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Research Article

# STUDY THE EFFECT OF *NAVAK GUGGULU* IN THE MANAGEMENT OF *AMAVATA*

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**KEYWORDS:** *Navak Guggulu, Amavata.*

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## ABSTRACT

*Amavata* is one of the challenging diseases for the physicians due to its Chronicity, incurability, complications and morbidity. Though, *Ama* and *Vata* are the predominant pathogenic factors but the disease represents *Tridoshic* vitiation. *Vata* is the prime moreover and motivator in the human body, responsible for the initiation of every kind of activity. The affliction of *Sandhis* by *Vata Dosha* in association with *Ama* reflects the equal rate of the both *Dosha* and *Dushyas* in the causation of this disease. The aim is to study the effect of *Navak guggulu* in the management of *Amavata*. 30 patients of *Amavata* having textual symptomtology from the text *Madhava Nidana* were randomly selected and enrolled in to the study.

*Nakaradi guggulu prakarnam* mentioned *Navak Guggulu* is as like nectar in the management of *Amavata. Shunthi, Maricha, Pippali, Chitraka*, *Haritaki, Bibhitaka, Amalaki, Nagar Motha, Vidanga* and *Guggulu* are the ten ingredients of this formulation. In *Navaka Guggulu* maximum ingredients have *Rasa- Katu, Virya -Ushna, Vipaka- Katu, Guna-laghu*, *Ruksha*. So *Vata -Kaphashamaka* may be effective to control *Amavata*.

The trial drug in this study was very effective in *Agnivardhana* and *Amapachana*. It was a very good combination of *Shoolahara, Shothaghna* and *Amapachaka Dravyas. Navak Guggulu* is very effective in reducing pain and stiffness.

As far as relief of symptoms were concerned, no patient got good result (no complaints), 10 patients got moderate result (i.e. 2-step down). 14 patients got mild result (i.e. 1-step down), and 6 patient got no result i.e. no change in complaints.

## INTRODUCTION

Ayurveda, the fountain head of Indian medicine present in this country some thousands of years ago, long before the other countries could dream of systematizing the Concept of the remedies for human ailments.

It's a treasure of outputs and data obtained through invasive research programme. More than a medical system, a culture or lifestyle of millions of people, it always gives importance to preventive aspects than curative. With the march of time, most of the dietary habits, social structure, life style, and environment have been changing. Occurrence of *Amavata* on large scale is one of the outcomes of this modification.

*Amavata* is one of the challenging diseases for the physicians due to its Chronicity, incurability, complications and morbidity. Modern medical science has concluded that even after administration of their best drugs, the disease has a tendency to persist progress and cripples the patient therefore they consider it as a disease of remission and replaces.

In the present era, *Amavata* is the most common disease affecting a large aged populace. These degenerative changes in bones and muscles arise from the age of 40 years to the age of 65 years. The prevalence of this disease is such a great that it attracts the mind of the almost all the physicians

towards itself. That's why it becomes duty of the research scholar to work on the various aspects of this disease.

As a distinct clinical entity *Amavata*[1] was only described in the Madhava Nidana. It is a disease of *Madhyama Rogamargas* as it affects *Sandhis* and *Hridaya Marma.* The term desires from the words as "*Ama*" and "*Vata*". The *Ama* when combines with *Vata dosha* and occupies in *Shleshma sthana* results painful disease "*Amavata*" The disease is characterized by various features like *Sandhi shoola* in the nature of Toda, swelling, inability of joints movements etc. Though, *Ama* and *Vata* are the predominant pathogenic factors but the disease represents *Tridoshic* vitiation. *Vata* is the prime moreover and motivator in the human body, responsible for the initiation of every kind of activity. The other two *Doshas* (*Pitta* and *Kapha*) are said to be "Lame" without the motivating force of *Vata*. The primary 'Seat' (*Sthana*) of influence of *Vata* in the body is the area located from the umbilicus downwards, primarily in the large intestine. Here *Vata* allows for the proper elimination of wastes which allows the body to function unobstructed of the three *Doshas*, *Vata* is the most subtle and easily affected. The affliction of *Sandhis* by *Vata Dosha* in association with *Ama* reflects the equal rate of the both *Dosha* and *Dushyas* in the causation of this disease. Moreover the chief pathogenic factors, being contradictory in nature posses difficulty in planning the line of treatment.

No doubt allopathic system of medicine has got an important role to play in overcoming agony of pain, restricted movement and disability caused by the articular diseases. Simultaneously prolonged use of allopathic medicines are not only giving rise to many side effects, toxic symptoms and adverse reactions but also more serious complications like organic lesions etc. are caused by them. Hence the management of this disease is merely insufficient in other systems of medicine and patients are continuously looking with a hope towards Ayurveda to overcome this challenge.

As a non-invasive, safe and cost-effective form of treatment, Ayurveda therefore proves an ideal medical option. Ayurvedic science, an advantage in today's man life, describes *Swasthaparayanata*, which means maintenance of health in one hand and treatment of disease on the other.

To see the above fact, we realize that the Ayurveda has a good basic principle of medicine to treat the disease. Due to wide spectrum of disease, much prevalence in the society and lack of effective medication, the disease is being chosen for the study. Here we try to see the effect of this drug on the disease *Amavata*.

## AIM AND OBJECTIVES

**Aim:** To Study the Effect of *Navak Guggulu* in the Management of *Amavata*.

### Objectives

1) Authentication of raw material.

2) *Navak Guggulu* will be prepared by standard method mentioned in the Samhitas & will be used after standardization.

## Material & Methods

### Plan of Work

The proposed study was done in three levels.

Level 1: Conceptual review of the subject as per Ayurvedic texts and allopathic texts.

Level 2: Generation of data on Authentification and Standardization i.e., Authentification and Standardization of ingredients of *Navak Guggulu.*

Level 3: Clinical trials.

### Literary Review

The references of *Ama* from Brithatrayi were thoroughly studied. References of *Amavata* from Vedas, Brithatrayi and Laughutrayi were studied and compiled. Literature available on *Navak Guggulu* was also collected and studied. The previous work done on this topic by various scholars were also collected. Detailed pathogenesis of *Amavata* and its management was studied and mentioned.

### Clinical study

### Study design:

This was two months, single blind, and randomized, clinical study.

### Place of Study

All the patients were enrolled in to study from Kaya-Chikitsa OPD of Hospital.

### Selection of Patients

The 30 patients of *Amavata* having textual symptomtology from the text *Madhava Nidana* were randomly selected and enrolled in to the study.

Patients were selected irrespective of age, sex, religion, occupation *Prakriti* etc. All the patients were examined by *Trividha, Ashtavidha*, and *Dashavidha pariksha*. They were treated with *Navak guggulu*. Follow up was taken after every 15 days. The assessment criteria were assessed very carefully and noted down before and after the treatment.

### Inclusion Criteria

Textual criteria from the text Madhav nidan was taken as reference.

1. Swelling accompanied by pain over joints of upper & lower limbs & *Trika* region.
2. Scorpion bite like pain
3. Shifting pain
4. Stiffness of joints, Morning stiffness
5. Other associated symptoms like *Angamarda, Aruchi, Alasya, Jwara, Apaka*, Swelling over the body.

**Exclusion Criteria**

1. Diseases like *Vatarakta, Sandhigatavata*.
2. Rheumatic Fever.
3. Any other major illness, *Amavata upadravas* like *Hrudgraha, Bhrama, Chhardi*, etc.

**Trial Drug**

***Navak Guggulu*:** *Navak Guggulu* was prepared as per the guidelines mentioned in Sharangdhara Samhita. Authentification was done from the Botany Department, Pune University. Standardization was done from Late Principal B.V. Bhide Foundation, Pune.

***Vati* Preparation:** The *Navak Guggulu* consists of 10 (along with *Shuddha Guggulu*) drugs and was prepared according to the principles of Tablet form.

Route of administration - Oral

Dose – 500 mg twice a day

Time - After lunch and Dinner

Duration - 2 months

*Anupana:* Lukewarm Water (For patient's convenience and Palatability)

Follow up: After every 15 days.

*Pathyapathya* were advised as per disease.

Written consent was taken from the patient after explaining the risk.

Proforma were prepared and regular observations before, during and after treatment were noted.

**Criteria for Assessment**

Clinical assessment was done according to relief of Symptoms & self assessment, on the basis of gradation & improvement in the classes.

**Joint Score**

Score 3 : If more than 5 joints.

Score 2 : joints between 3-5.

Score 1 : at least 2 joints.

Score 0 : less than 2 joints.

The no. of clinically active joints was determined on the basis of tenderness on pressure or painful passive movements.

**Duration of morning stiffness**

Score 3: above 60 min.

Score 2 : for 30-59 min.

Score 1 : for 0-29 min.

Score 0 : no stiffness

**Severity of Pain** (by VAS)

Score 3 : If severe

Score 2 : If moderate

Score 1 : If mild

Score 0 : If nil

VAS- Visual Analogue Scale

There is a 10 cm horizontal line for pain assessment. Each centimetre indicate digit from 0 to 10. 0 indicates no pain. 1 to 4 indicates mild pain (Mild pain of bearable nature, comes occasionally). 5 to 9 indicates moderate pain (difficulty in movement of joint, appears frequently and requires some *Upashaya* measures for relief). 10 indicate severe pain (More difficulty in moving the joints, pain is severs disturbing the sleep and requires strong analgesics.).

**Tenderness**

Score 3 : If severe

Score 2 : If moderate

Score 1 : If mild

Score 0 : If nil

Composite Tenderness Score- 0 score indicates no tenderness. Subjective experience of pain indicates Mild tenderness. Wincing of face on pressure indicates Moderate tenderness. Pain, wincing and withdrawal indicate severe tenderness.

**Swelling**

Score 3 : Severely present

Score 2 : Markedly present

Score 1 : Slightly present

Score 0 : Absent

Swelling of joints was measured by measuring their circumference.

**Local Temperature of affected joints**

Score 3 : Severe

Score 2 : Moderate

Score 1 : Mild

Score 0 : If Normal

Local Temperature of affected joints was assessed by comparing local temperature of normal part of the body.

**Grip Strength**

Grip Strength was measured by recording the pressure that patients can exert by squeezing a partially inflated bag (at a starting of 20 mm of Hg) of a standard sphegmo-manometer.

Score 3 : If poor (below 38 mm of Hg)

Score 2 : If moderate (40-140 mm of Hg)

Score 1 : If mild (142-280 mm of Hg)

Score 0 : If normal (above 282 mm of Hg)

**Functional Score**

Score 3 : Unable to do

Score 2 : With the help of other person or device

Score 1 : Able to do with difficulty

Score 0 : Able to do without any difficulty

Functional Score was assessed by routine personal activities/ work of the patient.

**Overall Score**

1 – 8: Mild Grade I

9 – 16: Moderate Grade II

17 – 24: Severe Grade III

**Laboratory investigations**

1. Haemogram
2. R. A. Factor
3. E. S. R.
4. Urine Routine

**Observations**

In this study 30 patients were enrolled. Observations noted in this group are as follows.

**Age**

| Age in yrs | No. of cases | % |
|---|---|---|
| < 40 | 10 | 33.3 |
| 40 - | 14 | 46.7 |
| 50 + | 6 | 20.0 |
| Total | 30 | 100 |

Majority of the patients i.e. 46.7% are reported in age group of 40- while in <40 years 33.3 % patients & 20% of patients are above 50 years.

**Sex**

| Gender | No. of cases |
|---|---|
| Males | 8 |
| Females | 22 |
| Total | 30 |

Among the 30 patients studied in the series, majority of patients were female i.e. 73.3 % & 26.7 % were male.

**Occupation**

| Occupation | No. of cases | % |
|---|---|---|
| Business | 2 | 6.7 |
| Housewife | 20 | 66.7 |
| Service | 4 | 13.3 |
| Worker | 4 | 13.3 |
| Total | 30 | 100 |

Majority of patients were housewives 20 i.e. 66.7 %, while servicemen & workers were 4 each i.e.13.3 %, & businessmen were 6.7 %.

**Economic condition**

| SES | No. of cases | % |
|---|---|---|
| Upper middle | 4 | 13.3 |
| Lower middle | 12 | 40.0 |
| Poor | 14 | 46.7 |
| Total | 30 | 100 |

40% of patients were of lower economical status, 13.3% of patients were of upper economical status while majorities 14 i.e. 46.7 % were of poor status.

**Diet**

| Diet | No. of cases | % |
|---|---|---|
| Mixed | 16 | 53.3 |
| Vegetarian | 14 | 46.7 |
| Total | 30 | 100 |

46.7% patients in the study were vegetarians while 53.3 % patients were accustomed to mixed diet.

***Prakriti***

| *Prakruti* | No. of cases | % |
|---|---|---|
| KV | 14 | 46.7 |
| PV | 2 | 6.7 |
| VK | 4 | 13.3 |
| VP | 10 | 33.3 |
| Total | 30 | 100 |

In this study majority of the patients were of *Kapha vata prakriti* they are 14 i.e. 46.7 % followed by *Vata pitta* 33.3 % then *Vata kapha* were 13.3 % then *Pitta vata* were 6.7 %.

***Agni***

| *Agni* | No. of cases | % |
|---|---|---|
| *Manda* | 18 | 60.0 |
| *Sama* | 2 | 6.7 |
| *Tikshna* | 4 | 13.3 |
| *Visham* | 6 | 20.0 |
| Total | 30 | 100 |

In the study, majority of patients were i.e. 60 % were *Mandagni* they are 18 in no. while 20 % were of *Vishamagni* then 13.3 % were *Tikshnagni* & 6.7 % were *Samagni*.

***Koshtha***

| *Koshtha* | No. of cases | % |
|---|---|---|
| *Krura* | 16 | 53.3 |
| *Madhyam* | 10 | 33.3 |
| *Mrudu* | 4 | 13.3 |
| Total | 30 | 100 |

Most of the patients i.e. 53.33 % were *Krura Koshtha* followed by *Madhyama Koshtha* were 33.3 % & 13.3 % were *Mrudu Koshtha*.

***Hetu***

| *Hetu* | No. of cases | % |
|---|---|---|
| *Mandagni* | 8 | 26.7 |
| *Viruddha aahara* | 20 | 66.7 |
| *Viruddha chesta* | 2 | 6.7 |
| Total | 30 | 100 |

In the study the most prevalent *Hetu* was *Viruddha aahara* i.e. 66.7 % followed by *Mandagni* 26.7 %, *Viruddha cheshta* 6.7 %.

**Religion**

| Religion | No. of cases | % |
|---|---|---|
| Hindu | 24 | 80.0 |
| Muslim | 4 | 13.3 |
| Others | 2 | 6.7 |
| Total | 30 | 100 |

80 % patients i.e. 24 were Hindus & 13.3 % were Muslims. And 6.7% were from other religion.

**Education**

| Education | No. of cases | % |
|---|---|---|
| Graduate | 6 | 20 |
| HSC | 6 | 20 |
| School | 18 | 60 |
| Total | 30 | 100 |

In the study most of the patients had studied up to 10th standard i.e. 60 %, 20 % were graduate, 20 % studied up to HSC.

***Vyadhiutpatti Desha***

| *Vyadhi Desh* | No. of cases | % |
|---|---|---|
| *Aanoop* | 10 | 33.3 |
| *Sadharan* | 20 | 66.7 |
| Total | 30 | 100 |

In the study most of the patients i.e. 66.7 % belongs to *Sadharan desha*, 33.3 % to *Aanoop desha.*

***Vyadhiutpatti Kala***

| *Vyadhi Kala* | No. of cases | % |
|---|---|---|
| *Adana* | 14 | 46.7 |
| *Visarga* | 16 | 53.3 |
| Total | 30 | 100 |

In the study the 53.3 % *Vyadhi* were produced in *Visarga kala* as compared to *Aadana* i.e. 46.7 %.

**RESULTS**

The effect of *Navak Guggulu* was assessed on the basis of criteria designed. The observations were record forms at the interval of 15 days upto 60 days. The result was drawn with appropriate statistical techniques.

**Joint score**

| Joint score | N | Mean | Sd. | Wilcoxon Signed Ranks Test Z | P | In % |
|---|---|---|---|---|---|---|
| Day-0 | 30 | 2.80 | 0.407 | 4.0 | <0.001 HS | 19% |
| Day-60 | 30 | 2.27 | 0.450 | | | |

| Joint score | Mean | In % |
|---|---|---|
| Day-0 | 2.80 | |
| Day-15 | 2.53 | |
| Day- 30 | 2.33 | |
| Day-45 | 2.27 | |
| Day-60 | 2.27 | 19% |

This table shows that *Navak Guggulu* has shown statistically highly significant improvement in Joint Score. After 60 days, 19% that is marked improvement was seen.

**Morning Stiffness**

| Morning stiffness | N | Mean | Sd. | Wilcoxon Signed Ranks Test Z | P | In % |
|---|---|---|---|---|---|---|
| Day-0 | 30 | 2.87 | 0.346 | 4.524 | <0.001 HS | 49% |
| Day-60 | 30 | 1.47 | 0.819 | | | |

| Morning stiffness | Mean | In % |
|---|---|---|
| Day-0 | 2.87 | |
| Day-15 | 2.27 | |
| Day- 30 | 1.87 | |
| Day-45 | 1.67 | |
| Day-60 | 1.47 | 49% |

In case of Morning Stiffness, After 60 days, 49% highly significantly improvement was seen.

**Severity of Pain**

| Pain | N | Mean | Sd. | Wilcoxon Signed Ranks Test Z | P | In % |
|---|---|---|---|---|---|---|
| Day-0 | 30 | 2.60 | 0.621 | 4.617 | <0.001 HS | 54% |
| Day-60 | 30 | 1.20 | 0.551 | | | |

| Pain | Mean | In % |
|---|---|---|
| Day-0 | 2.60 | |
| Day-15 | 2.10 | |
| Day- 30 | 1.47 | |
| Day-45 | 1.27 | |
| Day-60 | 1.20 | 54% |

In case of Severity of pain, 54% improvement seen after 60 days this is highly significant.

**Tenderness**

| Tenderness | N | Mean | Sd. | Wilcoxon Signed Ranks Test Z | P | In % |
|---|---|---|---|---|---|---|
| Day-0 | 30 | 2.00 | .830 | 4.053 | <0.001 HS | 46.5% |
| Day-60 | 30 | 1.07 | .254 | | | |

| Tenderness | Mean | In % |
|---|---|---|
| Day-0 | 2.00 | |
| Day-15 | 1.53 | |
| Day- 30 | 1.27 | |
| Day-45 | 1.13 | |
| Day-60 | 1.07 | 46.5% |

In this table, after 60 days, 46.5% were improved. That means drug is having highly significant result.

**Swelling**

| Swelling | N | Mean | Sd. | Wilcoxon Signed Ranks Test Z | P | In % |
|---|---|---|---|---|---|---|
| Day-0 | 30 | 2.27 | .691 | 4.235 | <0.001 HS | 47.13% |
| Day-60 | 30 | 1.20 | .407 | | | |

| Swelling | Mean | In % |
|---|---|---|
| Day-0 | 2.27 | |
| Day-15 | 1.87 | |
| Day- 30 | 1.40 | |
| Day-45 | 1.20 | |
| Day-60 | 1.20 | 47.13% |

This table shows after 60 days, 47.13%improvement was seen. So the drug is highly significant in *Shotha* symptoms.

**Local Temperature**

| Local temp | N | Mean | Sd. | Wilcoxon Signed Ranks Test Z | P | In % |
|---|---|---|---|---|---|---|
| Day-0 | 30 | 2.07 | .785 | 3.619 | <0.001 HS | 39% |
| Day-60 | 30 | 1.27 | .450 | | | |

| Local temp | Mean | In % |
|---|---|---|
| Day-0 | 2.07 | |
| Day-15 | 1.53 | |
| Day- 30 | 1.33 | |
| Day-45 | 1.27 | |
| Day-60 | 1.27 | 39% |

In this chart after 60 days, 39%improvement was seen. That means the drug is highly significant.

**Grip Strength**

| Grip strength | N | Mean | Sd. | Wilcoxon Signed Ranks Test Z | P | In % |
|---|---|---|---|---|---|---|
| Day-0 | 30 | 2.07 | .583 | 2.889 | 0.004 Sig | 26.08% |
| Day-60 | 30 | 1.53 | .507 | | | |

| Grip strength | Mean | In % |
|---|---|---|
| Day-0 | 2.07 | |
| Day-15 | 1.87 | |
| Day- 30 | 1.67 | |
| Day-45 | 1.67 | |
| Day-60 | 1.53 | 26.08% |

After 60 days, 26.08% improvement was seen in Grip strength. This is significant.

**Functional Score**

| Functional score | N | Mean | Sd. | Wilcoxon Signed Ranks Test Z | P | In % |
|---|---|---|---|---|---|---|
| Day-0 | 30 | 1.80 | 0.761 | 3.579 | <0.001 HS | 52% |
| Day-60 | 30 | 0.87 | 0.629 | | | |

| Functional score | Mean | In % |
|---|---|---|
| Day-0 | 1.80 | |
| Day-15 | 1.27 | |
| Day- 30 | 1.13 | |
| Day-45 | .93 | |
| Day-60 | .87 | 52% |

After 60 days, 52% improvement was seen. That means drug is highly significant.

**Total Score**

| Total score | N | Mean | Sd. | Wilcoxon Signed Ranks Test Z | P | In % |
|---|---|---|---|---|---|---|
| Day-0 | 30 | 18.47 | 3.839 | 4.787 | <0.001 HS | 41.14% |
| Day-60 | 30 | 10.87 | 3.104 | | | |

| Total score | Mean | In % |
|---|---|---|
| Day-0 | 18.47 | |
| Day-15 | 15.00 | |
| Day- 30 | 12.47 | |
| Day-45 | 11.40 | |
| Day-60 | 10.87 | 41.14% |

This table shows that Navak Guggulu has shown statistically highly significant improvement in Total Score. After 60 days, 41.14% improvement was seen.

**Overall score**

| Overall score | 0 day | 60 day |
|---|---|---|
| Mild (1-8) | 0 | 2 |
| Moderate (9-16) | 10 | 24 |
| Severe (17-24) | 20 | 4 |

Before starting the treatment 0 patients were from mild score, they came under grade I, 10 patients from moderate score i.e. Grade II & 20 patients were from severe score i.e. they were in Grade III. After 60 days of treatment 2 patients were from mild score, that they were in grade I, 24 patients from moderate score i.e. Grade II. And 4 patients were from severe score i.e. they were in Grade III.

**Relief of symptoms**

| Relief of symptoms | No of patients |
|---|---|
| Good Results (No any complaints.) | 0 |
| Moderate Results (2 steps down) | 10 |
| Mild Results (1 steps down) | 14 |
| No Results (No change in complaints) | 6 |

As far as relief of symptoms were concerned, no patient got good result (no complaints), 10 patients got moderate result (i.e. 2-step down). 14 patients got mild result (i.e. 1-step down). And 6 patient got no result i.e. no change in complaints.

## DISCUSSION

The spectral concept of health of an individual fluctuates within a range varying from optimum well being to various degrees of dysfunction. The transition from good health to dysfunction is called disease. One such disease is *Amavata*. It is characteristically a chronic disorder chiefly associated with *Sandhi Shula, Sandhi Shotha, Sandhi Stabdhata*, *Ushna sparsha*.

It is a *Shula Pradhana vyadhi*. The intensity of the pain is high grade among the other diseases according to Acharya Madhava. The disease varies from person to person with its clinical pattern.

Due to absence of some suitable remedy, it is imposing great challenge before the medical world. It runs a very long course and not only makes the patients to cripple but may also restrict them patients to the bed.

As the name itself indicates *Ama* and *Vata* are the main pathogenic factors in the disease *Amavata*. The aetiopathogenesis of *Amavata* based on the disturbance of Agni and *Vata* dominant *Tridosha*. Excessive consumption of *Nidana* of *Amavata* in pre-existing stage of *Mandagni* leads to formation of *Ama* and simultaneous vitiation of *Tridosha*, specially the *Vata Dosha*. The *Samprapti* starts initially from the *Annavaha Srotasa* and in due course spreads to the other *Srotasa* a mainly *Rasavaha, Asthivaha* and *Majjavaha Srotasa*. The *Dusyas* involved in this disease are *Rasa*, *Mansa*, *Asthi* and *Majja*. And *Malas* are *Mutra*, *Purisha*.

*Sandhi* is the main site of *Abhivyakti* of *Lakshana. Ama*, under influence of vitiated Vata, comes in *Sleshamasthana* mainly in *Sandhis* e.g. *Janu sandhi*, *Trik sandhi* etc and gets lodged there. *Sandhi shoola, Sandhi shotha, Sandhi Stabdhata, Ushna sparsha* are the cardinal features of *Amavata*. As stated earlier, the disease runs a chronic course of *Jadya, Sankocha; Angavaikalya Mansakshaya* etc. are responsible for crippling of the patients. Other constitutional symptoms like *Alasya, Apakti, Aruchi*, *Vibandha*, etc. are normally found in the patients of *Amavata*.

Several formulations have been mentioned for the management of *Amavata* in Ayurvedic classics. In Bharat Bhaishajya Ratnakar, *Nakaradi guggulu prakarnam* mentioned *Navak Guggulu* is as like nectar in the management of *Amavata*. All the ingredients of it are easily available and cost effective. *Shunthi, Maricha, Pippali, Chitraka, Haritaki, Bibhitaka, Amalaki, Nagar Motha, Vidanga* and *Guggulu* are the ten ingredients of this formulation.

In *Navaka Guggulu* maximum ingredients have *Rasa- Katu, Virya -Ushna, Vipaka- Katu, Guna- Laghu, Ruksha.* So *Vata -Kaphashamaka* may be effective to control *Amavata*.

Combination of *Katu-Rasa* and *Ushna-Virya Pradhana* drugs - '*Navaka Guggulu'* is very well indicated in *Kapha* predominant pathologies [Cha.Su.21/23]. Due to its *Dipana* and *Pachana* property, it breaks the *Samprapti* of *Amavata*.

### Pharmacodynamic Properties of *Navak Guggulu*

Going through the properties of ingredients in *Navak Guggulu*; most of drugs are *Tikta Rasatmaka, Ushna viryatmak, Laghu* and *Ruksha, Katu vipaka yukta*. On the basis of this, we can infer Pharmacodynamic properties of combined drug (*Navak Guggulu*) as follows.

*Rasa - Tikta rasa, Vipaka - Katu, Virya - Ushna, Guna - Laghu, Ruksha* and *Karma - Tridoshaghna, Dipana, Pachana, Shothaghna, Shulaghna, Vatanulomana, Mruduvirechana, Vibandhanashaka.*

Being *Laghu guna, Katu rasa, Ushna veerya* it does best *Amapachana*; it will act as *Kapha-Vata shamaka, Shothahara* (anti-inflammatory), *Anulomana, Shoolahara* (analgesic), and *Srotorodhanivarana*. By its *Kledapachaka* and *Agnidipana* properties it decreases *Ama*, so helpful in *Sampraptibhanga* in *Amavata* and reduces swelling and stiffness in *Amavata*. In *Amavata vibandha* (constipation) is one of the symptom that decreases (reveals) by *Anulomana* property.

Being *Katu, Tikshna* and *Ushna* property it acts as a *Krimighna* (antihelmethic) by that useful for *Amapachana* which is one of the cause of *Amavata*. After *Amapachana*; stiffness of joint also reduces.

The objective of the study was to study the effect of *Navak Guggulu* in the management of *Amavata*. For this purpose, 30 patients fulfilling the diagnostic criteria of *Amavata* were selected.

*Navak Guggulu* has prepared by *Vati kalpana*. It was given in the dose of 500 mg twice a day after lunch and dinner with the *Anupana* of Luke warm water. The duration of treatment was two months and follow up was taken after every fifteen days. The results were assessed with regards to clinical signs and symptoms, functional capacity, laboratory investigations, the results were statistically analyzed.

### General Description of Patients

**Age**- Majority of the patients belongs to age group 40 to 50 years i.e. 46.7%. This shows that in the

present study prevalence of the disease is high in the middle age group.

**Sex**- As far as the incidence of the disease according to gender is concerned, majority of the patients were females i.e. 73.3% as compared to males 26.7%. This data is also supportive to the prevalence ratio of the disease (i.e. ~ 2:1).

**Occupation:** Majority of the patients in the study was housewives i.e. 66.7%. *Viruddhahara*, heavy work, Afternoon nap may be the reason for the prevalence of *Amavata* in housewives and irregular food pattern due to work can be the cause in the shift duty workers, and servicemen.

**Economical Status:** Majority of the patients was from poor economical status i.e. 46.7%. but in Ayurvedic literature regarding Amavata, there is no direct reference that patients from poor economic class are found more.

**Diet:** It was found that 53.3% patients consumed mixed type of diet while 46.7% were pure vegetarians. A considerable number of patients about 66.7% were found to be consuming *Viruddha ahara*. Hence it can be inferred that *Viruddha ahara* plays a major role in the aetiopathogenesis of *Amavata*.

***Agni*:** Majority of the patients had *Mandagni* i.e., 60% while 20% had *Vishamagni*. This can denotes that *Mandagni* is prime cause of *Amavata*.

***Koshtha*** Majority i.e. 53.3% had *Krura koshtha* while 33.3% had *Madhyama* and 13.3% had *Mridu koshtha*. Thus majority patients of *Krura koshtha* were found.

***Prakriti:*** In the series maximum number of patients had *Kapha-vata prakriti* i.e. 46.7% and 33.3% patients had *Vata- pitta prakriti*. But to conclude the correlation between *Prakriti* and incidence of *Amavata* needs extensive study on this particular line. But as stated earlier *Navaka Guggulu* is very well indicated in *Kapha* predominant pathologies so it worked in *Amavata* pathogenesis.

**Religion:** It was found that 80 % patients were Hindu, 13.3% were Muslim & 6.7% were from other. Although no specific inference can be derived as these findings only reflect the predominance of religion in this particular region.

***Vyadhiutpatti Kala:*** In the study the 53.3 % *Vyadhi* were produced in *Visarga kala* as compared to *Aadana* i.e. 46.7 %. I.e. in considerable number of patient's disease were produced in *Visarga kala*. Hence it can be inferred that *Vyadhiutpatti Kala* plays a vital role in the aetiopathogenesis of *Amavata*.

**Effect of Therapy**

**Effect on pain in joints**

Pain over the joint is one of the most characteristics symptoms of *Amavata*. Acharya Madhava expressed the severity of pain by describing it as '*Vrishchika Danshavata*' (scorpion bite). '*Ama'*, the chief culprit in *Amavata* is carried to all sites of *Shleshma* in the body by vitiated *Vata*. This *Ama* also causes *Avarodha* in the *Srotasas*, thereby hampering the *Gati* of *Vata*. As the pathogenesis progresses this combination of *Ama* and *Vata* get lodged in the joints and cause severe pain and swelling.

*Navaka Guggulu* showed on an average 54% relief in pain which is statistically highly significant (P<0.001). This proves the significant effect of *Navak Guggulu* in Pain.

Probably by means of *Ushna guna, Katu, Tikta* rasa properties, *Navak Guggulu* reaches up to the subtle levels and brings about both *Amapachana* as well as removal of obstruction resulting in to *Vatanulomana*. Thus, pain in *Amavata* might have been relieved.

**Effect on swelling in joints**

*Navak Guggulu* showed on an average 47.13% relief in *Shotha* which is statistically highly significant (P<0.001). This proves the significant effect of *Navak Guggulu* on swelling.

When *Ama* obstructs the *Sukshma srotasas* of body, it causes accumulation of *Malabhavas* i.e. *K*leda which leads to symptom *Sandhi shotha.* Due to *Tikta, Katu rasa, Ushna veerya* of *Navak Guggulu*, it may result in to *Amapachana* and *Kleda shoshana*, and due to *Anulomana* and *Vibandhahara* properties, removal of obstruction by *Ama* and accumulated *Malabhavas* may be affected.

**Effect on stiffness**

Overall a statistically highly significant (P<0.001) relief of 49% was seen in morning stiffness. Thus the efficacy of *Navak Guggulu* in morning stiffness is evident.

Vitiated *Vata* propels *Ama* to *Sandhis* replacing *Shleshaka kapha*. Hence, normal function of *Shleshaka kapha* is hampered, leading to morning stiffness. As *Stambha* is *Sheeta gunatmaka*, *Ushna virya* and *Katu Tikta rasa* of *Navak Guggulu* may have done *Vata shamana* and *Amapachana*. And thus *Navak Guggulu* may have relieved morning stiffness.

**Effect on tenderness**

When assessed for tenderness 46.5% average relief was observed in all patients, which was found statistically highly significant (P<0.001).

This proves the significant effect of *Navak guggulu* on tenderness.

Tenderness is mainly due to inflammation of joint capsule. *Navak guggulu* might have subsided inflammation due to *Laghu guna, Katu rasa, Ushna veerya* and thus tenderness might have reduced.

**Effect on functional capacity**

The effect of therapy on the functional capacity was assessed. An average improvement of 52% was observed. That means drug is highly significant (P<0.001).This proves the significant effect of *Navak Guggulu* on functional capacity.

This improvement in the functional capacity might have been due to enhancement of nourishment of all the *Dhatus* by *Rasa dhatu; Navak Guggulu* removes the obstruction in the *Srotasas*.

**Effect on other associated symptoms**

When the patients were assessed for the other associated symptoms, it was observed that patients showed relief from *Agnidaurbalya, Aruchi, Alasya, Angamarda, Anaha, Trishna, Jvara, Apaka, Vidvibaddhata, Utsahahani, Nidraviparyaya, Bahumutrata, Vidvibaddhata, Angagaurava, Anganamshoonata.*

*Agnimandya, Ama* production, *Dhatu kshaya*, vitiation of *Vata* due to *Ama*, are the major events taking place in the pathogenesis of *Amavata*. Thus eliciting the above symptoms.

*Navak Guggulu* might have relieved the obstruction in *Rasavaha* and *Svedavaha srotasas* by its, *Tikshna guna*, *Katu rasa*, *Ushna veerya* and *Katu vipaka* there by relieving *Angamarda* and *Jvara*.

*Navak Guggulu*, being *Agnivardhaka* might have improved digestion thus overcoming *Agnidaurbalya* and *Apaka*. The *Vata dosha* obstructed by *Ama* in *Koshtha* gets vitiated causing *Anaha, Aruchi*. *Navak Guggulu* by *Amapachana* might have relieved the obstruction of *Vata* by *Ama*, regularizing the normal motion of *Apana vayu*. Thus *Anaha*, *Aruchi* might have relieved.

*Vidvibaddhata* in *Amavata* is due to obstruction of normal motion of *Apana vayu* and improper *Sara-kitta vidhajana*. *Navak Guggulu* might have improvised *Sara-kitta vibhajana* and normalized the motion of *Apana* vayu there by might have relieved *Vidvibaddhata*.

*Dhatvagnimandya* in *Amavata* leads to excess production of *Kleda* and hence leads to symptom *Bahumutrata*. *Navak Guggulu* might have improved *Dhatvagnis* and minimized *Kleda* formation. Thus *Bahumutrata* might have relieved.

*Navak Guggulu* might have lead to production of *Samyak rasa dhatu* by *Agnivardhana* and *Pachana*. And hence might have relieved *Alasya* and *Utsahahani*.

*Navak Guggulu* is very good at pain relieving. By relieving pain it may have normalized the sleep pattern.

**Effect on Lab. Investigations**

Out of 30 patients ESR count has been reduced to 33% (i.e.10 out of 30 pts), whereas 26% pts shown markedly reduction (i.e.8 out of 30 pts). & 40% pts has shown minimum reduction in present study. ESR is an acute phase reactant. There by is raised in acute conditions. *Navak Guggulu* might have subsides the inflammation of joints there by resulting in ESR reduction.

Whereas RA factor is being positive throughout the study i.e. before treatment and after treatment. No specific changes have been seen in Haemogram and urine routine before and after the treatment.

**CONCLUSIONS**

This therapy provided highly significant relief in Pain (54%), Functional activity (52%). Stiffness (49%), Swelling of joints (47.13%), Tenderness (46.5%), Local temperature (39%) Joint score (19%), and significant improvement in grip strength (26.08%), i.e., overall total improvement is 41.14%.

In the general associated symptoms patients showed relief in *Angamarda, Trishna, Jvara, Apaka, Annanabhilasha, Bahumutrata, Kukshishoola, Nidraviparyaya, Vidvibaddhata* and *Anaha*.

Hence, we can conclude on the present study that, the trial drug in this study was very effective in *Agnivardhana* and *Amapachana*. It was a very good combination of *Shoolahara, Shothaghna* and *Amapachaka Dravyas*.

*Navak Guggulu* is very effective in reducing pain and stiffness. It is also effective in reducing swelling. No untoward effect was seen in the patients during the treatment. As the study was included over a small period, a similar study performed over a longer period would have produced much sharper and more accurate results.

On the basis of observations of the studies, administration of *Navak Guggulu* may be recommended for the management of *Amavata*.

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