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A RANDOMIZED CLINICAL STUDY OF HARIDRA PATRAADAANA AND GUDUCHI PATRAADAANA IN THE MANAGEMENT OF DUSHTAVRANA

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ABSTRACT

It is estimated that in the course of life time, almost 10% of population will develop a chronic ulcer with mortality rate of 2. 5% Despite treatment, many chronic ulcers fail to heal or persist for months/years and pose serious complication leading to even death in surgical practice. In Dushtavrana, healing will be delayed because of Doshadushti. Acharya Susrutha elaborately explained the management of Vrana which incorporated Vranashodhana, Vranaropaana and Vaikrutapaha. Shastirupakrama helps to attain Shudha Avastha and Ruda Avastha of Vrana with restoration of normalcy. Patraadaana is one among Shastirupakrama which is indicated in management of wounds which are non-progressive, with poor granulation tissue and not healing due to dryness. Among the leaves mentioned, two of them, Guduchi(Tinospora cordifolia) and Haridra(Curcurma longa) were selected here for clinical assessment in Dushtavrana. Local intervention with Haridra patraadana and Guduchi patraadana with Jatyadi taila along with internal medications was found to be significant in reducing pain, tenderness, burning sensation, itching, discharge, odour and size of the ulcer.

KEYWORDS: Dustavrana, Chronic non healing Ulcer, Patraadana, Haridra Patra, Guduchi Patra.

INTRODUCTION

Vrana (wound) and its management is dealt from the period of the Veda to current era.[1] It is a major problem since the early stage of medical science. Chronic ulcers or non-healing ulcers are defined as spontaneous or traumatic lesions that persist despite appropriate care

and do not proceed towards healing in a defined time period with an underlying etiology that may be related to systemic disease or local disorders.[2] It is estimated that in the course of life time, almost 10% of population will develop a chronic ulcer with mortality rate of 2. 5%.[3] Conventional treatment for non-healing ulcers includes wound cleansing, necrotic tissue debridement, prevention, diagnosis, and, if necessary, treatment of infection, mechanical off-loading, management of blood glucose levels and local ulcer care with dressing application[4,5,6] Despite treatment, many chronic ulcers fail to heal or persist for months/years and pose serious complication leading to even death in surgical practice.

Acharya Susrutha explained Dushtavrana, as Atisamvrutha, Ativivrutha, Atikatinam, Atimrudhu, Utsannam, Avasannam, Atyarthavedana, Daha, Paka, Kandu, Dheergakaalanubandhi etc.[7,8] In Dushtavrana, healing will be delayed because of Doshadushti. Acharya Susrutha elaborately explained the management of Vrana which incorporated Vranashodhana, Vranaropana and Vaikrutapaha. Shastirupakrama helps to attain Shudha Avastha and Ruda Avastha of Vrana with restoration of normalcy. Patraadaana is one among Shastirupakrama which is indicated in management of wounds which are non-progressive, with poor granulation tissue and not healing due to dryness.[10] Among the leaves mentioned, two of them, Guduchi(Tinospora cordifolia) and Haridra(Curcurma longa) were selected here for clinical assessment in Dushtavrana.

METHODOLOGY

Study Design

It is an open labelled, randomised, parallel group interventional comparative clinical trial with pre-test and post-test design. 40 patients suffering from Dustravrana fulfilling the diagnostic and inclusion criteria were selected and randomly assigned into two equal groups, Group A (Haridra Patraadana) and Group B (Guduchi Patraadana). The patients were subjected to Patrradana with Jathyadi taila for 8 days. Internal medications were given for 30 days. A consent form was filled. A research proforma was specially designed for this study based on subjective and objective criteria. Observations were recorded. Effect of treatment was assessed statistically on the basis of gradation of both subjective and objective parameters before and after treatment. For quantitative data, paired ‘t’ test was used for within the group comparison and unpaired ‘t’ test for comparison of two groups. For qualitative data, Wilcox an sign rank test was used for with in group comparison and Mann Whitney for comparison of two groups.

Source of Data

1. Haridra Patra and Guduchi Patra was local sourced around Kuthpady.
2. Jatyadi Taila was obtained obtained from SDM Ayurveda Pharmacy, Kuthpady, Udupi. Ref: Ayurvedic Formulary of India. ISO: 9001: 2015.
3. Triphala Guggulu obtained from SDM Ayurveda Pharmacy, Kuthpady, Udupi. Ref: Ayurvedic Formulary of India. ISO: 9001: 2015.
4. Gandhaka Rasayana obtained from SDM Ayurveda Pharmacy, Kuthpady, Udupi. Ref: Ayurvedic Formulary of India. ISO: 9001: 2015.

Literary Source

SDM Ayurveda College Library and Internet Sources.

Source of Subjects

40 patients diagnosed with Dustavrana coming under the inclusion criteria were selected from Outpatient and Inpatient department of SDM Ayurveda Hospital, Kuthpady, Udupi.

Method of Collection of Data

40 patients diagnosed with Dustavrana fulfilling the diagnostic & inclusion criteria were selected and randomly assigned to two equal groups-Group A(Haridra Patraadana) and Group B(Guduchi Patraadana). The patients with consent were subjected to Patraadana with Jathyadi taila daily and internal medications. A research proforma was specifically designed for this study, based on subjective and objective criteria. The patients were observed for 1 month. For Group A, 0^{th} day to 7^{th} day Haridra patraadana with Jathyadi taila was done. Periodical observation on 1^{st} and 8^{th} day. For Group B, 0^{th} day to 7^{th} day Guduchi patraadana with Jathyadi taila. Periodical observation was done on 1^{st} and 8^{th} day. Follow up of patients of both groups were done 15^{th} and 30^{th} days.

Intervention

1. Local Intervention

Jathyadi taila is applied over the ulcer upon which is clean, non-infected tender leaves of Haridra /Guduchi are placed then covered with a pad and bandhana (bandaging) is done by using Roller gauze. Dressing is changed daily.

2. Internal Medication

Triphala guggulu 1tablet thrice daily

Gandhaka rasayana 1 thrice daily was prescribed with lukewarm water after food daily for 1 month.

Procedure of Patraadana

❖ **Purvakarma**

- With informed written consent the procedure of Haridra Patraadana/ Guduchi Patraadana was briefed to the patient.
- Haridra patra/ Guduchi patra is cleaned in running tap water.
- Drugs-Jathyadi taila, Haridra patra/Guduchi patra
- Materials-Well illuminated room with privacy, Dressing table, Place for hand wash, Sterile gauze and swab.
- For dressing-Sterile artery forceps, sterile cotton swabs, sterile gauze pieces, sterile pad, normal saline, surgical spirit, kidney tray, roller gauze

❖ **Pradhana karma**

- Patient was made to lie down on dressing table in a comfortable position with good access for dressing.
- Wound is exposed, under aseptic condition.
- Ulcer floor is irrigated well with normal saline and cleaned with a sterile cotton swab or sterile gauze piece is held with a sterile artery forceps to remove debris and discharge from the ulcer, surrounding area is cleaned concentrically with surgical spirit applied over sterile gauze piece held with artery forceps.
- A clean Haridra patra/ Guduchi patra is taken and cleaned again with normal saline and dried using a sterile gauze piece.
- Jathyadi taila is applied over ulcer floor, Haridra patra/Guduchi patra is placed over the ulcer over which a sterile pad is placed.

❖ **Paschat karma**

- Bandaging is done using roller gauze/ plaster based on the site of the ulcer.
- Dressing is changed daily.

Duration of Treatment

0^{th} to 7^{th} day-patraadana

Total duration including observation -30 DAYS

Observation

Patraadana was done daily for first 8 days and observation was done on day 1, day 8, day 15 and day 30.

Diagnostic criteria

Patient with classical signs and symptoms of Dushtavrana and indications of patraadana

1. Sthira vrana (non progressive wound)
2. Alpa mamsanam (poor granulation tissue)
3. Rouksyat anuparohatam (not healing due to dryness)

Inclusion criteria

- Patient aged between 18-70 years
- Chronic non healing ulcer with a minimum duration of 21 days.

Exclusion criteria

- Patients having pre-gangrenous or gangrenous ulcer.
- Patients suffering from specific ulcers like tuberculosis, malignancy, syphilis, and actinomycosis.
- Uncontrolled systemic diseases.

Assessment criteria

SUBJECTIVE PARAMETERS

1. Pain
2. Itching
3. Burning sensation

OBJECTIVE PARAMETERS

1. Tenderness
2. Discharge
3. Odour
4. Floor of the ulcer
5. Size of ulcer

Investigations

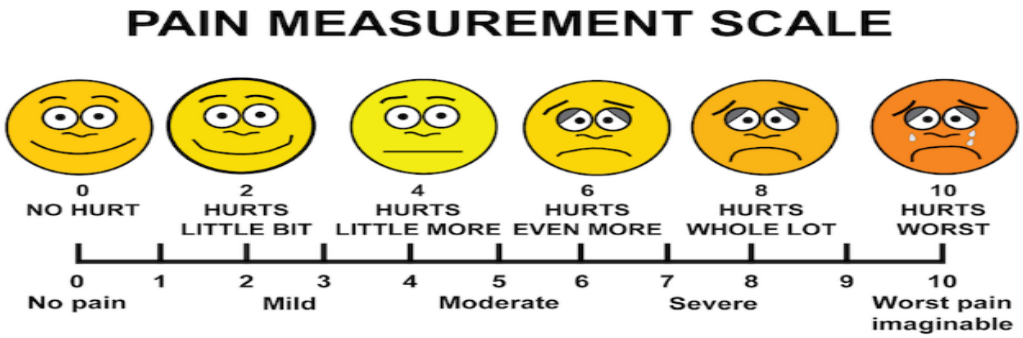
- BLOOD- Hb%, total leukocyte count, differential count, ESR, RBS
- URINE- analysis (if necessary)

- Wound swab culture and sensitivity test (if necessary)
- X-Ray of wound site (if necessary)
- Any Other Investigations if required.

Table No 1: Grading of Parameters for assessment of Dusta vrana.

Grade	Sraava / Discharge	Vedana / Pain	Daaha / Burning sensation	Kandu/ Itching	Floor and Granulation tissue
0	no discharge	no pain	no burning sensation	no itching	even floor,completely covered with granulation tissue
1	scanty, serous discharge	mild pain on touch	mild occasional episodes of burning	mild occasional episodes of itching	uneven floor with patches of granulation tissue
2	profuse discharge	mild pain even without touch	moderate continuous burning sensation	moderate continuous itching	uneven floor with spots of granulation tissue
3	purulent discharge, bloody discharge	continuous severe pain throughout day & night	severe continuous burning, disturbing sleep	severe continuous itching disturbing sleep	uneven floor, no granulation tissue, fibrous tissue, slough, hypergranulation.

VAS SCALE



SIZE

- A graph paper is placed on the ulcer and its margin is marked on the graph sheet
- Area of ulcer= Number of squares present inside the marked margin

Table No 2: Assessment and Follow up data.

ASSESSMENT CRITERIA	BT	DAY-1	DAY-8	DAY-15	DAY-30
PAIN					
TENDERNESS					

DISCHARGE					
SMELL					
ITCHING					
BURNING SENSATION					
FLOOR OF THE ULCER					
SIZE					

Statistical method

- Statistical analysis was done using IBM Statistical Package for Social Science (SPSS)
- 40 patients diagnosed with Dustavrana fulfilling the diagnostic & inclusion criteria were selected and randomly assigned to two equal groups-Group A (Haridra Patraadana) and Group B (Guduchi Patraadana). Patraadana was done for 8 days. Obtained observations were noted and analysed statistically.
- Non parametric tests used for Nominal and ordinal data is Wilcoxan sign rank test for within the group and Mann Whitney U test for between the group. All the results were analysed for p value
- Parametric test used for Scale and ratio data is paired t test for within the group and unpaired t test for between the group. All the results were analysed for p value
- Obtained results are interpreted by using Statistical terms
- Non-significant [NS]: if p>0. 05
- Significant[S]: if p is within 0. 05-0. 001
- Highly significant [HS]: if p<0. 001

SUBJECTIVE CRITERIA

In this study pain, itching and burning sensation are considered as subjective parameters.

OBJECTIVE CRITERIA: In this study tenderness, discharge, odour, floor of ulcer, Size of ulcer is the objective criteria,

Table No 3: Pain assessment.

Parameters	**Negative Ranks**			**Positive Ranks**			**Tie**	**Z value**	**P value**	**Interpretation**
GROUP A-PAIN	**N**	**MR**	**SR**	**N**	**MR**	**SR**				
BT-DAY 1	4	2. 50	10. 00	0	0. 00	0. 00	13	-2. 00	0. 046	S
BT-DAY 8	16	8. 5	136	0	0. 00	0. 00	1	-3. 56	0. 000	HS
BT-DAY 15	17	9. 00	153. 00	0	0. 00	0. 00	0	-3. 69	0. 000	HS
BT-DAY 30	17	9. 00	153. 00	0	0. 00	0. 00	0	-3. 69	0. 00	HS

Parameters	Negative Ranks			Positive Ranks			Tie	Z value	P value	Interpretation
GROUP B -PAIN	N	MR	SR	N	MR	SR				
BT-DAY 1	9	5. 00	45. 00	0	0. 00	0. 00	8	-3. 00	0. 003	S
BT-DAY 8	16	8. 50	136. 00	0	0. 00	0. 00	1	-3. 57	0. 000	HS
BT-DAY 15	17	9. 00	153. 00	0	0. 00	0. 00	0	-3. 72	0. 000	HS
BT-DAY 30	17	9. 00	153. 00	0	0. 00	0. 00	0	-3. 72	0. 000	HS

Parameters	Gr A(n)	Gr B(n)	Mean Ranks		Sum of Ranks		U value	Z value	P value	Remarks
Pain			Gr A	Gr B	Gr A	Gr B				
BT- 1st day	17	17	20. 00	15. 00	340. 00	255. 00	102. 00	-1. 738	0. 082	NS
Pain BT- 8th day	17	17	16. 79	18. 21	285. 50	309. 50	132. 50	-0. 438	0. 622	NS
Pain BT- 15th day	17	17	17. 35	17. 65	295. 00	300. 00	142. 00	-0. 097	0. 923	NS
Pain BT- 30th day	17	17	18. 03	16. 97	306. 50	288. 50	135. 50	-0. 348	0. 728	NS

Table No 4: Itching assessment.

Parameters	Negative Ranks			Positive Ranks			Tie	Z value	P value	interpretation
GROUP A - ITCHING	N	MR	SR	N	MR	SR				
BT-DAY 1	9	5. 00	45. 00	0	0. 00	0. 00	0	-2. 88	0. 006	S
BT-DAY 8	9	5. 00	45. 00	0	0. 00	0. 00	0	-2. 73	0. 006	S
BT-DAY 15	9	5. 00	45. 00	0	0. 00	0. 00	0	-2. 73	0. 006	S
BT-DAY 30	9	5. 00	45. 00	0	0. 00	0. 00	0	-2. 73	0. 006	S

Parameters	Negative Ranks			Positive Ranks			Tie	Z value	P value	Interpretation
GROUP B - ITCHING	N	MR	SR	N	MR	SR				
BT-DAY 1	0	0. 00	0. 00	0	0. 00	0. 00	5	0. 00	1. 000	NS
BT-DAY 8	5	3. 00	15. 00	0	0. 00	0. 00	0	-2. 06	0. 039	S
BT-DAY 15	5	3. 00	15. 00	0	0. 00	0. 00	0	-2. 04	0. 041	S
BT-DAY 30	5	3. 00	15. 00	0	0. 00	0. 00	0	-2. 04	0. 041	S

Parameters	Gr A	Gr B	Mean Ranks		Sum of Ranks		U value	Z value	P value	Remarks
Itching			Gr A	Gr B	Gr A	Gr B				
BT- 1st day	9	5	5. 00	12. 00	45. 00	60. 00	0. 000	-3. 416	0. 001	HS
Itching BT- 8th day	9	5	5. 94	10. 30	53. 50	51. 50	8. 500	-2. 001	0. 045	HS
Itching BT- 15th day	9	5	6. 67	9. 00	60. 00	45. 00	15. 000	-1. 097	0. 273	NS
Itching BT- 30th day	9	5	6. 67	9. 00	60. 00	45. 00	15. 000	-1. 097	0. 273	NS

Table No 5: Burning Sensation Assessment.

Parameters	Negative Ranks			Positive Ranks			Tie	Z value	P value	interpretation
GROUP A – BURNING SENSATION BT-DAY 1	N	MR	SR	N	MR	SR				
	0	0. 00	0. 00	0	0. 00	0. 00	12	0. 00	1. 000	NS

BT-DAY 8	12	6. 50	78. 00	0	0. 00	0. 00	0	-3. 10	0. 002	S
BT-DAY 15	12	6. 50	78. 00	0	0. 00	0. 00	0	-3. 17	0. 001	HS
BT-DAY 30	12	6. 50	78. 00	0	0. 00	0. 00	0	-3. 17	0. 001	HS

Parameters	**Negative Ranks**			**Positive Ranks**			**Tie**	**Z value**	**P value**	**interpretation**
GROUP B – BURNING SENSATION BT-DAY 1	N	MR	SR	N	MR	SR				
	8	4. 50	36. 00	0	0. 00	0. 00	0	-2. 64	0. 008	S
BT-DAY 8	8	4. 50	36. 00	0	0. 00	0. 00	0	-2. 64	0. 008	S
BT-DAY 15	8	4. 50	36. 00	0	0. 00	0. 00	0	-2. 64	0. 008	S
BT-DAY 30	8	4. 50	36. 00	0	0. 00	0. 00	0	-2. 71	0. 007	S

Parameters	**Gr A(n)**	**Gr B(n)**	**Mean Ranks**		**Sum of Ranks**		**U value**	**Z value**	**P value**	**Remarks**
Burning Sensation BT- 1st day			**Gr A**	**Gr B**	**Gr A**	**Gr B**				
	12	8	14. 50	4. 50	174. 00	36. 00	0. 000	-4. 254	0. 000	HS
Burning Sensation BT- 8th day	12	8	12. 58	7. 38	151. 00	59. 00	23. 000	-2. 097	0. 036	HS
Burning Sensation BT- 15th day	12	8	10. 83	10. 00	130. 00	80. 00	44. 000	-0. 388	0. 698	NS
Burning Sensation BT- 30th day	12	8	11. 33	9. 25	136. 00	74. 00	38. 000	-1. 027	0. 304	NS

Table No 6: Tenderness Assessment.

Parameters	**Negative Ranks**			**Positive Ranks**			**Tie**	**Z value**	**P value**	**interpretation**
GROUP A - TENDERNESS BT-DAY 1	**N**	**MR**	**SR**	**N**	**MR**	**SR**				
	1	1. 00	1. 00	0	0. 00	0. 00	16	-1. 00	0. 317	NS
BT-DAY 8	17	9. 00	153. 00	0	0. 00	0. 00	0	-3. 69	0. 000	HS
BT-DAY 15	17	9. 00	153. 00	0	0. 00	0. 00	0	-3. 75	0. 000	HS
BT-DAY 30	17	9. 00	153. 00	0	0. 00	0. 00	0	-3. 75	0. 000	HS

Parameters	**Negative Ranks**			**Positive Ranks**			**Tie**	**Z value**	**P value**	**interpretation**
GROUP B - TENDERNESS BT-DAY 1	**N**	**MR**	**SR**	**N**	**MR**	**SR**				
	13	7. 00	91. 00	0	0. 00	0. 00	0	-3. 41	0. 001	HS
BT-DAY 8	13	7. 00	91. 00	0	0. 00	0. 00	0	-3. 35	0. 001	HS
BT-DAY 15	13	7. 00	91. 00	0	0. 00	0. 00	0	-3. 41	0. 001	HS
BT-DAY 30	13	7. 00	91. 00	0	0. 00	0. 00	0	-3. 41	0. 001	HS

Parameters	Gr A(n)	Gr B(n)	Mean Ranks		Sum of Ranks		U value	Z value	P value	Remarks
Tenderness BT- 1st day	17	13	21. 68	7. 42	368. 50	96. 50	5. 500	-4. 960	0. 000	HS
Tenderness BT- 8th day	17	13	16. 85	13. 73	286. 50	178. 50	87. 500	-1. 123	0. 261	NS
Tenderness BT- 15th day	17	13	16. 79	13. 81	285. 50	179. 50	88. 500	-1. 201	0. 230	NS
Tenderness BT- 30th day	17	13	16. 79	13. 81	285. 50	179. 50	88. 500	-1. 201	0. 230	NS

Table No 7: Discharge Assessment.

Parameters	Negative Ranks			Positive Ranks			Tie	Z value	P value	interpretation
GROUP A - DISCHARGE BT-DAY 1	N	MR	SR	N	MR	SR				
	7	4. 00	28. 00	0	0. 00	0. 00	13	-2. 46	0. 014	S
BT-DAY 8	14	7. 50	105. 00	0	0. 00	0. 00	6	-3. 37	0. 001	HS
BT-DAY 15	19	10. 00	190. 00	0	0. 00	0. 00	1	-3. 95	0. 000	HS
BT-DAY 30	20	10. 50	210. 00	0	0. 00	0. 00	0	-4. 06	0. 000	HS

Parameters	Negative Ranks			Positive Ranks			Tie	Z value	P value	interpretation
GROUP B - DISCHARGE BT-DAY 1	N	MR	SR	N	MR	SR				
	0	0. 00	0. 00	16	8. 50	136. 00	2	-3. 64	0. 000	HS
BT-DAY 8	4	6. 50	26. 00	8	6. 50	52. 00	6	-1. 15	0. 248	NS
BT-DAY 15	11	6. 00	66. 00	0	0. 00	0. 00	7	-3. 12	0. 002	S
BT-DAY 30	14	7. 50	105. 00	0	0. 00	0. 00	4	-3. 49	0. 000	HS

Parameters	Gr A(n)	Gr B(n)	Mean Ranks		Sum of Ranks		U value	Z value	P value	Remarks
Discharge BT- 1st day	20	18	11. 15	28. 78	223. 00	518. 00	13. 000	-5. 105	0. 000	HS
Discharge BT- 8th day	20	18	13. 40	26. 28	268. 00	473. 00	58. 000	-3. 707	0. 000	HS
Discharge BT- 15th day	20	18	15. 18	24. 31	303. 50	437. 50	93. 500	-2. 796	0. 005	HS
Discharge BT- 30th day	20	18	16. 28	23. 08	325. 50	415. 50	115. 500	-2. 191	0. 028	HS

Table No 8: Odour assessment.

Parameters	Negative Ranks			Positive Ranks			Tie	Z value	P value	interpretation
GROUP A - ODOUR BT-DAY 1	N	MR	SR	N	MR	SR				
	7	4. 00	28. 00	0	0. 00	0. 00	7	-2. 53	0. 011	HS
BT-DAY 8	11	6. 00	66. 00	0	0. 00	0. 00	3	-2. 97	0. 003	HS
BT-DAY 15	14	7. 50	105. 00	0	0. 00	0. 00	0	-. 3. 35	0. 001	HS
BT-DAY 30	14	7. 50	105. 00	0	0. 00	0. 00	0	-3. 35	0. 001	HS

Parameters	Negative Ranks			Positive Ranks			Tie	Z value	P value	Interpretation
GROUP B - ODOUR	N	MR	SR	N	MR	SR				
BT-DAY 1	0	0. 00	0. 00	2	1. 50	3. 00	4	-1. 41	0. 157	NS
BT-DAY 8	4	4. 00	16. 00	2	2. 50	5. 00	0	-1. 19	0. 234	NS
BT-DAY 15	5	3. 00	15. 00	0	0. 00	0. 00	1	-2. 06	0. 039	HS
BT-DAY 30	6	3. 50	21. 00	0	0. 00	0. 00	0	-2. 27	0. 023	HS

Parameters	Gr A	Gr B	Mean Ranks		Sum of Ranks		U value	Z value	P value	Remarks
Odour			Gr A	Gr B	Gr A	Gr B				
BT- 1st day	14	6	8. 50	15. 17	119. 00	91. 00	14. 000	-2. 570	0. 010	S
Odour BT- 8th day	14	6	9. 64	12. 50	135. 00	75. 00	30. 000	-1. 023	0. 306	NS
Odour BT- 15th day	14	6	10. 93	9. 50	153. 00	57. 00	36. 000	-0. 525	0. 599	NS
Odour BT- 30th day	14	6	11. 43	8. 33	160. 00	50. 00	29. 000	-1. 167	0. 243	NS

Table No 9: Floor assessment.

Parameters	Negative Ranks			Positive Ranks			Tie	Z value	P value	interpretation
GROUP A - FLOOR	N	MR	SR	N	MR	SR				
BT-DAY 1	14	7. 50	105. 00	0	0. 00	0. 00	0	-3. 74	0. 000	HS
BT-DAY 8	20	10. 50	210. 00	0	0. 00	0. 00	0	-4. 37	0. 000	HS
BT-DAY 15	20	10. 50	210. 00	0	0. 00	0. 00	0	-4. 37	0. 000	HS
BT-DAY 30	20	10. 50	210. 00	0	0. 00	0. 00	0	-4. 37	0. 000	HS

Parameters	Negative Ranks			Positive Ranks			Tie	Z value	P value	Interpretation
GROUP B – FLOOR	N	MR	SR	N	MR	SR				
BT-DAY 1	14	7. 50	105. 00	0	0. 00	0. 00	6	-3. 74	0. 000	HS
BT-DAY 8	20	10. 50	210. 00	0	0. 00	0. 00	0	-4. 03	0. 000	HS
BT-DAY 15	20	10. 50	210. 00	0	0. 00	0. 00	0	-4. 08	0. 000	HS
BT-DAY 30	19	10. 00	190. 00	0	0. 00	0. 00	0	-4. 01	0. 000	HS

Parameters	Gr A(n)	Gr B(n)	Mean Ranks		Sum of Ranks		U value	Z value	P value	Remarks
Floor			Gr A	Gr B	Gr A	Gr B				
BT- 1st day	20	20	20. 50	20. 50	410. 00	410. 00	200. 00	0. 000	1. 000	NS
Floor BT- 8th day	20	20	16. 93	24. 08	338. 50	481. 50	128. 500	-2. 65	0. 008	S
Floor BT- 15th day	20	20	17. 95	23. 05	359. 00	461. 00	149. 00	-2. 088	0. 037	S
Floor BT- 30th day	20	20	17. 93	22. 18	358. 50	421. 50	148. 50	-1. 86	0. 063	NS

Table No 10: SIZE OF ULCER.

Parameter	Mean	N	S. D	S. E. M	Mean Difference	%	T	P Value	Interpretation
GROUP A-SIZE OF ULCER									
BT	15. 67	20	1. 60	0. 35	1. 30	8. 3	3. 630	0. 002	S
DAY 1	14. 37	20							
BT	15. 67	20	8. 57	1. 91	7. 06	45. 05	3. 685	0. 002	S
DAY 8	8. 61	20							
BT	15. 67	20	15. 11	3. 37	10. 36	66. 11	3. 068	0. 006	S
DAY 15	5. 31	20							
BT	17. 30	18	17. 21	4. 05	13. 13	75. 89	3. 237	0. 005	S
DAY 30	4. 17	18							

Parameter	Mean	N	S. D	S. E. M	Mean Difference	%	T	P Value	Interpretation
GROUP B-SIZE OF ULCER									
BT	23. 50	20	0. 88	0. 19	0. 92	4. 07	4. 695	0. 000	HS
DAY 1	22. 57	20							
BT	23. 50	20	8. 19	1. 83	8. 78	37. 36	4. 797	0. 000	HS
DAY 8	14. 71	20							
BT	23. 50	20	14. 52	3. 24	14. 71	62. 59	4. 532	0. 000	HS
DAY 15	8. 78	20							
BT	24. 10	19	16. 16	3. 70	17. 03	70. 66	4. 595	0. 000	HS
DAY 30	7. 06	19							

PARAMETER SIZE OF ULCER	GROUP	N	MEAN		UNPAIRED T TEST			INTERPRETATION
				SD	SEM	T	P	
BT	GR A	20	15. 67	19. 53	4. 36	-1. 24	0. 222	NS
	GR B	20	23. 50	20. 34	4. 55	-1. 24		
DAY 1	GR A	20	14. 37	18. 15	4. 05	-1. 36	0. 181	NS
	GR B	20	22. 57	19. 83	4. 43	-1. 36		
DAY 8	GR A	20	8. 61	11. 35	2. 53	-1. 52	0. 135	NS
	GR B	20	14. 71	13. 76	3. 07	-1. 52		
DAY 15	GR A	20	5. 31	6. 21	1. 39	-1. 55	0. 127	NS
	GR B	20	8. 78	7. 77	1. 73	-1. 55		
DAY 30	GR A	18	4. 17	4. 59	1. 08	-1. 55	0. 129	NS
	GR B	19	7. 06	6. 51	1. 49	-1. 57		

DISCUSSION

In both the groups, the pain in patient was reduced from the first day of treatment. Vata is the main dosha in causing pain. The Ushna veerya of both Haridra patra and Guduchi patra helps in the alleviation of Vata at the ulcer thereby reduces the pain. But more improvement on

pain was seen in Group B with guduchi patraadana in the first day. Even though Haridra patraadana is indicated in Vataja dusta vrana, in the present study the effect on pain was more in Guduchi patraadana. The snigha guna of Guduchi might have added an extra effect on the Vata dosha compared to the Ruksha guna of that of Haridra. But the difference in effect was not statistically significant. By the end of 8 days of Patraadana both Groups showed reduction in pain.

In patients with itching Group A showed improvement from the first day of Haridra patraadana whereas in Group B no change was observed in itching in the first day after Guduchi patraadana. But at the end of 8 days of patraadana, in both the groups itching was reduced. In Group A the patients got more relief. Kandu is due to Kapha dosha. Both patras are indicated in Kaphaja dusta vrana. Haridra having Kandughna property had more effect on itching. Haridra with Ruksha guna and Ushna veerya further had Kaphaghna effect. Guduchi also having Ushna veerya has Kaphaghna property and thereby decreased itching. In most of the patients of Guduchi patraadana, effect on Kandu was seen from third to fourth day of patraadana. The Snigdha guna of Guduchi have a Kaphakara property.

In patients with burning sensation, Group B of Guduchi pataadana showed improvement from the first day of patraadana whereas in Group A no change was observed in burning sensation in the first day of Haridra patraadana. By the end of 8 days of patraadana, in both the groups burning sensation was reduced. The effect on burning sensation was seen more in Group B of Guduchi patraadana than in Haridra patraadana while comparing both the group results in Day 1 and Day 8. Burning sensation is caused by Pitta dosha. Even though both the drugs had Ushna veerya, burning sensation was reduced due to Doshaghnata. Guduchi is Tridosha shamaka. It has rakta pitta hara property and daha shamaka property. Haridra is Kaphapittanut. The leaves of guduchi are Mucilaginous and that of Haridra is Fibrous. It is due to Snigdha guna and Ruksha guna respectively. Snigdha guna imparts mruduta. It is Pitta shamaka and will reduce the burning sensation faster when applied locally.

In patients with tendernesss, Group B of Guduchi patraadana showed improvement from the first day of patraadana compared to Group A of Haridra patraadana. By the end of 8 days of Patraadana, in both the groups, tenderness was reduced. Due to patraadana, the smooth surface of the patra reduced friction between the dressing and ulcer floor. There was no adherence of dressing to the ulcer floor during removal as well which reduced trauma and pain. Both drugs having Ushna veerya alleviates Vata dosha thereby causing the effect. The

snigdha guna of Guduchi showed Vata hara effect faster leading to reduction in tenderness from the first day of patraadana. Haridra patra also caused reduction in tenderness within 3-4 days.

The ulcers selected for the study were having less discharge. Majority of ulcers had serous discharge. It was observed that by Haidra patradana discharge of ulcers were reducing day by day. Where as in Guduchi patraadana, discharge became profuse from the first day of patraadana followed by slightly reducing in the 8th day. On discharge, Group A of Haridra patraadana showed more improvement than Group B of Guduchi patraadana. Haridra being Ruksha guna showed faster result compared to Guduchi with Snigdha guna. In both the groups a slimy layer of Exudate+Taila+Moisture was seen. In Guduchi patraadana this biofilm was thick whereas in Haridra patraadana this biofilm was thin. Patraadana does the retaining of Sneha sara of the applied medicine at the Vrana sthana. This along with the Snigdha guna of Guduchi patra caused more discharge whereas the Ruksha guna of Haridra helped in reducing the discharge. The biofilm formed will help in healing Dustavrana showing lesser tendency towards healing due to Rauksyata. Maintaining of moisture in the site thus aids in the healing of ulcers and it is accomplished by patraadana.

In patients with odour Group A showed improvement from the first day of Haridra patraadana whereas in Group B foul odour in ulcers were observed in the first day after Guduchi patraadana. In ulcers without odour also after Guduchi patraadana. By the end of 8 days of Patraadana, odour was absent in Group A whereas in Group B odour was present but reduced compared to Day 1. Haridra having Durgandhahara propery gave more result in odour compared to Guduchi. The foul odour in Guduchi patraadana may be due to increased discharge. Reduction in odour was due to raktaprasaadana effect.

In this study, ulcers with minimum slough and poor granulation tissue were selected. After patraadana in both the groups, ulcers showed rapid proliferation of granulation tissue evenly distributed on the floor of ulcers. The ushna sheeta jananartha property of Patraadana which can be understood as maintenance of ideal temperature at the site of ulcer have helped in formation of granulation tissue. In cases of increased local temperature water in patra gets evapourated thereby reducing the temperature of ulcer floor. In case of reduced temperature,the water content in patra can retain the temperature as water is a bad conductor of temperature. Thus by maintaining optimal temperature Patradana promoted formation of healthy granulation tissue by the end of 8 days.

The assessment of size of ulcers were at times difficult due to position of the wound. There was difficulty in the assessment at the sites of bony prominences. The outline of the wound was taken with the help of a transparent paper. Then it was placed over a graph paper. Number of squares within the outline of graph paper was added to get the area of ulcer. [No of full squares+1/2 No of half squares] in cm^2 Patient positioning, body curvatures or tapering of the limbs can affect the accuracy of this method.

In this study patients were laid down in Supine positions for wounds in limbs and in prone position for wounds in sacroiliac region.

In both the groups wound size reduced after 8 days of patraadana. Due to the Vrana ropana effect of Haridra and Guduchi in both the groups there was significant reduction in the size of the wound. Both goups showed similar results in the effect of size after 8 days of patraadana.

CONCLUSION

A comprehensive treatment plan of Patraadana with Jatyadi taila and internal medication of Triphala guggulu and Gandhaka rasayana gave remarkable improvement in Chronic non healing ulcer which are non progressive, having poor granulation tissues and not healing due to dryness.

- The procedure of Patraadana is safe, effective, economical and patient friendly.
- No incidence of adverse effects were observed during the Study period.
- Haridra patraadana and Guduchi patraadana are both effective in reducing the ulcer size and in attaining healthy granulation tissue in the floor.
- Haridra patraadana is more effective in relieving itching, discharge and odour
- Guduchi patraadana is more effective in relieving pain tenderness and burning sensation.
- The medications and procedure of dressing with patraadana helps in a sustained reduction of inflammation involved.
- The therapeutic effect of medications that is used in the ulcer cannot be ridiculed in the improvement of symptoms.
- In this study we have used patra irrespective of dosha and kala, but during study we have observed there is change in observations when different patras are used.

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