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## MANAGEMENT OF VULVOVAGINITIS BY THE HERBAL INTIMATE GEL - A CASE SERIES

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### ABSTRACT

Vulvovaginitis poses a significant public health concern, and Ayurveda's *Lep Chikitsa* offers a promising treatment approach. This case series aimed to test an herbal oil gel in the management of vulvovaginitis.

Herbal intimate gel was developed and from the trial formulations the most stable gel was chosen. This chosen formulation underwent extensive testing, including physicochemical characterization and microbial load testing. Its accelerated stability was also assessed. The gel's *in vitro* antimicrobial activity was confirmed using a time-kill assay, which showed effectiveness against both *Gardnerella vaginalis* and *Candida albicans*.

The gel was then tested on five patients with vulvovaginitis after obtaining their informed consent. The participants were recruited from both the outpatient and inpatient departments of an Ayurveda hospital.

The effectiveness of cases is being evaluated using several criteria: a vulvovaginitis signs and symptoms score, a vaginal swab test for smear examination, the Vulvovaginal Symptom Questionnaire and the Quality-of-Life Enjoyment and Satisfaction Questionnaire.

This case series suggests that the herbal intimate gel treatment effectively cures patient symptoms and improves their quality of life. Vaginal swab tests confirmed the elimination of microbes, as all reports were negative after treatment. This indicates the gel has a significant therapeutic benefit and could be a valuable addition to the management of vulvovaginitis, offering a natural and potentially safer alternative to conventional treatments.

**Keywords:** Herbal Intimate Gel, Vulvovaginitis, Vaginal swab, *Gardnerella vaginalis*, *Candida albicans*

## INTRODUCTION

Vulvovaginitis is a significant public health issue, with a prevalence ranging from 30% to 50% and the majority of women worldwide experiencing at least one episode in their lifetime [1]. It is clinically characterized by inflammation and infection of the vulva and vagina, manifesting symptoms such as itching, abnormal discharge, discomfort and pain [2] which can severely impact quality of life. Conventional management primarily involves the use of vaginal lubricants, moisturizers and patient counselling [3]. Frequent use of chemical-based antimicrobial and antifungal may disturb the vulvar flora and affect the sensitivity. However, these approaches may not address the root causes or provide long lasting relief, underscoring the necessity for safer and more holistic therapeutic strategies.

In Ayurveda, vulvovaginitis is often related to “Yonivyapad” [4] (*Tridoshaja*), and traditional Ayurvedic medicine offers an

abundant pharmacopeia of herbal preparations with established antimicrobial, anti-inflammatory and soothing properties. On the basis of these principles, the present case series investigates the clinical potential of herbal intimate gel—a polyherbal formulation created using Ayurvedic concepts and subjected to rigorous pharmaceutical standardization. The gel contains extracts of *Emblia officinalis*, *Terminalia bellerica*, *Terminalia chebula*, *Mimosa pudica*, *Ficus racemose*, *Glycyrrhiza glabra*, *Azadirachta indica* and *Curcuma longa* [5] incorporated into an Aloe vera base. These ingredients have been mentioned in classical and contemporary Ayurvedic literature for their antimicrobial and healing actions, particularly against common vulvovaginitis pathogens such as *Gardnerella vaginalis* and *Candida albicans* [6].

Preliminary laboratory analyses and standardization procedures have validated

the gel's safety profile and demonstrated strong antimicrobial efficacy, positioning herbal intimate gel [7] as a potentially effective and well-tolerated alternative to conventional therapy. This case series endeavours to systematically evaluate the gel's efficacy and acceptability in women with vulvovaginitis by measuring symptom improvement and changes in biochemical markers, with the aim of integrating classical Ayurvedic wisdom into modern clinical practice and providing evidence for an accessible natural solution to this prevalent gynaecological condition.

#### MATERIALS AND METHODS

**In Phase 1** - A herbal vaginal gel was developed based on Ayurvedic principles. Ayurvedic text states that *Kalka*, *Churna*, and *Kwath* of *Sugandhi dravyas* [8] (herbal substances) can be used for vulvovaginitis, which is characterised by symptoms such as odor, pus, discharge and stickiness. For the formulation, extracts were prepared from the following parts of the selected herbal drugs and incorporated in the gel: bark and leaves

of *Azadirachta indica*, seeds of *Mimosa pudica*, tuber of *Curcuma longa*, root and stem of *Glycyrrhiza glabra*, bark of *Ficus racemosa* and Fruits of *Embllica officinalis*, *Terminalia bellerica* and *Terminalia chebula*.

#### Methodology

After procurement and identification, the herbal ingredients were authenticated. A medicated oil was prepared from the herbal ingredients and standardized. The medicated oil was then incorporated into an aloe vera based gel, which was packed in a GMP-certified pharmacy. The developed medicated oil-based gel underwent extensive evaluation including i) phytochemical analysis, ii) HPTLC fingerprinting, iii) physicochemical characterization, and iv) microbial load testing. Its accelerated stability was also assessed. The gel's in-vitro antimicrobial activity was confirmed using a time-kill assay, showing effectiveness against both *Gardnerella vaginalis* and *Candida albicans*.

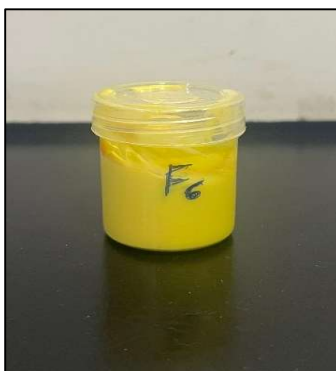


Figure 1: Aloe vera based Gel

## In Phase 2

Five cases were included in this case series- Cases of Vulvovaginitis were selected from the OPD and IPD of D.Y. Patil Ayurveda hospital, Nerul, Navi Mumbai. Five patients presenting with symptoms of vulvovaginitis were enrolled and their consent was obtained.

Patients included in the study were female, aged between 18 and 60 years, and with at least two symptoms of vulvovaginitis, such as genital itching, discharge, inflammation, odor, or abrasion. Additionally, all participants had to be willing to provide written informed consent and commit to the follow-up schedule.

Patients who were unwilling to participate, did not fall within the 18 to 60 age range and had a history of chronic illnesses like carcinoma, uncontrolled hypertension, or

diabetes mellitus, history of venereal diseases, psychological issues, drug allergies, pregnant women and individuals already participating in another research were excluded from this case series.

The intervention consisted of applying 1gm of the herbal Intimate gel twice daily, specifically in the morning and at bedtime. This regimen was supplemented with a recommended diet (*pathya-apathya*) and a specific hygiene routine.

The effectiveness of the treatment was assessed using multiple criteria i) vulvovaginitis signs and symptoms score, ii) vaginal swab test for smear examination [9], iii) Vulvovaginal Symptom Questionnaire [10] and iv) Quality-of-Life Enjoyment and Satisfaction Questionnaire [11].

## Grading and scoring for symptoms and signs

Table 1: Signs and symptoms grading

Sr. No.	Symptoms	Grade 0	Grade 1	Grade 2	Grade 3
1	Pruritus ( <i>kandu</i> )	No itching	Mild itching	Moderate itching	Severe itching
2	Erythema (redness)	No skin colour	Blanching + Red colour	Red colour	Red colour
3	Pain	No pain	Mild pain	Moderate pain	Severe pain
4	Vulvar Abrasions	No abrasions	Mild Abrasions	Moderate abrasions	Severe abrasions
5	Change in Colour & Odour of Discharge	No change in colour & odour of discharge	Mild change in colour & odour of discharge	Moderate change in colour & odour of discharge	Severe change in colour & odour of discharge
6	Amount of Vaginal Discharge	No vaginal discharge	Mild vaginal discharge	Moderate vaginal discharge	Severe vaginal discharge

## RESULTS

Antimicrobial studies shows that the gel is effective against *Gardnerella Vaginallis*

ATC14018 And *Candida Albicans* ATCC 10231 which shows it will be effective in vulvovaginitis as antimicrobial.



Figure 2: Antimicrobial study of Gardnerella Vaginallis



Figure 3: Antimicrobial study of Candida Albicans

### Symptoms score table

Table 2: Shows the average symptom score before and after treatment

Sr. No.	Patient initials	Average of symptom score Before treatment	Average of symptom score After treatment
1	SP	1.8	0
2	PR	1.8	0
3	GN	1	0
4	CP	1.16	0
5	SK	2.1	0.5

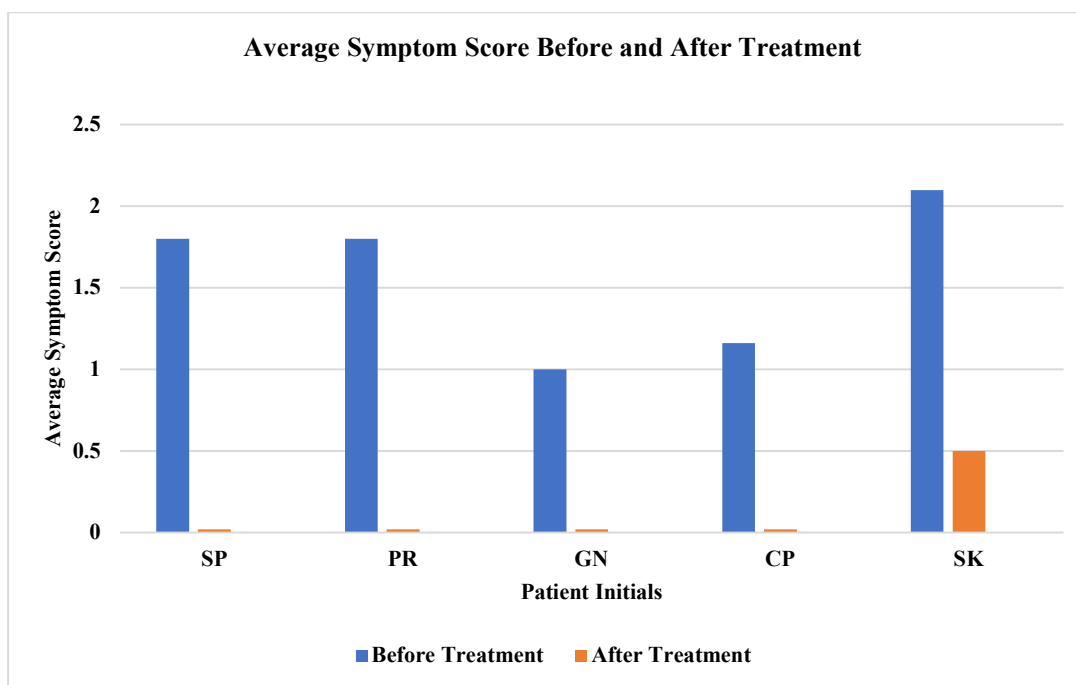


Figure 4: Represents symptom score before and after treatment in the form of bar diagram

## Vaginal swab score table

Table 3: Shows the average Vaginal swab score pH and Microbes before and after treatment

Sr.no.	Patient initials	Vaginal swab test			
		pH		Microbes	
		Before treatment	After treatment	Before treatment	After treatment
1	SP	11	7	Present	Absent
2	PR	10	7.5	Present	Absent
3	GN	10	7.5	Present	Absent
4	CP	12	7	Present	Absent
5	SK	12	8	Present	Mild +

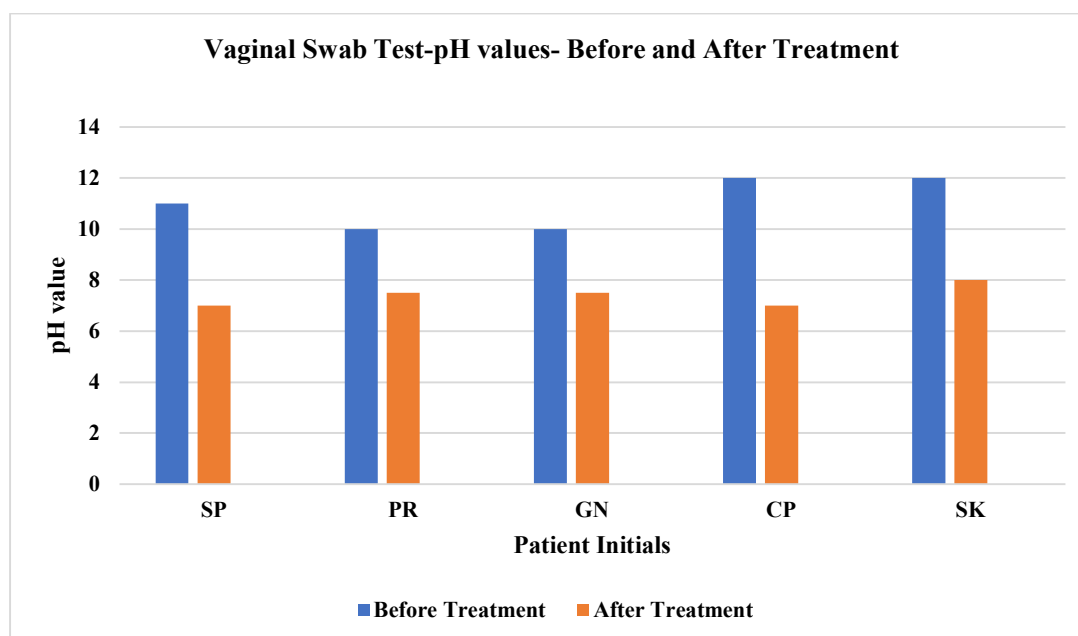


Figure 5: Represents Vaginal swab test pH values - before and after treatment in the form of bar diagram

- In this case series by observing all cases for vulvovaginitis, it has been observed that the symptoms of the all patients have been completely cured after using the gel
- Vaginal swab test reports showed significant results in all patients, as the vaginal swab score reports are negative for microbes after 15 days by using the herbal gel
- Quality of life has been improved in all patients after the treatment.

## DISCUSSION

The dynamic nature of Ayurveda allows for the modification of medicinal forms while keeping its basic principles intact. In this context, an evidence-based Ayurvedic concept was followed to prepare a gel as part of a new product development. Pilot studies conducted across six different settings were carried out to ensure consistency in the standard gel formulation. A paraben-free and chemical-free, aloe vera-based formulation was finalized.

In vulvovaginitis, the local application of anti-inflammatory and antimicrobial agents is advisable. Therefore, in the gel preparation, the herbal ingredients were chosen for their anti-inflammatory, antifungal, and antimicrobial properties.

The antimicrobial efficacy of HERBAL Intimate Gel is attributed to its Ayurvedic herbal ingredients: (i) *Emblica officinalis*, *Terminalia bellerica*, *Terminalia chebula*-polyphenols/tannins: Broad-spectrum antimicrobial (ii) *Glycyrrhiza glabra*-glycyrrhizin/flavonoids: Antibacterial and antifungal (iii) *Azadirachta indica* - Nimbidin/azadirachtin: Strong antimicrobial (iv) *Curcuma longa* – curcumin: Robust antibacterial and antifungal (v) *Mimosa pudica* – alkaloids/tannins: Antimicrobial (vi) *Ficus racemosa*- Traditionally known for antimicrobial and anti-inflammatory properties (vii) Aloe vera (base – phenolics): Soothing, antifungal, and supports skin integrity

These compounds act synergistically against vulvovaginitis pathogens such as *Gardnerella vaginalis* and *Candida albicans*, inhibiting bacterial and fungal growth and supporting the body's natural antimicrobial action. An oil-based gel was preferred to ensure longer retention and better absorption.

The safety and biocompatibility of herbal Intimate Gel were established through a combination of standardization,

physicochemical and laboratory evaluations, and antimicrobial testing. Organoleptic and physicochemical assessments - including pH, viscosity and moisture content ensured compatibility with skin and mucosal tissues, thereby minimizing the risk of irritation. Antimicrobial studies were conducted to further support its effectiveness in vulvovaginitis.

The absence of reported adverse effects in all five cases suggests that Gel is safe for intimate application. The results of this case series showed that herbal intimate Gel is effective in managing vulvovaginitis, providing relief from symptoms in both acute and chronic cases. This demonstrates that Ayurvedic treatments, when adapted into contemporary forms, can remain effective while retaining their original therapeutic properties.

This regimen was supplemented with a recommended diet (*pathya-apathya*), as Ayurveda associates vulvovaginitis as an imbalance of the three doshas—Vata, Pitta, and Kapha. A tailored diet helps to pacify the aggravated doshas and strengthen natural defences and a specific hygiene routine is crucial for preventing and managing vulvovaginitis.

This case series systematically evaluates the efficacy and acceptability of herbal intimate Gel in women with vulvovaginitis, aiming to bridge classical Ayurvedic wisdom with contemporary clinical practice, and to

provide evidence for a natural, accessible solution to this condition.

## CONCLUSION

Case series confirms that it is both feasible and effective to simplify classical Ayurvedic formulations into more adaptable forms, such as the herbal Intimate Gel, especially when managing the conditions like vulvovaginitis. The gel proved to be a valuable alternative to traditional *lepa*, demonstrating its safety and effectiveness in five cases. Results showed up to 100% symptom relief and normal vaginal swab test results in patients, highlighting the gel's significant therapeutic benefits.

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