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A STUDY TO EVALUATE THE EFFECT OF RASANJANADI LEPA IN MANAGEMENT OF DADRU W.S.R. TO TINEA IN CHILDREN

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ABSTRACT

Ayurveda is the world's oldest holistic healing system for our whole body. It has been developed more than 5,000 years ago in India. *Ayurveda* believes that the health of a human being depends on the balance between the mind, body, and soul. The main aim of *Ayurveda* is to maintain the good health of a person, not only the cure the disease. Skin is the outer most covering of over body. The person who suffers from skin disease leads to experience physical and also emotional embarrassment in society. All the skin diseases in *Ayurveda* have been classified under the heading of *Kustha Rogas*, *Kustha Rogas* are divided into two parts that are *Khsudra Kustha* and *Mahakustha* [(1)]. *Dadru* is a type of skin disease, which comes under the heading of *Khsudra Kustha* by *Acharya Charak* [(2)] and the *Mahakustha* by *Acharya Sushruta* [(3)] and *Vagbhata* [(4)]. The clinical features of *Dadru* are *Kandu, Deergapratana, Utsanna, Mandala, Raaga, and Pidika* which is a *Tridoshaja Vyadi*, but *Kapha* and *Pitta Dosha* are predominant in *Dadru* and *Rasa, Rakta, Mamsa,* and *Ambu* are the main *Dusya*. Clinically the symptoms of

Dadru are close to the symptoms of Tinea infections. Here in this article, we are going to discuss the efficacy of *Rasanjanadi Lepa* in children by its external application. *Rasanjanadi Lepa* is mentioned in *Charak Samhita, Sutra Sthana* for *Kustha Roga* management [5].

Keywords: *Ayurveda, Dadru, Kustha, Rasanjanadi Lepa,* Tinea

INTRODUCTION

Skin is the largest outer covering of the body. In *Ayurveda* skin is also considered a sense organ. It protects our all organs from physical, chemical, and biological agents. It prevents the entry of foreign organisms into the body, but due to superficial covering skin itself is prone to infections. Skin diseases not only effect the skin but are also harmful to all other organs and they create cosmetic discomfort also. Nowadays fungal infection is the most common skin infection. It is an infection that spreads fast and attacks all age group people caused of unhygienic living style, less immunity and use of cloths by infected people, etc. In *Ayurveda*, all skin disorders are considered in *Kustha Roga*. *Acharya Vagbhata* mentioned *Dadru* as an *Anusangika Roga* [6]. *Anusangika* means that spreads from person to person. In *Ayurveda* skin, fungal infection may be correlated with *Dadru* (Tinea). In *Ayurvedic* texts, *Kustha* is classified into two categories i.e 11 *Kshudra Kushta* and 7 *Maha Kushta*. *Dadru* is classified into *Kshudra Kushta* by *Acharya Charaka* and into *Mahakushta* by *Aacharya Sushruta* and *Vagbhata*. The word *Kustha* means which destroys and comes out from the inner part to the outer part and produces discoloration over the skin. According to *Acharya Charak nidana Sevana*, vitiate *Tridoshas* simultaneous followed by *Sithilatha of Dhatus.* These vitiated *Tridoshas* vitiate the *Dushyas* of *Kustha Rogas* i.e *Twak, Raktha, Mamsa*, and *Lasika*. According to *Acharya Vagbhata*, these vitiated *Doshas* get lodged in *Tiryak Siras* and vitiate the *Dushyas*. This produces *Sithilatha* in the *Dhatus* resulting in the manifestation of *Kustha Roga.* Tinea is a superficial fungal infection mainly of the arms and legs, but it can also occur in any part of the body. The lesions are annular, erythematous, and scaly with well-defined edges. Tinea infection contributes to about 10-20% of overall skin diseases. 39% of the World's population is suffering from it. In India, 5 out of 1000 people are suffering from Tinea infections [7]. It is a group name for a highly contagious segmented mycelia fungus. It is the commonest single fungus group infection found in unhygienic conditions especially in tropical and subtropical countries, unless properly treated they become chronic. In modern medical science, it is treated with topical and systemic antifungal agents. Corticosteroids give very speedy relief in such infections but come with a lot of side effects and reoccurrence of the disease. Long-lasting usage produced adverse effects also.

Aims and Objectives

1. To evaluate the efficacy of *Rasanjanadi Lepa* as a local application in the management of *Dadru*.
2. To collect literature of *Dadru* from different medical texts of Ayurveda and modern.
3. To understand and analyze the disease *Dadru* in relation to Tinea.
4. To evaluate the effect of Pathya-Apathya counseling in the management of *Dadru.*

Selection of the Drug

Chakramard possesses *Katu rasa, Laghu, Ruksha guna, Kapha-Vatahara, Varnya, Vishagna, Vranaropana*, and *Kushtagna properties* [8]. In Nighantus of *Dhanvantari, Raja, Madanapala, Kaiyadeva,* and *Bhavaprakasha* have mentioned *Chakramard* is having *Kaphavatahara, Kandughna, Krimighna,* and *Dadrughna* properties. *Rasanjana (Daruharidra)* possesses *Tikta, Kashaya rasa, Laghu, Ruksha guna, and Kapha-Pittahara* properties. *Acharya Charak* mentioned *Daruharidra* in *Kandugna* and *Lekhaniya Mahakashaya*. *Kapitha* possesses *Madhura, Amla, Kasaya rasa, Laghu guna, Sheeta virya, Lekhaniya, Pittavatahara, Raktapittahar, Sangrahi, and Vrananasaka* properties. So

Rasanjana, Chakramard, and *Kapitha* are used as a management modality in patients suffering from *Dadru kustha* by application to the skin lesion.

Material and Methods

Plan of study:

A. Conceptual Study:

To collect the literature regarding *Dadru* from *Ayurvedic* texts and regarding Tinea from modern textbooks. Both of the literature was also collected from previous and ongoing research works, journals & publications for the present study.

B. Clinical study:

- **Selection of patients:**

According to the plan of study 60 patients were to be selected after Ethical clearance (IEC/SKAU/2021/26) from the Institutional Ethical Committee and the trial was also registered under the clinical Trial Registry of India (CTRI/2021/05/033371). Patients were registered after obtaining informed written consent. A total of 63 patients enrolled in the study, and 3 dropped out during the study. Intervention to treat analysis was done and the data of all those patients who have completed the study was imputed. Hence data of 60 patients (30 in group A, 30 in group B) was used for statistical analysis. A detailed history of patients was taken on pre-designed specific proforma. History of present complaints with duration, associated symptoms, history of past illness (medical, surgical, and drug history), and personal history was recorded.

Criteria for selection of patients:

Inclusion criteria

1. The patients with *lakshans* (Sign & Symptoms) of *Dadru.*
2. Children of either sex are aged between 3 years to 16 Years.

Exclusion criteria

1. Children below 3 years and above 16 years of age.
2. Children under long-standing medication.
3. Chronicity more than 2 years.
4. Patients suffering from systemic disorders like autoimmune disease etc., which interfere with the course of treatment, will be excluded.
5. *Dadru* associated with another skin disease will be excluded.

Study design:

The patients with *Dadru* were treated in the following manner:

- **Type of study:** Randomized open trial label parallel group comparative clinical trial.
- **Level of study**: OPD & IPD level
- **Period of study:** Total 28 days- treatment given and follow-up done for next 45 days.
- **Duration of treatment:** 28 days.
- **Method of treatment:**

Table 01: Drug application in both groups

GROUP	Medicine	Route of Administration	Duration
Group A	*Rasanjanadi Lepa*	Local application	28 Days
Group B	Clotrimazole cream 1%	Local application	28 Days

Instruction to patients:

Pathya Ahara –Vihara:

- The patient had been advised to take a light, nutritious easily digestible, and congenial diet.
- Instruction about maintaining genital cleanliness was given.
- To avoid spicy food, *Pittavardhaka Ahara*, *Divaswapna*, *Ratrijagarana*, *Vega Vidharana*, mental stress, and anxiety.
- Patients were advised to report any side effects with the use of medicine immediately.

Follow-up: Follow-up will be done fortnightly for 45 days after the completion of the treatment period.

Preparation of Drug:

Formation of *Rasanjanadi Kwath*:

All three drugs (*Daruharidra*, *Chakramard, Kapittha*) were soaked in eight times potable water in a stainless-steel vessel and kept overnight (12 hrs). The next morning the material was subjected to mild heat with continuous stirring. Water was evaporated slowly till its reduction to 1/4th and galenical was filtered through a four-fold cotton cloth to obtain *Rasanjanadi Kwatha*.

Preparation of *Rasanjanadi* oil: *Rasanjanadi Kwatha* and *Til Taila* were taken. It was heated in medium flame until the *Lakshana* of *Taila Paaka* appears.
Taila Paaka Lakshana: Good amount of foam appeared. There was color, smell, and taste of *Udambara* in the oil. Prepared oil was not producing any cracking sound when dropped on fire.
Preparation of ointment: The prepared oil was filtered, and bees wax was added to it in the ratio (1:6). The mixture was cooled and filled in tubes.
Method of application of Drug:
Local application on the infected area thrice daily.
Assessment criteria:
The assessment was done on the basis of clinical improvement of patients as per subjective and objective parameters which were noted in the research proforma.

- **Subjective parameters:**
- *Kandu* (Itching)
- *Raga* (Inflammation)
- *Pidika* (Eruption)
- *Daha* (Burning sensation)
- *Rookshata* (Dryness)
- *Udgata Mandal* (Elevated lesion)

❖ **Objective parameters:**

1. Blood Sugar
2. Potassium hydroxide (KOH) test (in all patients).

- Simple, inexpensive, quick, and insensitive test.
- The sample has to be taken depending on the infected site.
- On seeing under a microscope, branching hyphae or spores will be confirmation of fungal infection.
- This test will be done at the starting of treatment for confirming the Tinea infection.

The overall effect of treatment:

Table 02: Overall effect of treatment

% Of improvement	Overall effect
<25%	Unchanged
25-<50%	Mild positive improvement
50-<75%	Moderate positive improvement
75-<100%	Marked positive improvement
100 %	Complete cure

Statistical Analysis of data:
The information collected based on observations was analyzed using an appropriate statistical test to evaluate the significance at different levels i.e., at 0.05, 0.01, and 0.001 levels. The obtained results will be interpreted as follows:
Insignificant or not significant (NS)
-p>0.05
Significant (S)
-p<0.05
More or very significant
p<0.01
Highly significant (HS -p<0.001
Intra
Group
Test:
Subjective parameters – Wilcoxon Sign Rank test
Objective parameters – Wilcoxon Sign Rank test
Inter
Group
Test:
Inter-group compassion of subjective parameters and objective parameters were analyzed by Mann Whitney U Test.

Result

Intergroup comparison:

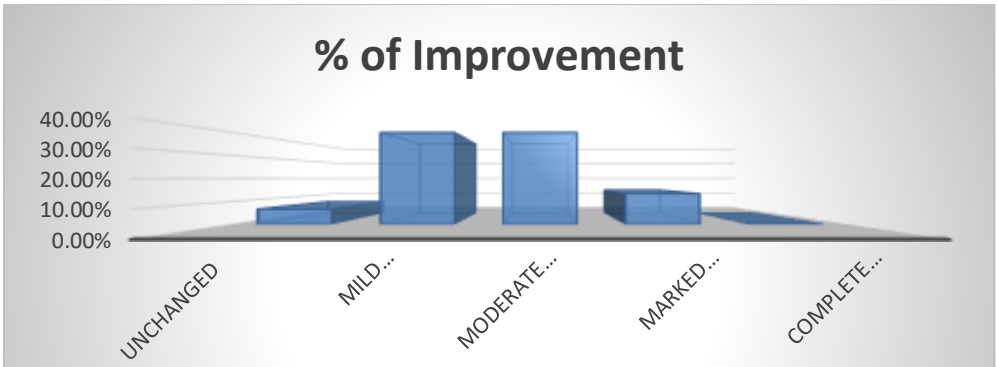
Table 03: Inter-group comparison

Parameters	Group	N	Mean Rank	Sum of ranks	Mann-Whitney U	p-value	Result
Itching	Group A	30	41.6	1248	117	<0.001	HS
	Group B	30	19.4	582			
	Total	60					
Inflammation	Group A	30	41.32	1239.5	125.5	<0.001	HS
	Group B	30	19.68	915			
	Total	60					
Color change	Group A	30	42.03	1261	104	<0.001	HS
	Group B	30	18.97	569			
	Total	60					
Nature of lesion	Group A	30	30.5	915	450	0.992	NS
	Group B	30	30.5	915			
	Total	60					
Size of the lesion (diameter)	Group A	30	43.43	1303	62	<0.001	HS
	Group B	30	17.57	527			
	Total	60					
Number of lesions	Group A	30	38.67	1160	205	0.0003	HS
	Group B	30	22.33	670			
	Total	60					

The total effect of the drug:

Table 04: Total effect of the drug

Effect	% Effect	Group A	Group B	Total	Percentage (%)
Unchanged	<25%	0	4	4	6.66%
Mild positive improvement	25 - <50%	0	24	24	40%
Moderate positive improvement	50 - <75%	22	2	24	40%
Marked positive improvement	75% - <100	8	0	8	13.33%
Complete cure	100 %	0	0	0	0%



	Unchanged	Mild positive improvement	Moderate positive improvement	Marked positive improvement	Complete cure
% of Improvement	6.66%	40%	40%	13.33%	0%

DISCUSSION

After a comparison of both groups, Group A showed highly significant improvement in the parameters, Itching, Inflammation, Color change, Nature of lesion, size of the lesion, and the number of lesions with a p-value <0.001. while Group B showed highly significant improvement for the parameters Itching, Inflammation, Color change, and Nature of lesion with p-value <0.001; very significant for size of the lesion with p value 0.002 and not significant for the number of lesions with p value 0.016**.**

Inter group comparison:

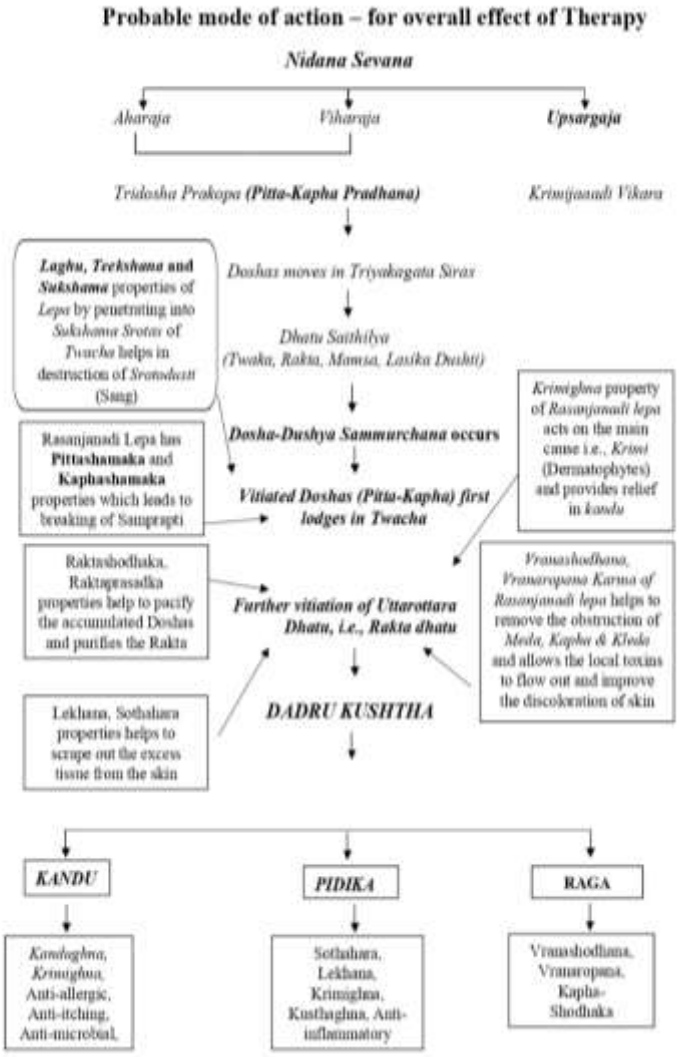
Inter–group comparison showed highly significant improvement for the parameters, Itching, Inflammation, Color change, and Size of the lesion with a p-value <0.001; and not significant for Nature of lesion with p-value of 0.992; and highly significant for a number of lesions with p value 0.0003

Effect percentage of treatment:

Percentage of effects on itching in Group A and Group B are 83.1 and 50.5; Inflammation 90.1 and 61.38: Color change 78.2 and 40; Nature of lesion 84.5 and 43.9; Size of the lesion (diameter) 55.6 and 7.1 & on Number of lesion 38.8 and 7.5 respectively.

The total effect of the drug:

In this study Group A has a maximum number of moderate positive improvements and Group B has mild positive improvements. A marked positive improvement was shown in Group A. Overall total effects of both drugs are 6.66% unchanged, 40% mild positive improvement, 40% moderate positive improvement, and 13.33% marked positive improvement.



CONCLUSION

- *Kushtha* is a *Tridoshaja Vyadhi* (*Pitta-Kapha Pradhana), Dushya* were *Twaka*, *Lasika*, *Rakta* and *Mamsa*.
- Management of *Dadru Kushtha* is done by *Doshashamana*, *Krimighna* and *Kushthaghna*, and *Kandughna*.
- *Kushtha* is a *Tridoshaja Vyadhi*, each *Kushtha* has its particular *Dosha* predominance. *Dadru Kushtha* is described under *Kshudra Kushtha* has *Pitta-Kapha* dominance with the involvement of *Tridosha* which can be evident by observing its sign and symptoms.
- As the disease *Dadru Kushtha* can be also caused by *Krimi* (dermatophytes) according to the modern view also, the content in *Rasanjanadi Lepa* acts on parasites by their *Krimighna* properties which further helps in reducing itching and irritability of the skin.
- *Rasanjanadi Lepa* also has *Kushthaghna*, *Kandughna*, *Krimighna*, anti-inflammatory, anti-microbial, anti-allergic, anti-itching, anti-parasitic, anti-helminthic, and immune-modulating properties that they work against inflammation, itching, elevated edges, and improved immunity.
- Since in *Ayurveda*, *Kushtha* is described under *Aupsargika Roga* likewise modern science also explains the mode of transmission of Tinea infestation is direct skin-to-skin contact. Thus, keeping these points in mind, prevention rules described earlier were advised to each patient during a clinical trial.

- In itching, inflammation, color change, nature of the lesion, size of the lesion, and the number of lesions highly significant results were observed during this study.
- It was found that no. of patients marked improvement was observed in 8 patients (13.33%), moderate improvement was observed in 24 patients (40%), mild improvement was observed in 24 patients (40%), where unchanged was 4 (6.66%).
- It was concluded that *Rasanjanadi Lepa* is useful in the management of *Dadru Kushtha* and there was no side effect seen on any patients of the trial drug.

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