Kapha* predominance. In *Samprapti* of *Gridhrasi* vitiation of *Vata Dosha* especially *Apana* and *Vyana Vayu¹⁸* produces symptoms like *Ruk*, *Toda*, *Stambha*, *Muhuspandana* etc. Secondary involvement of *Kapha Dosha* produces symptoms like *Gaurava* (heaviness), *Bhaktadwesa*, *Tandra* (sleepiness), *Arochaka* (anorexia)etc.

Practically *Basti* was selected as it has been described by *Acharaya Charak* as the main line of treatment of *Gridhrisi* (Sciatica). *Basti* is called as *Param Vatahara¹⁹* and simultaneously performs the *Shodhna Karma* useful in *Pitta*, *Kapha*, *Rakta*, *Sansarga* and *Sannipata²⁰*. *Basti* remains at *Pakwashaya*, but due to its *Virya*, acts on the *Doshas* from top to toe and scrapes off the *Doshas* from *Kati*, *Prishtha*, *Kostha* etc. and removes them through anus²¹. *Basti* strengthens *Pada* (foot), *Jangha* (thigh), *Uru*, *Kati*(lumbar), *Prishtha* (back)²². These are the *sthanas* where *sthanasamshraya* takes place in *Gridhrasi* (Sciatica). As the *Vata* pacifies the symptoms of *Gridhrisi* pacifies along with that.

Probable Mode Of Action Of *Kala Basti*

The mode of action of the therapy can be inferred through the bestowed by the therapy on the exhibited symptomatology of disease. The drugs selected for the present study in group A are predominantly of *Katu* and *Madhur Rasa*, *Laghu*, *Snigdha* & *Sukshma* properties and *Ushna Virya* and mainly *Vatakapha shamak* properties. Hence it pacifies *Vata* as well as *Kapha*.

Anuvasana basti was given by *Nirgundi taila* which has *Vatakaphghana* properties and the *Ushana virya* mainly helps in the vitiation of *Vata* as well as *Kapha*. *Snigdha*, *Sukshma*, properties by virtue of which it reaches deeper *Dhatus* like *Asthi* (bone tissue) and *Majja* (marrow) by penetrating through minute channels. It mainly has *Vednasthapana* (analgesic), *Shothghna* (anti inflammatory) *Balya* (strengthen) as well *Yogvahi* properties that pacifies the cardinal as well as associated symptoms of *Gridhrasi*.

Niruha Basti was given having *Earand Mool Kwatha* as the main content. It has *ushna virya* and *Vatakaphaghan* property. As explained by *Acharya Charaka Earand Mool* is having *Vrishya* (aphrodisiac) and *vatahara* property. It also has *Shoolaghana* (analgesic) , *Shothghana* (anti inflammatory) and *Dipan karma* (appetizer) .

Probable Mode Of Action Of *Kati Basti*

Kati Basti is procedure evolved from *Shiro Basti*, in which the properties of *Bahya Snehana* and *Swedana* are incorporated. As *Vata Dosha* is *Ruksha* and *Sheeta* in nature, *Snehana* mainly acts on the *Rooksha Guna* caused by *Vata* and *Sewdana* mainly acts against the *Sheeta Guna*. *Snehana* being *Snigdha* in nature, alleviates *Vata* and *Swedana* increases sweat and brings out *Maladravyas* along with sweat. Thus it decreases *Kleda* in the body resulting in reduction of *Gaurava* (Heaviness) and *Stambha* (Stiffness) which are common symptoms of *Gridhrasi*. After *Swedana Ruka* (Pain), *Toda* (Pricking sensation), *Spandan*, *Angagraha* (Stiffness in organs) vanishes. In *Gridhrasi*, *Samprapti* is at the *Kati* region associated with the structural changes of Lumbar vertebral column. The derangement in the lumbosacral joint and vertebrae, degeneration of the intervertebral disc and lubrication function of *Shleshaka Kapha* is affected. which results in nerve compression, irritation or inflammation of the *Gridhrasi Nadi* i.e Sciatic Nerve, resulting in severe pain. Therefore local *Snehana* and *Swedana* is very effective in pacifying the *Samprapti*.

Shushruta explains that *Tiryak Dhamani* form a network and spread all over body. They have their opening in the *Loma Koopa*. The *Dravya* applied over the skin is absorbed through these opening and undergo *Pachana* by the help of *Bhaja Pitta* which is situated in the skin. *Vagbhata* explained the same mode of absorption of the drugs applied over the skin. Thus by above references it can be said the *Dravya* used in *Kati Basti* is absorbed through skin and produce an action according to the properties of drug.

Probable Mode Of Action Of *Nirgundi Ghan Vati* :

Nirgundi is mainly having *Tikta Rasa* which is *Vayu* and *Akash Mahabhuta* dominant. By *Ruksha*, and *Laghu Guna* it pacifies *Kapha*. *Shoshan* of excessive *Meda*, *Vasa* etc. is done by *Tikta Rasa*. It is *Raktaprasadana* (blood purifier), *Agnidipan* (appetizer) *Arochakaghna* and *Amapachan* (digestive) ²³. *Katu Rasa* is also *Kaphaghna*, *Agnidipan* (appetizer) and *Amapachan* (digestive). It removes *Dushit Kapha* and does *Srotoshodhana*²⁴. The process of *Dhatuposhan* is normalized. *Lekhan* of *Mansa Dhatu* is done by *Katu Rasa*. So, production of *Apachit Mansa*,

Meda Dhatu is controlled. *Ushna Virya* alleviates *Vata*, *Kapha*, both involved in this type of *Gridhrasi*. Also *Agni* and *Ama* are taken care by this *Guna*²⁵. *Laghu Guna* is *Lekhan* (scrapping), *Ropana* (healing). *Dipan* (appetizer), *Pachana Karma* (digestives) is helpful in *Lakshanas* like *Agnimandya*, *Mukhapraseka*, and *Tandra*.

CONCLUSION

It can be concluded that *Kati Basti* followed by *Nirgundighan Vati* showed good result on *Gridhrasi*, but *Kala Basti* with *Nirgundi taila as Anuvasana* and *Erandmool Kwath* in *Niruha Basti* followed by *Shamana* therapy with *Nirgundi ghan Vati* provided better results in *Ghridras* especially in *Vatakaphaj Ghridras* and highly significant result was found in symptoms like *Ruka*, *Toda*, *Sthamba*, *Saktikshep nigraha* and it showed better result statistically and symptomatically. No adverse reaction was reported by patients during treatment and follow up. Results of this study are very encouraging but as the study was conducted on a small group of patients, so a trial should be conducted on a larger sample size.

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Table 1 : Inclusion and Exclusion Criteria

| Criteria | Inclusion Criteria | Exclusion Criteria |
|-------------------------------|--|--|
| Age group | 20 to 60 years. | Below 20 and above 60 years of age |
| Signs and symptoms (Ayurveda) | <i>Ruka, Toda, Stambha, Spandan</i> in the <i>Sphika, Kati, Uru, Janu, Jangha, and Pada.</i> | <i>Basti Ayogya</i> patients. |
| Modern | Tenderness along the course of sciatic nerve, positive SLR test. | CA Spine, major traumatic injury, fibrosis of Sacral ligaments, tumor of Cauda equina, Severe radiological changes, chronic debilitating disease like T.B, D.M, or any other chronic problem, chronic surgical intervention. |

Table 2: Groups

| GROUP | GROUP A | GROUP B |
|----------------------|--|---|
| Treatment protocol | <i>Kala Basti</i> | <i>Kati Basti</i> |
| Duration | 15 days | 15 days |
| Drugs and Dose | <i>Anuvasan Basti</i> – with <i>Nirgundi Taila.</i> (80 ml) <i>Niruha Basti</i> – <i>Anubhuta yoga</i> (510 ml) | <i>Nirgundi Taila</i> |
| Shaman Yoga duration | After completion of <i>Kala Basti</i> for 4 weeks. | After completion of <i>Kati Basti</i> for 4 weeks. |
| Drugs and Dose | <i>Nirgundi Ghan Vati</i> 4 tabs (each tablet of 250 mg) thrice a day with <i>Ushnodaka</i> | <i>Nirgundi Ghan Vati</i> 4 tabs (each tablet of 250 mg) thrice a day with <i>Ushnodaka</i> |

Table 3: Kala Basti Karma

| <i>Poorva Karma</i> ¹³ | <i>Pradhana Karma</i> ¹⁴ | <i>Pashchata Karma</i> ¹⁵ |
|--|---|---|
| Local <i>Abhyanga</i> and <i>Nadi-swedana</i> over the Abdomen, Groin and Buttocks region. | Left Lateral position is the ideal position for <i>Basti</i> administration as it brings whole colon (<i>Pakwashaya</i>) in one line. | After <i>Basti pratyagamana</i> patient is advised to take <i>Snana</i> with <i>sukhoshana Jala</i> after that <i>Mamsa rasa yukta bhojana</i> in case of <i>Vata dosha</i> , <i>Kseera yukta bhojana</i> in <i>Pitta dosha</i> , <i>Yusha yukta</i> in <i>Kapha dosha</i> should be given. |

Table 4 : Cardinal symptoms wise distribution

| Cardinal symptoms | Group-A | Group-B | Total no. of patients | Percentage |
|-----------------------------------|---------|---------|-----------------------|------------|
| <i>Ruka</i> | 15 | 15 | 30 | 100% |
| <i>Toda</i> | 14 | 13 | 27 | 90% |
| <i>Stambha</i> | 15 | 13 | 28 | 93.33% |
| <i>Muhuspandana</i> | 8 | 4 | 12 | 40% |
| <i>Sakthikshepnigraha</i> (S.L.R) | 15 | 15 | 30 | 100% |

Table 5 : Associated symptoms wise distribution

| Associated symptoms | Group-A | Group-B | Total no. of patients | Percentage |
|---------------------|---------|---------|-----------------------|------------|
| <i>Tandra</i> | 3 | 10 | 13 | 43.33% |
| <i>Gaurava</i> | 10 | 14 | 24 | 80% |
| <i>Arochaka</i> | 1 | 8 | 9 | 30% |
| <i>Supti</i> | 12 | 10 | 22 | 73.33% |
| <i>Bhaktadwasha</i> | 1 | 2 | 3 | 10% |

Table 6: Effect of *Kala Basti* + *Shaman* on cardinal symptoms.

| Sr no | Complaints | N | Mean score | | | % | W | P | S |
|-------|--------------------------------|----|------------|------|-------|--------|-----|--------|----|
| | | | BT | AT | Diff. | | | | |
| 1 | <i>Ruka</i> | 15 | 3.13 | 1.27 | 1.87 | 60% | 120 | <0.001 | HS |
| 2 | <i>Toda</i> | 14 | 2.86 | 1.21 | 1.64 | 58.3% | 105 | <0.001 | HS |
| 3 | <i>Stambha</i> | 15 | 2.20 | 0.80 | 1.40 | 62.22% | 120 | <0.001 | HS |
| 4 | <i>Muhuspandana</i> | 8 | 1.75 | 0.63 | 1.13 | 64.58% | 28 | 0.016 | S |
| 5 | <i>Shaktikshepanigra (SLR)</i> | 15 | 2.67 | 1.00 | 1.67 | 65.56% | 120 | <0.001 | HS |

Table 7: Effect of *Kala Basti* + *Shaman* on associated symptoms

| Sr no | Complaints | N | Mean score | | | % | W | P | S |
|-------|---------------------|----|------------|------|-------|-------|----|--------|----|
| | | | BT | AT | Diff. | | | | |
| 1 | <i>Tandra</i> | 3 | 2.00 | 1.00 | 1.00 | 50% | 6 | 0.250 | NS |
| 2 | <i>Gaurava</i> | 10 | 2.60 | 1.10 | 1.50 | 60% | 55 | 0.002 | S |
| 3 | <i>Arochaka</i> | 5 | 2.40 | 0.80 | 1.60 | 66.7% | 15 | 0.063 | NS |
| 4 | <i>Supti</i> | 12 | 2.42 | 1.08 | 1.33 | 56.9% | 78 | <0.001 | HS |
| 5 | <i>Bhaktadwasha</i> | 5 | 3.00 | 1.00 | 1.40 | 60% | 15 | 0.063 | NS |

Table 8: Effect of *Kala Basti* + *Shaman* on Clinical tests.

| Sr no | Complaints | N | Mean score | | | % | W | P | S |
|-------|----------------|----|------------|------|-------|-------|-----|--------|----|
| | | | BT | AT | Diff. | | | | |
| 1 | <i>Lasegue</i> | 15 | 2.33 | 0.87 | 1.47 | 62.9% | 120 | <0.001 | HS |

Table 9: Effect of *Kati Basti* + *Shaman* on cardinal symptoms.

| Sr no | Complaints | N | Mean score | | | % | W | P | S |
|-------|--------------------------------|----|------------|------|-------|--------|-----|--------|----|
| | | | BT | AT | Diff. | | | | |
| 1 | <i>Ruka</i> | 15 | 3.13 | 1.33 | 1.80 | 58.89% | 120 | <0.001 | HS |
| 2 | <i>Toda</i> | 13 | 2.77 | 1.00 | 1.77 | 63.9% | 91 | <0.001 | HS |
| 3 | <i>Stambha</i> | 14 | 2.54 | 1.08 | 1.46 | 58.9% | 91 | <0.001 | HS |
| 4 | <i>Muhuspandana</i> | 4 | 3.00 | 1.75 | 1.25 | 41.7% | 10 | 0.125 | NS |
| 5 | <i>Shaktikshepanigra (SLR)</i> | 15 | 2.87 | 1.33 | 1.54 | 56.11% | 120 | <0.001 | HS |

Table 10: Effect of *Kati Basti* + *Shaman* on associated symptoms.

| Sr no | Complaints | N | Mean score | | | % | W | P | S |
|-------|---------------------|----|------------|------|-------|-------|-----|--------|----|
| | | | BT | AT | Diff. | | | | |
| 1 | <i>Tandra</i> | 10 | 2.18 | 1.09 | 1.09 | 50% | 66 | <0.001 | HS |
| 2 | <i>Gaurava</i> | 14 | 2.43 | 1.00 | 1.43 | 58.8% | 105 | <0.001 | HS |
| 3 | <i>Arochaka</i> | 8 | 2.00 | 1.33 | 0.67 | 33.3% | 21 | 0.031 | S |
| 4 | <i>Supti</i> | 10 | 2.40 | 1.20 | 1.20 | 50% | 55 | 0.002 | S |
| 5 | <i>Bhaktadwasha</i> | 4 | 2.25 | 1.25 | 1.00 | 44.4% | 10 | 0.125 | NS |

Table 11: Effect of *Kati Basti* + *Shaman* on clinical tests.

| Sr no | Complaints | N | Mean score | | | % | W | P | S |
|-------|----------------|----|------------|----|-------|-------|-----|--------|----|
| | | | BT | AT | Diff. | | | | |
| 1 | <i>Lasegue</i> | 15 | 2.40 | 1 | 1.40 | 58.3% | 120 | <0.001 | HS |

Table 12: Overall effect of Treatment

| Treatment effect | No. patients Group A | No. of patients Group B | Total | Total % |
|------------------------|----------------------|-------------------------|-------|---------|
| Cured | 2 | 2 | 4 | 13.33% |
| Marked relief | 2 | 1 | 3 | 10% |
| Moderate relief | 6 | 4 | 10 | 33.33% |
| Mild relief | 5 | 8 | 13 | 43.33% |
| No relief | 0 | 0 | 0 | 0% |