

## **A COMPARATIVE CLINICAL STUDY ON THE EFFICACY OF *LOTHRADI LEPA* AND *ARJUNA LEPA* IN *MUKHADUSHIKA* W.S.R. TO ACNE VULGARIS**

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### **ABSTRACT**

Acne Vulgaris is a common skin disorder of pilosebaceous unit that primarily affects the face, chest and back which if not treated may lead to permanent scarring. *Mukhadushika* is a *Kshudraroga* which mainly involves *kapha* and *vata* with *rakta*. This is a common illness affecting 80% of adolescents. *Lepa* is considered as one of the treatment modality for *Mukhadushika* by *Acharyas*. **Objectives:** To evaluate the efficacy of *Arjuna Twak Lepa* in the management of *mukhadushika* w.s.r to Acne Vulgaris in adolescents. To evaluate the efficacy of *Arjuna Twak Lepa* in the management of *mukhadushika* w.s.r to Acne Vulgaris in adolescents. To compare the efficacy of *Lodhradi Lepa* with *Arjuna Twak Lepa* in the management of *mukhadushika* w.s.r to Acne Vulgaris in adolescents. **Methods:** 40 subjects fulfilling the diagnostic and inclusion criteria were selected. They were randomly assigned into 2 equal groups. Group-A was given *Arjuna twak lepa* and Group-B was given *Lodhradi lepa* for 15 days respectively. Subjects were assessed on BT, 7<sup>th</sup> day and 15<sup>th</sup> day. **Results:** Both the groups showed statistically significant on all assessment criteria. On comparison between 2 groups, there is no significant difference in assessment criteria except in the size of *pidaka* in which Group-A was more effective than Group-B.

**Keywords:** *Mukhadushika*, *ArjunaLepa*, *LodhrdiLepa*

### **INTRODUCTION**

*Mukhadushika* is a *Kshudraroga* mainly affecting the face which occurs due to *Vata*, *Kapha*, *Raktaprakopa*.<sup>1</sup> *Pidakas* all over the face makes an individual unattractive particularly in adolescence where people are more cautious

about their looks. *Shalmalikantaka sadrusha pidakas* and *Ghana medogarbha pidakas* are seen which can be correlated to acne vulgaris.

Acne Vulgaris is a common chronic inflammation of Pilosebaceous unit that affects

many adolescents during puberty.<sup>2</sup>This is common illness affecting 80% of adolescents.<sup>3</sup>In 2010, acne was estimated to affect 650 million people globally making it the 8<sup>th</sup> most common disease worldwide.<sup>4</sup>

Acne starts at the age of 10-17 years in females and 14-19 years in males<sup>5</sup>. Even though acne is not a life threatening situation but it can lead to permanent scarring. Scarring can occur at any age including as early as 9-10 years.<sup>6</sup>

*Lepa* is one of the treatment modality for *Mukhadushika*. *Lepa* does *shamana* of *prakupita sthanika dosha*. *ArjunaTwakLepa* and *Lodhradilepais* claimed to be effective in *mukhadushika*. Hence a sincere attempt was made to compare the efficacy of *Lodhradi Lepa* and *ArjunaTwak Lepa* in the management of *Mukhadushika* w.s.r. to *Acne Vulgaris* in Adolescents.

## MATERIALS AND METHODS

Drugs used for the study are *ArjunaTwakLepa*<sup>7</sup> and *Lodhradi Lepa*<sup>8</sup>

### Method of Preparation:

#### Ingredients of *Arjuna Lepa*:

*Arjunatwak*, milk

#### Method of preparation:

*Arjuna twak* is pounded to fine powder and sieved powder is stored in air tight container and preserved. Fine powder is mixed with milk and applied.

#### Ingredients of *Lodhradi Lepa*:

*Lodhra*, *Dhanyaka* and *Vacha* in equal quantity.

#### Method of preparation:

Bark of *Lodhra*, *mula* of *Vacha* and *Dhanyaka* taken in equal quantity. The fine powder of all the drugs are separately prepared and mixed well. This powder is preserved in airtight

container. Fine powder is mixed with water and applied.

## SOURCE OF DATA:

### a) Sample Source:

- Subjects were randomly selected from Kaurbharitya O.P.D of Alva's *Ayurveda* Hospital, Moodbidri.
- Camps conducted in schools in and around Moodbidri.
- Medical camps and other referrals.

### b) Drug Source:

The raw drug was properly identified and selected from Alvas's Pharmacy, Mijar and local market. Preparation of *ArjunaLepa* and *Lodhradi Lepa* was done in *Bheshajagara* Alva's *Ayurveda* Medical College, Moodbidri under the guidance of teachers.

## METHOD OF COLLECTION OF DATA:

**Study design:** A Randomised Comparative Clinical Study.

40 subjects fulfilling the diagnostic and inclusion criteria were selected randomly irrespective of sex, religion, occupation, socio-economic status and assigned into two equal groups Group-A and Group-B.

Group-A: *Arjuna Lepa*

Group-B: *Lodhradi Lepa*

### Diagnostic Criteria

Adolescents were diagnosed based on the following clinical features:

- *Shalmali Kantaka Sadrusha Pidaka*
- *Ruja*
- *Ghana Pidaka*
- *Medho Garbha Pidaka*

**Inclusion Criteria**

1. Subjects having *Pidaka* resembling *Shalmali Kantakavat Pidaka, Ruja, Medha Grabha Pidaka*.
2. Subjects between the age group 12 to 16 years irrespective of gender were selected.

**Exclusion Criteria**

1. Subjects with *Pidakas* of other *Kushta* and *Kshudra Roga*.

2. Subjects associated with any systemic illness.
3. Subjects of age group less than 12 years and more than 16 years.

**Intervention:**

The two groups assigned as Group “A” and Group “B” were treated with *Arjuna Lepa* and *Lodhradi Lepa* respectively.

**TABLE 01: INTERVENTION**

	Group-A	Group-B
Sample Size	20 patients	20 patients
Drug	<i>Arjuna Lepa</i>	<i>Lodhradi Lepa</i>
Application with	Milk	Water
Method of administration	External application	External application
Duration	15 days	15 days

**Observation period:**

Application of *lepa* was done for 7 days. Subjects were assessed Before Treatment, on 8<sup>th</sup> day and on 15<sup>th</sup> day. Total study duration including follow up was 15 days.

**ASSESSMENT CRITERIA:**

Depending on the Subjective and Objective Criteria, assessment of the responses will be made based on the Gradation Index.

**TABLE 02: GRADING OF SUBJECTIVE & OBJECTIVE CRITERIA:**

SL.NO	SUBJECTIVE CRITERIA	GRADING	
1	<i>Vedana of pidaka</i>	No pain	0
		Pain on deep pressure over <i>pidaka</i>	1
		Pain on touch over <i>pidaka</i>	2
		Pain without touch over <i>pidaka</i>	3
2	<i>Srava in pidaka</i>	No <i>srava</i>	0
		<i>Lasikasrava</i>	1
		<i>Puyasrava</i>	2
		<i>Pinjarasrava</i>	3
	<b>OBJECTIVE CRITERIA</b>	<b>GRADING</b>	
1	Number of <i>pidaka</i>	No <i>pidaka</i>	0
		1-5 <i>pidakas</i>	1
		6-10 <i>pidakas</i>	2
		More than 10 <i>pidakas</i>	3
2	Size of <i>pidaka</i>	No <i>pidaka</i>	0
		0-2 mm	1

		3-4 mm	2
		More than 4 mm	3
Note: when <i>pidakas</i> are multiple, the size of largest <i>pidaka</i> is considered.			
3	<i>Vivarnata</i> of <i>pidaka</i>	Normal skin colour	0
		Black colour	1
		Yellowish brown colour	2
		Red colour	3

### Investigator’s Global Assessment (IGA) Scale for Acne Severity <sup>9</sup>

The IGA is a static, qualitative evaluation of overall acne severity.

- 0- Clear residual hyperpigmentation and erythema may be present.
- 1- A few scattered comedones and a few small papules.
- 2- Mild easily recognizable, less than half the face is involved. Some comedones, some papules and some pustules.
- 3- Moderate more than half of the face is involved. Many comedones, papules, pustules. One nodule may be present. Primarily Comedonal.
- 4- Severe Entire face is involved covered with comedones, papules and pustules. Presence of nodules or cysts.

### GLOBAL ACNE GRADING SYSTEM: <sup>10</sup>

This system divides the face chest and back into 6 areas. They are forehead, each cheek, nose, chin, chest, back and assign a factor to each area on the basis of size.

Each type of lesion is given a value depending on severity.

No lesions	=	0
Comedones	=	1
Papule	=	2
Pustules	=	3
Nodules	=	4

Score for each area (Local Score) is calculated using the formula:

$$\text{Local Score} = \text{Factor} \times \text{Grade (0-4)}$$

Global Score is the sum of Local Score and Acne Severity was graded using the Global Score

**TABLE 03: GLOBAL ACNE GRADING SYSTEM.**

The Global Acne Grading System		
Location	Factor	Local score
Forehead	2	
Right Cheek	2	
Left Cheek	2	
Nose	1	
Chin	1	
Chest and Upper back	3	
		<b>Global Score =</b>

**Table 04:** GAGS Score Range and Acne Severity

Sl.no	GAGS SCORE RANGE	ACNE SEVERITY
1	1-18	Mild
2	19-30	Moderate
	31-38	Severe
4	>39	Very severe

**STATISTICAL ANALYSIS:**

The effect of the drugs used has been critically analysed by the statistical data. Descriptive Statistical Data which includes Mean, Median, Standard Deviation, Standard Error, 't' value, and P value were calculated for all the vari-

ables. Post therapeutic effect of the drug administered is assessed by paired 't' test. Comparative study of each parameters of either groups by unpaired 't' test. For all tests, a 'P' value of < 0.05 is considered as the statistical significance level for obtaining absolute result.

**TABLE 05:** RESULTS OF GROUP A:

Assessment criteria	Mean score		% of relief	S.D	S.E	't' value	P value
	BT	AT					
<i>Vedana</i>	1.15	0.65	43.57	0.587	0.131	4.359	<0.001
<i>Srava</i>	1.95	0.95	51.28	0.686	0.153	6.164	<0.001
Number	1.90	1.35	28.94	0.671	0.150	4.067	<0.001
Size	2.15	1.10	48.83	0.447	0.100	9.200	<0.001
<i>Vivarnata</i>	1.95	1.05	46.15	0.447	0.100	9.20	<0.001
GAGS	2.25	1.65	26.60	0.745	0.167	3.943	<0.001
IGA	1.50	0.95	36.66	0.686	0.153	4.067	<0.001

**TABLE 06:** RESULTS OF GROUP-B

Assessment criteria	Mean score		% of relief	S.D	S.E	't' value	Pvalue
	BT	AT					
<i>Vedana</i>	1.05	0.5	52.38	0.513	0.115	4.819	<0.001
<i>Srava</i>	1.55	0.85	45.16	0.587	0.131	5.480	<0.001
Number	1.80	1.2	33.33	0.523	0.117	5.339	<0.001
Size	1.50	1.05	30.00	0.224	0.050	3.943	<0.001
<i>Vivarnata</i>	1.75	1.1	37.14	0.178	0.161	4.950	<0.001
GAGS	2.00	1.35	32.5	0.671	0.151	5.940	<0.001
IGA Scale	1.40	0.65	53.57	0.587	0.131	6.097	<0.001

**TABLE 07:** COMPARATIVE RESULTS BETWEEN GROUP-A AND GROUP-B

Assessment criteria	Mean score		Percentage Relief %		't' value	P value
	Group A	Group B	Group A	Group B		
<i>Vedana</i>	0.50	0.55	43.47	52.38	0.575	0.569
<i>Srava</i>	1.00	0.70	51.28	45.16	1.453	0.154
Number	0.55	0.60	28.94	33.33	0.284	0.778
Size	1.05	0.45	48.83	30.00	3.717	<0.001

Vivarnata	0.90	0.65	46.15	37.14	1.387	0.174
GAGS	0.60	0.65	26.60	32.50	0.267	0.791
IGA Scale	0.55	0.75	36.66	53.57	1.094	0.281

There is statistically insignificant difference between the two groups at the level of  $P > 0.05$  in all parameters except in the size of pidaka.

**TABLE 08: OVERALL EFFECT**

CLASS	GRADING	NUMBER OF SUBJECTS	
		GROUP A	GROUP B
< 25%	No Change	1	0
26-50%	Mild Improvement	6	5
51-75%	Moderate Improvement	8	7
>75%	Marked Improvement	5	8

### DISCUSSION ON PROBABLE MODE OF ACTION

**ArjunaLepa:** In this *Yoga*, *Arjuna Churna* is mixed with milk and applied. *Arjuna* which has *Kashaya rasa*, *Sheetaveerya* does *shamana* of *kapha* and *pitta*. *Raktashodaka* property of *Arjuna* acts on the causative factor of *Mukhadushika*. Flavonoids exhibit

Anti- Inflammatory activity. Tannins exhibit antibacterial property. Milk which is used as a medium for application forms a reservoir for the active ingredient and helps in the release of suitable amount of active drug. Thus *Ksheera* which has *Madhura rasa*, *Sheetaveerya* and *Vatapittashamaka* property provides an added effect to this *yoga*.

**Lodhradi Lepa:** This *yoga* constitutes *Lodhra*, *Dhanyaka* and *Vacha*. *Mukhaushika* mainly occurs due to vitiation of *Kapha*, *Vata* and *Rakta*. It is understood that drugs should possess *Kaphavatahara* and *Raktashamaka* property. *Lodhra* has *Kaphapittashamka*, *Sravastambhaka*, *Raktashodhaka* and *Ropana* property. Ethanolic extracts of *Lodhra* has Anti-Acne activity. *Kaphavatashamaka* and *Lekhana* property of *vacha* acts directly on the causative *dosha* of

*Mukhadushika*. *Teekshnaguna* of *vacha* clears the *Srotoavarodha*. *Madhura*, *Tikta*, *Kashayarasa* and *Tridosahara* property of *Dhanyaka* helps in the *shamana* of *PrakupitaDosha*. Thus, these unique properties present in the ingredients of this *yoga* helps in *Samprapti Vighatna* of *Mukhadushika*.

### CONCLUSION

*Mukhadushika* is one of the *Kshudraroga* which does the *dushana* of *mukha*. It is caused due to vitiation of *kapha*, *vata* and *rakta*. It has startling resemblance with *Acne Vulgaris*. Although it is a self-limiting disease, it is necessary to treat this condition to prevent disfiguring of the face. It commonly affects adolescent age group and face is the common affected site. High Glycaemic Diet, Premenstrual flares, High temperature, Humidity, irregular bowel habits like constipation and cosmetics are considered as predisposing factors for acne. *Lepa* is one of the treatment modality for *Mukhadushika* mentioned in classics. Both *Arjuna lepa* and *Lodhradi lepa* showed statistically highly significant on all the assessment criteria like *vedana* of *pidaka*, *srava* of *pidaka*, number of *pidaka*, size of *pidaka*, GAGS Score and IGA

Scale. On comparison between 2 groups, there is no significant difference in all the assessment criteria except in size of *pidaka* in which Group-A was more effective than Group-B. Thus, there is significant effect of both *ArjunaTwak Lepa* and *Lodhradi Lepa* in the management of *mukhadushika* w.s.r to Acne Vulgaris.

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