

Study the Efficacy of *Gojihwa Danti* Ointment in the Management of *Ahiputana* with Special Reference to Napkin Rash: A randomized controlled study

Research Article

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Abstract

Background & Objectives: The napkin rash is most prevalent condition in children caused due to irritation of skin; as the area is more vulnerable to the inflammation as well as infection due to high moisture. It is usually mild but can lead to secondary bacterial and fungal infection if not properly treated. The study aims to provide cost effective alternative measure as *Gojihwa* ointment for local application in the treatment of Napkin rash. *Ahiputana*, also known as napkin rash or diaper dermatitis, is an acute skin inflammation with lesions on the genitals, buttocks, thighs, and lower abdomen. **Methods:** The randomized controlled trial treated with Ayurveda medicine (*Gojihwa Danti* ointment) in the management of Napkin rash. Total 60 patients were randomly allocated to the 2 groups for the period of 7 days. All the subjective and objective assessment criterion were evaluated before and at the end of treatment. **Results:** The mean scores of the subjective and objectives assessment criterion shows significant decrease in the both the group. The trial group shows marked improvement in discharge and itching as compared to the control group. **Interpretation & Conclusions:** The *Gojihwa Danti* ointment shows equal effectiveness as control drug but can be considered as superior as it controls discharge and itching more effectively.

Keywords: Diaper Rash, *Ahiputana*, *Gojihwa-Danti*, Child healthcare.

Introduction

Ahiputana known as napkin rash or diaper dermatitis is an acute, inflammatory skin reaction condition characterized by the appearance of lesions in the region of genitals, buttocks, thighs and the lower part of the abdominal area(1). This condition, often complicated by the fungal organism *Candida albicans* or *Staphylococcus aureus* infections. There are various etiological factors causing napkin rash viz; maceration, friction, and the presence of both urine and feces(2).

Modern medicine offers several topical agents (e.g., corticosteroids and antimicrobials) for napkin rash, yet the recurrence and potential side effects of these treatments have prompted the search for alternative therapies(3). The realm of traditional medicine has continually provided valuable insights and remedies for various ailments, often drawing from

ancient practices and herbal formulations. One such traditional remedy that has garnered attention is *Gojihwa Danti* ointment, particularly for its purported effectiveness in managing *Ahiputana*.

Gojihwa Danti ointment combines herbal ingredients known for their antifungal, anti-inflammatory, and healing properties, aiming to provide a holistic approach to treating *Ahiputana*. *Gojihwa Danti* ointment's formulation includes pivotal Ayurvedic herbs such as *Gojihwa* (*Onosma bracteatum* Wall.) and *Danti* (*Baliospermum montanum* (Willd.) Müll.Arg.) which have been traditionally used for their medicinal properties. *Gojihwa* is renowned for its antimicrobial and anti-inflammatory effects, which can help in reducing the infection and inflammation associated with *Ahiputana*. On the other hand, *Danti* is known for its detoxifying properties, which support the body's overall healing process. Together, these herbs create a synergistic effect, enhancing the ointment's efficacy in managing napkin rash in infants.

In this article, we delve into the efficacy of *Gojihwa Danti* ointment in the management of *Ahiputana*. The exploration includes an analysis of the ointment's active constituents, their pharmacological actions, and the clinical outcomes, adverse effect observed in treating napkin rash. By the end of this

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article, readers will gain insights into how *Gojihwa Danti* ointment can be effectively utilized in the management of *Ahiputana*, alongside understanding the broader implications of incorporating traditional remedies into modern medical practice. This knowledge not only empowers healthcare providers to make informed decisions but also underscores the importance of continued research and validation of traditional medicine in addressing contemporary health challenges.

Methodology

Study type: Open-label, two-arm, parallel group, randomized Controlled, clinical trial

Randomization: For generating random number sequences, Statistical Packages for Social Sciences (SPSS) version 15.0 used.

Allocation: 1:1 allocation ratio

Sample size: 60 patients

Study setting: *Kaumarbhritya* OPD (no.1) of Dr. D. Y. Patil College of Ayurved & Research centre, pimpri, pune.

Ethical Clearance-

The suggested clinical trial was addressed to M.U.H.S. Nashik and presented in summary form to the institutional ethical committee. Following approval from M.U.H.S. Nashik, the chairman of the ethical committee, the clinical trial was initiated. (IEC NO- DYPARC/793/2019)

Eligibility Criteria

Inclusion criteria

Patients of either gender having symptoms of *Ahiputana* like itching, papules, skin colour, discharge (4). Children between the age group of 1 month to 3 years, irrespective of religion, socio-economic status and food habits. Parents willing to give written consent.

Exclusion criteria

Age group below 30 days and above 3 yrs. Children who have other generalized symptoms other than *Ahiputana* like fungal rash, Atopic dermatitis. Children who have other generalized skin infections other than *Ahiputana*. History of *Ahiputana* more than 10 days. Napkin dermatitis with secondary bacterial infections.

Withdrawal criteria

Patient will be withdrawal from study only if the symptoms of *Ahiputana* get increased. If any adverse effect of drug arises on patient. Patient Migrated to any other place. Patient refuses to continue the treatment. Any newly diagnosed disease in between trial period.

Interventions

Poorvakarmas: Before application of ointment in both groups local area clean with wet wipes.

Group A (trial group):

30 patients of this group applied *Gojihwa Danti* ointment

- Drug: *Gojihwa Danti* ointment
- Duration: 7 days

- Time of application: Local application at 9 AM and 9 PM.
- Dose: 2.5 grams per dose.

Group B (control group):

30 patients of this group applied Siloderm mixi ointment.

- Drug: Siloderm mixi ointment
- Duration: 7 days
- Time of application: Local application at 9 AM and 9 PM.
- Dose: 2.5 grams per dose.

Follow Up

Follow ups on 3rd, 5th during course of treatment and 7th day after treatment detailed observations and record were taken. Diet counselling was same for both groups.

Duration of Study

The study was carried out and the data was collected from the month of February 2019 to June 2019, i.e. for a period of 5 months approximately.

Collection and Authentication

Ingredients e.g. *Gojihwa*, *Danti* were collected from local market. This *dravya's* were standardized & authenticated.

Rasapanchakas of *Gojihwa Danti* ointment: *Rasa* (Taste)- *Tikta*, *Katu*, *Guna* (Qualities)- *Laghu*, *Tikshna*, *Virya* (potency)- *Sheeta*, *Vipaka* (post-digestive effect)- *Katu*, and *Prabhava* (specific action)- *Kapha-pittahar*. *Gojihwa Danti* ointment prepared in *Rasashastra* and *Bhaishajya Kalpana* department of Dr.D.Y.Patil Ayurved college and research centre, pimpri, pune, india and authenticated & standardized before & after preparation at G.M.P. Certified Company / Centre and then used in the research project.

Method of preparation of drug

Initially *Til taila murchna* was done then *Gojihwa* and *Danti kalk* was prepared. *Murchit taila* + *Kalk of Gojihwa and Danti* + 4 litre water kept on *mandagni* till 1/4th. Take *Taila* (5 part+ *Bijwax* (1 part) kept on *mandagni*. Mixed with spatula till the proper consistency is achieved then packed in proper container (5).

Criteria For Assessment:

Table 1: Subjective and Objective Parameters

Criteria Grades	Discharge	Itching	Skin colour	Papules
0	Absent	Absent	No change	Absent
1	Occasionally wetting under garments	Intermediate itching	Red colour over the one side of buttock	1-5

2	Wetting of under garments	Continuous itching	Red colour all over the buttocks	More than 5
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Outcomes

Primary Outcome: Effect of *Gojihwa Danti* ointment on itching, Papules, skin colour, discharge.

Secondary Outcome: Recurrence and any side effect of *Gojihwa Danti* ointment

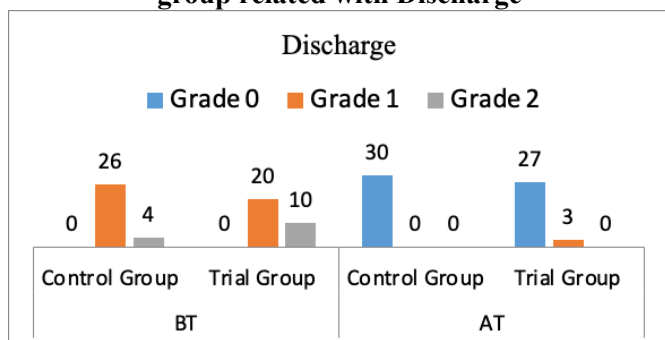
Data collection methods

Prior to screening, the parents were informed about the research study as per the patient information sheet, and their written informed consent was taken. Following screening the study's eligible participants were randomly assigned to one of two groups. The information was gathered in the form of a case record form, then subsequently recorded in Microsoft Excel sheet format for statistical analysis.

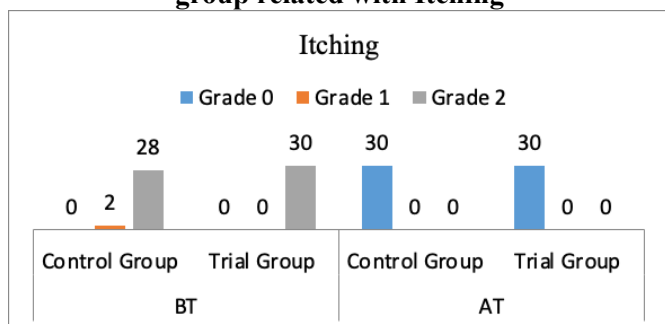
Statistical Analysis-

The collected data analysed using Wilcoxon signed rank test (6).

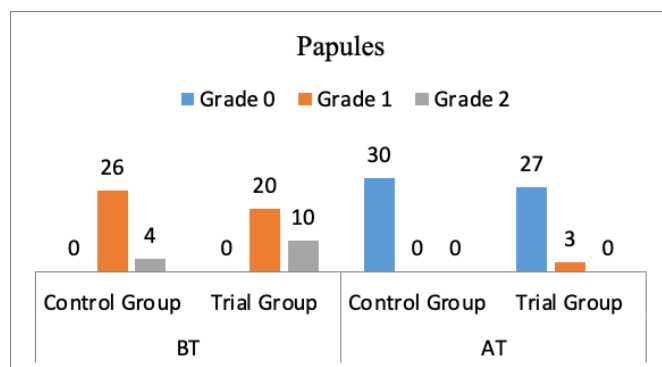
Graph 1: Comparison between control and trial group related with Discharge



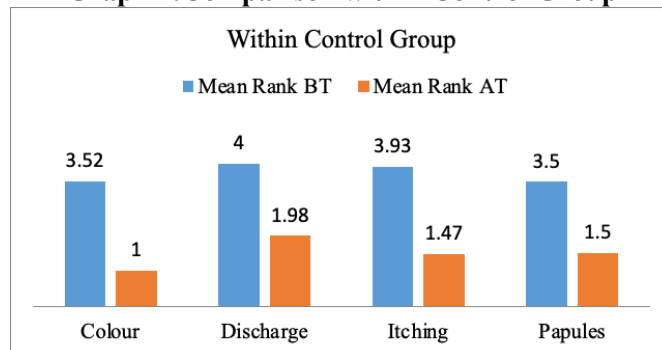
Graph 2: Comparison between control and trial group related with Itching



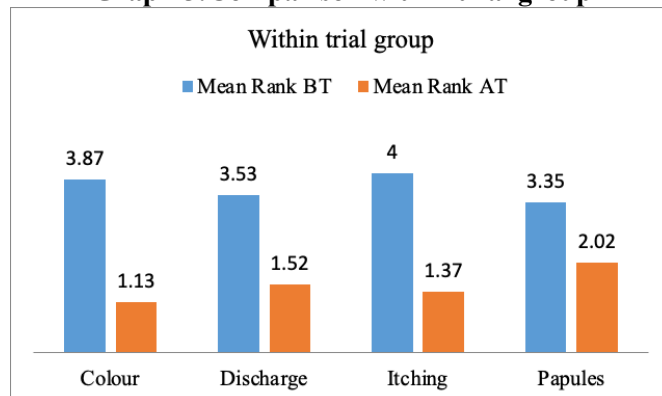
Graph 3: Comparison between control and trial group related with Papules



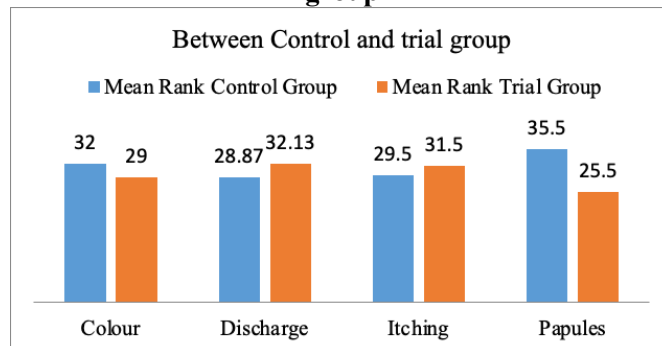
Graph 4: Comparison within Control Group



Graph 5: Comparison within trial group



Graph 6: Comparison between Control and trial group



Discussion

Napkin dermatitis is an inflammatory condition that primarily affects infants' napkin or diaper areas. It is characterized by the development of erythema, papules, and occasionally vesiculation with scaling. The napkin region can be affected by atopic dermatitis, psoriasis, and other skin conditions. Other factors linked

to the etiology include irritating contact dermatitis, infections with bacteria and candida yeasts.

In Ayurveda, *Ahiputana* is attributed to *Dushta stanyapana*, (*kapha pitta stanya dushti*) *Malasya Avadhan*, (after defecation anal area not clean) *Shakrunmutra Samayukta*, (Urine and feces combine) *Sweda*, (sweat) *Shishor bhavet sweenasy awamanasya* (not soaked properly after bath)(7). In Ayurveda, for treatment of *Ahiputana chikitsa* is given to both mother and child. Medications are given orally to *dhatri* for *stanya shodhan chikitsa* and also for *balaka for dosha shodhan* caused by *stanya dushti*, regular cleanness at peri anal region. Along with this there are various local treatments available for treatment of *Ahiputana*.

As mention in *Vangasena samhita*, *Gojihwa Danti lepa* is effective on *Ahiputana* was selected for study, instead of taking *lepa* we modified it into ointment form(8). *Gojihwa Danti* ointment, comprising *Gojihwa* and *Danti*. In *Ahiputna rakta(pitta)* and *kapha dushti* present. Properties of *Gojihwa* are *Pittashamaka*, *Kaphanissaraka*, *Raktashodhaka*, *Vranropana*, (healing of wound faster) (9). Properties of *Danti* are *Kapha-pittahara*, *Raktashodhaka*(10). Hence both plants decrease the *kapha* and *pitta dushti* and helpful in *Ahiputana*.

This study aims to study the clinical efficacy of application of *Gojihwa Danti* ointment in *Ahiputana*. Nappy rash, often known as diaper rash, is extremely common, and the use of Ayurvedic medicine, such as *Gojihwa Danti* ointment, is a cost-effective solution to reduce the prevalence of *Ahiputna*. Normally in allopathic line of treatment we use ZnO and topical corticosteroids which has many adverse effects on skin like skin discoloration, atrophy of skin and treatment is costly. So, we used *Gojihwa Danti* Ointment as an alternative to allopathic treatment as it is easily available and cost effective.

In control group out of 30 patients 28 patients were completely cured i.e. 93.33%, 2 patients had moderate relief i.e. 6.7 %. Whereas in trial group out of 30 patients 24 patients i.e. 80% were completely cured and 6 patients had moderate relief. The trial group shows marked improvement in discharge and itching as compared to the control group. Regarding factor Papules, there is a significant difference in the grades between the control group and trial group. The mean rank values suggest that the effect of Papules is higher in control group than that in trial group. No recurrence of diaper rash and no side effects related to the ointments were observed in either groups.

Conclusion

Ahiputana is common disease in infants. *Bahya hetu* i.e poor hygiene is the main reason of the disease. *Gojihwa Danti* ointment is effective in the management of *Ahiputana* with no any adverse effect, Hence alternate hypothesis is accepted. So, it can be stated as *Gojihwa Danti* ointment is effective remedy in the treatment of *Ahiputana*.

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Conflicts of interest: No conflicts of interest exist.

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