



Research Article

CLINICAL COMPARATIVE STUDY ON THE EFFICACY OF *GHONTA PHALADI VARTI* AND *ARAGVADHADI VARTI* IN THE MANAGEMENT OF *NADI VRANA* W.S.R. SINUS

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ABSTRACT

Clinically *Nadi Vrana* forms if abscess is avoid or treated improperly and ineffectively with post-operative complications and complaints of recurrences in most of the cases by the line of treatment adopted by modern surgeons. In spite of tremendous progress in the field of modern surgery, still there or greatly analyzed chances of recurrence are noticed.

Objectives: The study is aimed to know the comparative efficacy of *Ghonta Phaladi Varti* and *Aragvadhadi Varti* in the management of *Nadi Vrana*.

Method: Total 30 patients diagnosed to be suffering from *Nadi Vrana* (Sinus) were selected randomly. These were divided into two groups A and B containing 15 patients in each. Group A patients were treated with *Ghonta Phaladi Varti* application and group B patients were treated with *Aragvadhadi Varti* application.

Result: Comparative statistical analysis of both groups A *Ghonta Phaladi Varti* and B *Aragvadhadi Varti* denotes insignificant difference with respect to parameters such as length of the tract, discharge, surrounding skin, tenderness, temperature, pain, burning sensation and itching. But group A is more effective than group B.

Interpretation: It is recommended to conduct clinical trial on large sample size may be with some acceptable modifications in drug, dose and durations which may give more beneficial result.

Conclusion: When two groups were compared more improvement was seen in patients treated with *Ghonta Phaladi Varti* than *Aragvadhadi Varti*.

KEYWORDS: *Vrana, Nadi Vrana, Sinus, Ghonta Phaladi Varti, Aragvadhadi Varti.*

INTRODUCTION

Nadi Vrana is a common disorder in tropics due to unhygienic conditions. Clinically *Nadi Vrana* forms if abscess is avoid or treated improperly and ineffectively with post-operative complications and complaints of recurrences in most of the cases by the line of treatment adopted by modern surgeons. In spite of tremendous progress in the field of modern surgery, still there or greatly analyzed chances of recurrence are noticed.^[1]

The word *Vrana* means to break or tearing of the body. The word is derived from the verbal root of '*Vrana*' It means anything that causing discontinuity of the skin and flesh of the effected part.^[2]

Broadly *Vrana* is classified into two groups:-

- 1) *Suddha Vrana*
- 2) *Dusta Vrana*

Grossly, *Suddha Vrana* is comparable with healing ulcer and *Dusta Vrana* is comparable with non-healing ulcer.^[3]

Sushruta explain the *Nadi Vrana* comes under *Dusta Vrana*. When a surgeon opens an *Apakwa* swelling (*Vrana Shophā*), and ignores a *Pakwa Vrana Shophā* out of negligence or ignorance and if the patient continues unhealthy food and activities, then the pus break down the unimpaired intact tissues, passes deeper and deeper destroying the *Vrana Sthana*, because of its movement inside it is known as *Gati* and spreads through a tube, it is called as *Nadi*.^[4]

The term *Nadi* implies tube like structure. *Nadi Vrana* is an ulcer having a tract extending into in the deeper tissues. *Nadi Vrana* is associated with presence of the large number of recesses or cavity in an ulcer. When excessive infiltration of pus burrows deeply then it can be called as *Gati*. Thus *Gati* is synonym of *Nadi Vrana*.^[5]

A Sinus is defined as a blind tract leading from surface down into the tissue and lines either by granulation tissue or by epithelium tissue. It persists

due to the presence of in depth foreign body (sequestrum, suturing material etc.) non dependent drainage and infection.^[6]

Being the tract is line with epithelium and dense fibrosis collapse of the tract is prevented. A *Nadi Vrana* if not timely treated may lead to be formation of fistula by burrowing deeper and deeper into the tissue.

Nadi Vrana is a common disorder in tropics, due to unhygienic conditions. In spite of the tremendous progress in the field of modern surgery, it still exist as a challenging and troublesome disease. Clinically *Nadi Vrana* has been treated improperly, ineffectively with post-operative complications and complaints of recurrences in most of the cases by the line of treatment adopted by modern surgeons.

The lacunas or short falls of the present day management can be summed up as follows:

- Whereas modern surgical intervention with excision of sinus tract requires lengthy hospital stay and regular post-operative dressing and it causes lot of problems to the patient.
- Wide excision of sinus tract becomes the major surgery because it cannot be done without general anesthesia.
- Inability to maintain complete sterility is due to constant source of infection from anus.
- In case of multiple sinuses total excision of various tracts are practically impossible due to infective identification of minute sinus tracts.
- In case of Pilonidal sinus, ramifications force the surgeon to excise a wide area of tissue causing delay in healing of ulcer.

So as the operative treatment has its own limitations and adverse effects, there is a dearth of treatment which should be convenient, effective and economic for a sinus patient.

In Ayurveda, Acharyas have explained in detail about the management of *Nadi Vrana* with different treatment modalities. *Varti* application is one among them which does not require anesthesia and having good curative properties with wrathful results.

The *Varti* is considered to possess an anti inflammatory and good broad spectrum activity. It must be remembered that *Nadi Vrana* is a chronic non-healing ulcer (*Dusta Vrana*) and may occur due to specific organism also.

Here *Acharya Chakradatta* explained *Ghonta Phaladi Varti* and *Aragvadhadi Varti* which have *Shodhana* and *Ropana* properties, thus selected for the study and help in treating the *Nadi Vrana* effectively.^[7]

Objective of Study

1. To study critically *Nadi Vrana* and Sinus.
2. To know the comparative efficacy of *Ghonta Phaladi Varti* and *Aragvadhadi Varti* in the management of *Nadi Vrana*.

Historical Review

The term *Nadi Vrana* was coined during this period and described extensively by Acharya Sushruta and also by Vagbhata. In this treatise several methods are explained for the treatment of *Nadi Vrana* one among them is application of *Vartis*.^[8]

Acharya *Chakrapani*, has explained in his book '*Chakradatta*' about *Nadi Vrana* and its different treatment principles like *Patana*, application of *Varti* and *Kshara Sutra* application in *Nadi Vrana Chikitsa* 45th chapter 22. ^[9]

In *Bhaisajya Ratnavali*, *Bang Sen Samhita* and *Yogratnakara* like classics also, a separate chapter is dedicated for treatment modalities of *Nadi Vrana*. Hence the *Acharyas* have added the improved versions of treatment modalities for *Nadi Vrana* in addition to the procedures which were mentioned in *Brihatrayees*.^[10-15]

Modern Period

Post independence period saw the revival of *Ayurveda* and the *Shalya Tantra* in many aspects like in the preparation of *Pratisarneeya Kshara*, *Kshara Sutra*, *Varti* etc., which are considered as prime procedures in the management of *Nadi Vrana*.

Management

Acharya *Sushruta* approach towards the management of *Vrana* is very comprehensive. He has described sixty different factors i.e., "*Shashti upakramas*" towards the medical and surgical treatment of *Vrana*.

Acharya *Sushruta* has also mentioned seven remedial measures for *Vrana- Shotha* (inflammatory lesion) i.e., *Saptopakarmas*:

- 1) *Vimalapana*
- 2) *Avasechana*
- 3) *Upanaha*
- 4) *Patana*
- 5) *Shodhana*
- 6) *Ropana*
- 7) *Vikritapaharanam*

These *Saptopakarmas* comprehensively includes all the *Shashtiupakramas*.

Derivation of *Nadi Vrana*

- That which is having a tract inside the ulcer is called *Nadi Vrana*.
- A *Vrana Visheshha* which discharges pus at all

time is called "Nadi Vrana".

Improper managements or negligence of management will lead the *Vrana* into chronic stages; that condition is known as *Nadi Vrana*

Management

Generally the treatment advised for all *Nadi Vranas* is as opening up of the course of the pus channels with a surgical knife and followed by the *Sodhana* and *Ropana* measures. For all *Nadi Vranas* the treatment mentioned is *Chhedana* and application of *Lepa* according to *Doshas (Vagbhata)*.

Acharya Sushruta while mentioning sixty types of treatments has highlighted the importance of *Shodhana* and *Ropana* by using the *Kashaya, Varti, Kalka, Ghrita, Tail, Raskriya* and *Avachurnan* in all types of *Vranas*. The healing and purifying measures described should be deemed equally applicable to, and efficacious in cases of ulcers in general with regard to their *Doshas*.

Materials and Methods

The clinical trial was carried out on the patients attending the OPD and IPD which is undertaken by the Department of Shalya Tantra of S.J.G. Ayurvedic Medical College and Hospital, Post Graduate Studies and Research Centre, Koppal, Karnataka.

30 Patients were selected in two groups excluding dropouts with 15 patients in each group on the basis of inclusion and exclusion criteria.

Method of Collection of Data

Drugs were collected from the market under the guidance of *Dravyaguna* specialist from our college. The patients attending to the O.P.D. & I.P.D. attached to the hospital will be selected based on the clinical examination and documented in the specially prepared case Performa. In this research work 30 patients will be taken, part into two groups of patients each. The total duration of the treatment with follow up taken is 60 days. Observation will be observed scientifically and the result will be statically analyzed and progress was assessed on regular follow up.

1. Group 'A' – *Ghonta Phaladi Varti*
2. Group 'B' – *Aragvadhadi Varti*

Inclusion Criteria

- Patients having signs and Symptoms of Nadi Vrana (Sinus)
- Patients between the age group of 20 to 60 years
- Patients of either sex

Exclusion Criteria

1. Patient having Diabetes mellitus
2. Patients having Neoplastic Sinus
3. Patients having Tuberculosis

4. The age group below 20 years and above 60 years
5. Congenital sinuses
6. Patient having Actinomycosis
7. Osteomyelitis followed by sinus
8. Patients having H.I.V. & C. A.
9. Sinus with multiple opening
10. Patient with any other systemic illness

Subjective Parameter

11. Pain
12. Tenderness
13. Local temperature
14. Burning sensation
15. Itching

Objective Parameter

16. Number
17. Length
18. Position
19. Direction
20. Color of discharge
21. Surrounding skin.

Parameters for assessment

Patients are assessed every 3rd day and improvement was recorded using the following parameters:

- 1) The initial length of the tract was noted with help of a probe in the specially prepared proforma. Progress was recorded at 3 days once for 10 seating. The assessment is done as mentioned here under:

- A) **Rate of healing per seating (3 days) =** $\frac{\text{Initial length of the tract}}{\text{No. of seating taken for heal}}$
- B) **Average rate of healing in a group=** $\frac{\text{Total average rate of healing}}{15}$
- C) **Unit healing time=** $\frac{\text{No. of seating taken for heal}}{\text{Initial length of the tract}}$
- D) **Average healing time in a group=** $\frac{\text{Total average time of selected group}}{15}$

Grading and Score

1) Pain

No Pain	0
Mild Pain	1
Moderate Pain	2
Sever Pain	3

2) Tenderness

Absent	0
Present	1

3) Local Temperature

Normal	0
Raised	1

4) Burning Sensation

Absent	0
Present	1

5) Itching

Absent	0
Present	1

6) Number

Always took single number of sinus.

7) Length

Length of the tract will be measured and mentioned in mm with the help of Probe.

8) Discharge

Absent	0
Gauze is wet slightly	1
Gauze is wet after opening the bandage	2
Bandage is completely wet	3

9) Surrounding Skin

No pigmentation of skin	0
Pinkish	1
Reddish Black	2
Pale / Yellow / Bluish / Black	

Management

The present clinical study is taken up to assess the combined effect of *Ghonta Phaladi Varti* and *Aragvadhadi Varti* in *Nadi Vrana*. *Nadi Vrana* having a single external openings only considered for the present study.

OBSERVATIONS AND RESULTS

On the parameter of length of tract among 15 patients in each group, average rate of healing per seating (3 days) in group A 3.45mm and in group B 2.72mm and average healing time per 1mm in group A 0.30 seating and in group B 0.37 seating. Where before treatment mean value is 35.27 and 34.87 in group A and B respectively.

After treatment in group A recovery of patients is 60.00%. Mean value is 4.20, SD value \pm 9.18, SE value \pm 2.37, reduction 88.09%, t value 13.10, P value <0.001 , which are highly significant results. In group B recovery of patients is 46.67%. Mean value is 8.47, SD value \pm 5.77, SE value \pm 1.49, reduction 75.72%, t value 17.33, P value <0.001 which are highly significant results.

After follow up in group A recovery of patients is 73.33%. Mean value is 3.47, SD value \pm 9.76, SE value \pm 2.52, reduction 90.17%, t value 12.62, P value <0.001 , which are highly significant results. In group B recovery of patients is 46.67%. Mean value is 8.00, SD value \pm 6.06, SE value \pm 1.56, reduction 77.06%, t value 17.18, P value <0.001 , which are highly significant results.

Table 1: Evaluation of Rate of healing per seating and Unit healing time of length

Group A			Group B		
Initial length in mm	Rate of healing per seating (3days)	Unit healing time	Initial length in mm	Rate of healing per seating (3days)	Unit Healing time
31	3.44	0.29	63	3.00	0.33
35	4.38	0.23	27	2.70	0.37
38	3.80	0.26	33	3.30	0.30
47	3.73	0.27	37	2.64	0.38
9	2.25	0.44	24	2.67	0.38
16	2.67	0.38	42	2.91	0.34
23	3.83	0.26	38	2.73	0.37
59	3.55	0.28	36	2.73	0.37
42	3.82	0.26	47	2.64	0.38
56	3.64	0.28	29	2.90	0.34
26	3.25	0.31	54	2.90	0.34
36	3.60	0.28	11	2.20	0.45
36	3.27	0.31	43	2.80	0.36
48	3.45	0.29	21	2.62	0.38
27	3.00	0.33	18	2.00	0.50

Table 2: Showing Evaluation of Average rate of healing and Average healing time of Length

Sl. No.	Group	Average rate of healing	Average healing time
1	Group A	3.45	0.30
2	Group B	2.72	0.37

Table 3: showing Statistical analysis of all parameter B.T.-A.T. in Group 'A'

Group "A"	Mean		Reduction %	±SD	±SE	T	P	Remark
	B.T.	A.T.						
Length	35.2	4.20	88.09	9.18	2.37	13.10	<0.001	H.S.
Discharge	1.53	0.33	78.26	0.94	0.24	4.94	<0.001	H.S.
Surrounding Skin	1.73	0.67	61.54	0.96	0.25	4.30	<0.001	H.S.
Tenderness	1.00	0.40	60.00	0.51	0.13	4.58	<0.001	H.S.
Temperature	0.47	0.20	57.14	0.46	0.12	2.26	<0.05	M.S.
Pain	1.93	0.47	75.86	0.83	0.22	6.81	<0.001	H.S.
Burning Sensation	0.67	0.20	70.00	0.52	0.13	3.50	<0.01	S.
Itching	0.60	0.33	44.44	0.46	0.12	2.26	<0.05	M.S.

Table No. (52) Statistical analysis of all parameter B.T.-A.F. in Group 'A'

Group "A"	Mean		Reduction n%	±SD	±SE	T	P	Remark
	B.T.	A.F.						
Length	35.27	3.47	90.17	9.76	2.52	12.62	<0.001	H.S.
Discharge	1.53	0.33	78.26	0.94	0.24	4.94	<0.001	H.S.
Surrounding Skin	1.73	0.47	73.08	0.88	0.23	5.55	<0.001	H.S.
Tenderness	1.00	0.27	73.33	0.46	0.12	6.20	<0.001	H.S.
Temperature	0.47	0.07	85.71	0.51	0.13	3.06	<0.01	S.
Pain	1.93	0.47	75.86	0.83	0.22	6.81	<0.001	H.S.
Burning Sensation	0.67	0.13	80.00	0.52	0.13	4.00	<0.01	S.
Itching	0.60	0.20	66.67	0.51	0.13	3.06	<0.01	S.

Table No. (53) Statistical analysis of all parameter B.T.-A.T. in Group 'B'

Group "B"	Mean		Reduction %	±SD	±SE	T	P	Remark
	B.T.	A.T.						
Length	34.87	8.47	75.72	5.77	1.49	17.73	<0.001	H.S.
Discharge	1.27	0.53	57.89	0.80	0.21	3.56	<0.01	S.
Surrounding Skin	1.53	0.87	43.48	0.62	0.16	4.18	<0.001	H.S.
Tenderness	1.00	0.60	40.00	0.51	0.13	3.06	<0.01	S.
Temperature	0.40	0.20	50.00	0.41	0.11	1.87	>0.05	I.S.
Pain	1.80	0.93	48.15	0.74	0.19	4.52	<0.001	H.S.
Burning Sensation	0.60	0.33	44.44	0.46	0.12	2.26	<0.05	M.S.
Itching	0.67	0.40	40.00	0.46	0.12	2.26	<0.05	M.S.

Table 4: showing Statistical analysis of all parameter B.T.-A.F. in Group 'B'

Group "B"	Mean		Reduction %	±SD	±SE	T	P	Remark
	B.T.	A.F.						
Length	34.87	8.00	77.06	6.06	1.56	17.18	<0.001	H.S.
Discharge	1.27	0.60	52.63	0.82	0.21	3.16	<0.01	S.
Surrounding Skin	1.53	0.60	60.87	0.80	0.21	4.53	<0.001	H.S.
Tenderness	1.00	0.53	46.67	0.52	0.13	3.50	<0.01	S.
Temperature	0.40	0.13	66.67	0.46	0.12	2.26	<0.05	M.S.
Pain	1.80	0.93	48.15	0.74	0.19	4.52	<0.001	H.S.
Burning Sensation	0.60	0.20	60.67	0.51	0.13	3.06	<0.01	S.
Itching	0.67	0.27	60.00	0.51	0.13	3.06	<0.01	S.

Table no : 5 Comparing Statistical analysis of all parameter B.T.-A.T. in Group 'A' and 'B'

	Group B		Group A		% Of Difference	±SE	T	P	Remark
	N	Mean±S.D.	n	Mean±S.D.					
Length	15	8.47±10.19	15	4.20±7.15	50.39	3.21	1.33	>0.05	I.S.
Discharge	15	0.53±0.64	15	0.33±0.62	37.50	0.23	0.87	>0.05	I.S.
Surrounding Skin	15	0.87±0.92	15	0.67±0.97	23.08	0.35	0.58	>0.05	I.S.
Tenderness	15	0.60±0.51	15	0.40±0.51	33.33	0.19	1.08	>0.05	I.S.
Temperature	15	0.20±0.41	15	0.20±0.41	0.00	0.15	0.00	0	-
Pain	15	0.93±1.09	15	0.47±0.92	50.00	0.37	1.26	>0.05	I.S.
Burning Sensation	15	0.33±0.49	15	0.20±0.41	40.00	0.17	0.81	>0.05	I.S.
Itching	15	0.40±0.51	15	0.33±0.49	16.67	0.18	0.37	>0.05	I.S.

On the parameter of length of tract among 15 patients in each group, average rate of healing per seating (3 days) in group A 3.45mm & in group B 2.72mm and average healing time per1mm in group A 0.30 seating & in group B 0.37 seating. Where before treatment mean value is 35.27 & 34.87 in group A & B respectively.

After treatment in group A recovery of patients is 60.00%. Mean value is 4.20, SD value ± 9.18, SE value ± 2.37, reduction 88.09%, t value 13.10, P value <0.001. In group B recovery of patients is 46.67%. Mean value is 8.47, SD value ± 5.77, SE value ± 1.49, reduction 75.72%, t value 17.33, P value <0.001. So highly significant result.

After follow up in group A recovery of patients is 73.33%. Mean value is 3.47, SD value ± 9.76, SE value ± 2.52, reduction 90.17%, t value 12.62, P value <0.001. In group B recovery of patients is 46.67%. Mean value is 8.00, SD value ± 6.06, SE value ± 1.56, reduction 77.06%, t value 17.18, P value <0.001. So highly significant result.

On the parameter of discharge among 15 patients in each group. Where before treatment in group A 2 patients were in Grade-3, 5 patients in Grade-2, 7 patients in Grade-1 & 1 patient in Grade-0. Mean value is 1.53. In group B 1 patient were in Grade-3, 3 patients in Grade-2, 10 patients in Grade-1 & 1 patient in Grade-0 pain, Mean value is 1.27.

After treatment in group A 0 patient were in Grade-3, 1 patient in Grade-2, 3 patients in Grade-1 & 11 patients in Grade-0. So recovery of patients is 73.33%. Mean value is 0.33, SD value ± 0.94, SE value ± 0.24, reduction 78.26%, t value 4.94, P value <0.001. In group B 0 patient were in Grade-3, 1 patient in Grade-2, 6 patients in Grade-1 & 8 patients in Grade-0 pain. So recovery of patients is 53.33%. Mean value is 0.53, SD value ± 0.80, SE value ± 0.21, reduction 57.89%, t value 3.56, P value <0.01. So significant result.

After follow up in group A 0 patient were in Grade-3, 1 patient in Grade-2, 3 patients in Grade-1 & 11 patients in Grade-0. So recovery of patients is

73.33%. Mean value is 0.33, SD value ± 0.94, reduction 78.26%, t value 4.94, P value <0.001. In group B 0 patients were in Grade-3, 2 patients in Grade-2, 5 patients in Grade-1 & 8 patients in Grade-0 pain. So recovery of patients is 53.33%. Mean value is 0.60, SD value ± 0.82, SE value ± 0.21 reduction 52.63%, t value 3.16, P value <0.01. So significant result.

On the parameter of colour of surrounding skin among 15 patients in each group. Where before treatment in group A 4 patients were in Grade-3, 4 patients in Grade-2, 6 patients in Grade-1 & 1 patient in Grade-0. Mean value is 1.73. In group B 2 patients were in Grade-3, 6 patients in Grade-2, 5 patients in Grade-1 & 2 patients in Grade-0 pain, Mean value is 1.53.

After treatment in group A 1 patient were in Grade-3, 2 patients in Grade-2, 3 patients in Grade-1 & 9 patients in Grade-0. So recovery of patients is 60.00%. Mean value is 0.67, SD value ± 0.96, SE value ± 0.25, reduction 61.54%, t value 4.30, P value <0.001. In group B 1 patient were in Grade-3, 2 patients in Grade-2, 6 patients in Grade-1 & 6 patients in Grade-0 pain. So recovery of patients is 40.00%. Mean value is 0.87, SD value ± 0.62, SE value ± 0.16, reduction 43.48%, t value 4.18, P value <0.001. So highly significant result.

After follow up in group A 1 patient were in Grade-3, 1 patient in Grade-2, 2 patients in Grade-1 & 11 patients in Grade-0. So recovery of patients is 73.33%. Mean value is 0.47, SD value ± 0.88, SE value ± 0.23, reduction 73.08%, t value 5.95, P value <0.001. In group B 1 patients were in Grade-3, 1 patients in Grade-2, 4 patients in Grade-1 & 9 patients in Grade-0. So recovery of patients is 60.00%. Mean value is 0.60, SD value ± 0.80, SE value ± 0.21 reduction 60.87%, t value 4.53, P value <0.001. So highly significant result.

On the parameter of tenderness among 15 patients in each group. Where before treatment in group A 15 patients were present & 0 patient absent..

Mean value is 1. In group B 15 patients were present & 0 patient absent.. Mean value is 1.

After treatment in group A 6 patients were present & 9 patients absent. So recovery of patients is 60.00%. Mean value is 0.40, SD value \pm 0.51, SE value \pm 0.13 reduction 60.00%, t value 4.38, P value <0.001. So highly significant result. In group B 9 patients were present & 6 patients absent. So recovery of patients is 40.00%. Mean value is 0.60, SD value \pm 0.51, SE value \pm 0.13 reduction 40.00%, t value 3.06, P value <0.01. So significant result.

After follow up in group A 4 patients were present & 11 patients absent. So recovery of patients is 73.33%. Mean value is 0.27, SD value \pm 0.46, SE value \pm 0.12 reduction 73.33%, t value 6.20, P value <0.001. So highly significant result. In group B 8 patients were present & 7 patients absent. So recovery of patients is 46.67%. Mean value is 0.53, SD value \pm 0.52, SE value \pm 0.13 reduction 46.67%, t value 3.50, P value <0.01. So significant result.

On the parameter of temperature among 15 patients in each group. Where before treatment in group A 7 patients were present & 8 patient absent. Mean value is 0.47. In group B 6 patients were present & 9 patients absent. Mean value is 0.40.

After treatment in group A 3 patients were present & 12 patients absent. So recovery of patients is 80.00%. Mean value is 0.20, SD value \pm 0.46, SE value \pm 0.12 reduction 57.14%, t value 2.26, P value <0.05. So mild significant result. In group B 3 patients were present & 12 patients absent. So recovery of patients is 80.00%. Mean value is 0.40, SD value \pm 0.41, SE value \pm 0.11 reduction 50.00%, t value 1.87, P value >0.05. So insignificant result.

After follow up in group A 1 patient were present & 14 patients absent. So recovery of patients is 93.33%. Mean value is 0.07, SD value \pm 0.51, SE value \pm 0.13 reduction 85.71%, t value 3.06, P value <0.01. So significant result. In group B 2 patients were present & 13 patients absent. So recovery of patients is 86.67%. Mean value is 0.13, SD value \pm 0.46, SE value \pm 0.12 reduction 66.67%, t value 2.26, P value <0.05. So mild significant result.

On the parameter of pain among 15 patients in each group. Where before treatment in group A 4 patients were in Grade-3, 6 patients in Grade-2, 5 patients in Grade-1 & 0 patient in Grade-0. Mean value is 1.93. In group B 3 patients were in Grade- 3, 6 patients in Grade-2, 6 patients in Grade-1 & 0 patient in Grade-0 pain, Mean value is 1.80.

After treatment in group A 1 patient were in Grade-3, 1 patient in Grade-2, 2 patients in Grade-1 & 11 patients in Grade-0. So recovery of patients is 73.33%. Mean value is 0.47, SD value \pm 0.83, SE value \pm 0.22, reduction 75.86%, t value 6.81, P value <0.001.

In group B 2 patients were in Grade-3, 2 patients in Grade-2, 4 patients in Grade-1 & 7 patients in Grade-0 pain. So recovery of patients is 46.67%. Mean value is 0.93, SD value \pm 0.74, SE value \pm 0.19, reduction 48.15%, t value 4.52, P value <0.001. So highly significant result.

After follow up in group A 1 patient were in Grade-3, 1 patient in Grade-2, 2 patients in Grade-1 & 11 patients in Grade-0 pain. So recovery of patients is 73.33%. Mean value is 0.47, SD value \pm 0.83, reduction 75.86%, t value 6.81, P value <0.001. In group B 2 patients were in Grade-3, 2 patients in Grade-2, 4 patients in Grade-1 & 7 patients in Grade-0 pain. So recovery of patients is 46.67%. Mean value is 0.93, SD value \pm 0.74, SE value \pm 0.19 reduction 48.15%, t value 4.52, P value <0.001. So highly significant result.

On the parameter of burning sensation among 15 patients in each group. Where before treatment in group A 10 patients were present & 5 patients absent. In group B 9 patients were present & 6 patients absent. Mean value is 0.60.

After treatment in group A 3 patients were present & 12 patients absent. So recovery of patients is 80.00%. Mean value is 0.20, SD value \pm 0.52, SE value \pm 0.13 reduction 70.00%, t value 3.50, P value <0.01. So significant result. In group B 5 patients were present & 10 patients absent. So recovery of patients is 66.67%. Mean value is 0.40, SD value \pm 0.46, SE value \pm 0.12 reduction 40.00%, t value 2.26, P value <0.05. So mild significant result.

After follow up in group A 2 patients were present & 13 patients absent. So recovery of patients is 86.67%. Mean value is 0.13, SD value \pm 0.52, SE value \pm 0.13 reduction 80.00%, t value 4.00, P value <0.01. In group B 2 patients were present & 13 patients absent. So recovery of patients is 86.67%. Mean value is 0.20, SD value \pm 0.51, SE value \pm 0.13 reduction 60.67%, t value 3.06, P value <0.01. So significant result.

On the parameter of itching among 15 patients in each group. Where before treatment in group A 9 patients were present & 6 patient absent. Mean value is 0.60. In group B 10 patients were present & 5 patients absent. Mean value is 0.67.

After treatment in group A 5 patients were present & 10 patients absent. So recovery of patients is 66.67%. Mean value is 0.33, SD value \pm 0.46, SE value \pm 0.12 reduction 44.44%, t value 2.26, P value <0.05. In group B 6 patients were present & 9 patients absent. So recovery of patients is 60.00%. Mean value is 0.40, SD value \pm 0.46, SE value \pm 0.12 reduction 40.00%, t value 2.26, P value <0.05. So mild significant result.

After follow up in group A 4 patients were present & 11 patients absent. So recovery of patients is 73.33%. Mean value is 0.20, SD value \pm 0.51, SE value \pm 0.13 reduction 66.67%, t value 3.06, P value $<$ 0.01. In group B 4 patients were present & 11 patients absent. So recovery of patients is 73.33%. Mean value is 0.27, SD value \pm 0.51, SE value \pm 0.13 reduction 60.00%, t value 3.06, P value $<$ 0.01. So significant result.

Comparative statistical analysis of both groups "A" *Ghonta Phaladi Varti* and "B" *Aragvadhadi Varti* denotes insignificant difference with respect to parameters such as length of the tract, discharge, surrounding skin, tenderness, temperature, pain, burning sensation and itching. But group A is more effective than group B.

Effect of *Ghonta Phaladi Varti* application in group 'A' shown more efficacies with respect to length of the tract after follow up with a reduction of 90.17% where as the *Aragvadhadi Varti* application in group 'B' shown low efficacy with 77.06% reduction.

Effect of *Ghonta Phaladi Varti* application in group 'A' shown more efficacies with respect to discharge after follow up with a reduction of 78.26% where as the *Aragvadhadi*

Varti application in group 'B' has shown low efficacy with 52.63% reduction.

Effect of *Ghonta Phaladi Varti* application in group 'A' shown more efficacy with respect to surrounding skin after follow up with a reduction of 73.08% where as the *Aragvadhadi Varti* application in group 'B' shown low efficacy with 60.87% reduction.

Effect of *Ghonta Phaladi Varti* application in group 'A' shown more efficacy with respect to tenderness after follow up with a reduction of 73.33% where as the *Aragvadhadi Varti* application in group 'B' shown low efficacy with 46.67% reduction.

Effect of *Ghonta Phaladi Varti* application in group 'A' shown more efficacy with respect to temperature after follow up with a reduction of 85.71% where as the *Aragvadhadi Varti* application in group 'B' shown low efficacy with 66.67% reduction.

Effect of *Ghonta Phaladi Varti* application in group 'A' shown more efficacy with respect to pain after follow up with a reduction of 75.86% where as the *Aragvadhadi Varti* application in group 'B' shown low efficacy with 48.15% reduction.

Effect of *Ghonta Phaladi Varti* application in group 'A' shown more efficacy with respect to burning sensation after follow up with a reduction of

80.00% where as the *Aragvadhadi Varti* application in group 'B' shown low efficacy with 60.67% reduction.

Effect of *Ghonta Phaladi Varti* application in group 'A' shown more efficacy with respect to itching after follow up with a reduction of 66.67% where as the *Aragvadhadi Varti* application in group 'B' shown low efficacy with 60.00% reduction.

DISCUSSION

Total 30 patients diagnosed to be suffering from *Nadi Vrana* (Sinus) were selected randomly. These were divided into two groups A and B containing 15 patients in each. Group A patients were treated with *Ghonta Phaladi Varti* application and group B patients were treated with *Aragvadhadi Varti* application. The data was collected and observation were made before treatment, during treatment on 3rd, 6th, 9th, 12th, 15th, 18th, 21st, 24th, 27th, 30th day and during follow up on 37th, 45th, 53rd, 60th day. The data obtained from the results was subjected analysis and conclusions were drawn.

Both the groups were observed thoroughly in respect of sex, age, religion, diet pattern, marital status, occupation, socio-economic status, family history, Agni, *Kostha*, *Prakriti*, *Vyasana*, chronicity of disease, position or site of sinuses.

In both the groups the results obtained (within the group) using paired 't' test for all the parameters. In groups A the drugs showed highly significant results in parameters such as pain, tenderness, surrounding skin, discharge, length of tract and significant results in parameters such as local temperature, burning sensation, itching. In group B the drugs showed highly significant results in parameters such as pain, surrounding skin, length of tract and significant results in parameters such as discharge, tenderness, burning sensation, itching and mild significant results in parameters such as local temperature.

On comparing for the observed differences in values obtained for the respective parameters between both the groups A and B (using unpaired 't' test) the result showed insignificance for all the parameters.

From the above results it is proved that both the drugs are quiet effective in relieving all the parameters. But Group A medicine i.e. *Ghonta Phaladi Varti* is more effective than Group B medicine i.e. *Aragvadhadi Varti*.

Further it is recommended to conduct clinical trial on large sample size may be with some acceptable modifications in drug, dose and durations which may give more beneficial result.

CONCLUSION

The description of *Nadi Vrana* available in ancient Ayurvedic literature implies to sinus described in modern literature.

The present study proved that *Varti* application procedure is very easy cheap and effective than any surgical procedure.

The results of average rate of healing per seating (3 days) were seen as 3.45mm in group 'A' and 2.72mm in group 'B'. The average healing time for 1mm in group 'A' is 0.30 seating and in group 'B' is 0.37 seating.

As per the unit healing time, *Ghonta Phaladi Varti* was found more effective compared to *Aragvadhadi Varti*.

After the statistical analysis of Group 'A' *Ghonta Phaladi Varti* shown highly significant effect on pain, colour of surrounding skin, tenderness, discharge and length of the tract, but it was significant effect on burning sensation, local temperature and itching.

After the statistical analysis of group 'B' *Aragvadhadi Varti* shown highly significant effect on pain, colour of surrounding skin and length of the tract, it was significant effect on discharge, tenderness, burning sensation and itching and it was mild significant effect on temperature.

Between the Group A and Group B the difference observed in all parameters except temperature parameter is statistically insignificant and in temperature non-significant, but overall group A being more significant than group B.

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