
| RESEARCH ARTICLE

Therapeutic Effects of “Phu Thao Khang – PTP” Solution in the Treatment of Vaginitis and Cervicitis Caused by Mixed Bacterial Infection

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| ABSTRACT

This study evaluated the adjunctive effect of Phu Thao Khang-PTP solution on selected paraclinical outcomes in women with vaginitis and cervicitis caused by mixed bacterial infection. An open-label controlled clinical intervention was conducted in 60 sexually active women aged >18 years who were diagnosed with vaginitis and/or cervicitis at Tue Tinh Hospital from April 2025 to March 2026. Participants were allocated into a study group receiving daily genital cleansing with Phu Thao Khang-PTP plus one Polygynax vaginal capsule daily for 10 days, or a control group receiving Polygynax alone for 10 days. Outcomes were assessed at baseline (D0) and day 10 (D10) using cervical examination, vaginal discharge characteristics, Candida testing, and Gram staining. After treatment, the study group achieved higher rates of normalization of cervical findings (86.7% vs. 56.7%), Candida clearance (100% vs. 86.7%), Gram-positive bacterial clearance (96.7% vs. 83.3%), Gram-negative bacterial clearance (93.3% vs. 76.7%), and overall grade A response (83.3% vs. 56.7%). No adverse effects were observed. Phu Thao Khang-PTP combined with Polygynax may be an effective and safe adjunctive treatment for mixed vaginitis and cervicitis.

| KEYWORDS

Vaginitis; Cervicitis; Mixed bacterial infection; Phu Thao Khang-PTP; Polygynax

| ARTICLE INFORMATION

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1. Introduction

Vaginitis and cervicitis are among the most common gynecologic disorders in women of reproductive age and are frequently associated with mixed infection involving bacteria and fungi (Ngo, 2021; Grigoriou et al., 2006; Duong, 2007; Pham, 2022; Vu, 2007). Typical manifestations include abnormal vaginal discharge, itching, burning, unpleasant odor, and discomfort during sexual intercourse. Although many cases respond to topical antimicrobial therapy, recurrence remains common, partly because treatment may not fully restore the vaginal microenvironment (Ngo, 2021; Grigoriou et al., 2006; Pham, 2022).

Traditional herbal formulations are widely used in Vietnam as adjunctive therapy because of their presumed anti-inflammatory, antimicrobial, cleansing, and mucosal-soothing effects. Phu Thao Khang-PTP is a decocted herbal solution intended for external genital cleansing before intravaginal antimicrobial administration. In the present study, we investigated whether adding Phu Thao Khang-PTP to standard Polygynax treatment could improve paraclinical outcomes in women with vaginitis and cervicitis caused by mixed bacterial infection.

2. Materials and Methods

2.1. Study design and setting

This was an open-label controlled interventional clinical study with before-and-after comparison. The study was conducted at Tue Tinh Hospital from April 2025 to March 2026.

2.2. Participants

Sixty female patients aged >18 years who had initiated sexual activity and were diagnosed with vaginitis and/or cervicitis caused by bacteria or fungi were enrolled. Eligible patients had at least one clinical symptom (vulvovaginal itching, increased foul or discolored discharge, cervical or vaginal erythema/congestion) and paraclinical evidence of infection, defined as Gram-positive or Gram-negative bacteria at $\geq ++$ density on stained smears and/or fungal spores on microscopy. All participants agreed voluntarily to participate and complied with study procedures.

2.3. Exclusion criteria

Patients were excluded if they had cervical cancer, cervical polyps, ulcerative genital lesions suggestive of sexually transmitted infections (such as herpes, syphilis, condyloma acuminatum, or chancroid), pregnancy, menstruation during treatment, hypersensitivity to Polygynax components, or interruption of therapy for more than two consecutive days.

2.4. Interventions

Participants were divided into two matched groups of 30 patients each with comparable age and disease severity. The study group received once-daily genital cleansing with Phu Thao Khang-PTP solution followed by one Polygynax vaginal capsule daily for 10 days. The control group received one Polygynax vaginal capsule daily for 10 days.

2.5. Study medication

The study medication included Phu Thao Khang-PTP, a traditional herbal formulation prepared by the Pharmacy Department of Tue Tinh Hospital as a 150 mL decocted sachet. Each daily dose contained five herbal ingredients: *Crotonis tonkinensis*, *Phellodendri cortex*, *Fibraureae caulis et radix*, *Lactucae indicae herb*, and *Cnidii fructus*, 15 g each, as summarized in Table 1. The formulation followed the composition described in the Vietnamese Pharmacopoeia V (Ministry of Health, 2019). The solution was used externally once daily for cleansing of the vulvovaginal and cervical area before intravaginal administration of Polygynax.

Table 1. Composition of Phu Thao Khang-PTP solution

Ingredient	Scientific name	Amount per dose
Kho sam	Folium et Ramulus Crotonis tonkinensis	15 g
Hoang ba	Cortex Phellodendri	15 g
Hoang dang	Caulis et Radix Fibraureae	15 g
Bo cong anh	Herba Lactucae indicae	15 g
Xa sang tu	Fructus Cnidii	15 g

The composition table is provided for clarity and is not part of the outcome analysis.

2.6. Outcomes

Paraclinical outcomes were assessed at D0 and D10. Evaluations included cervical endoscopic findings, amount and characteristics of vaginal discharge, *Candida* test results, and Gram-stain results for Gram-positive and Gram-negative bacteria. Overall response was graded as A (good), B (fairly good), C (average), or D (poor) according to prespecified clinical and laboratory criteria.

2.7. Statistical analysis

Data were processed using SPSS version 22.0. Descriptive statistics included frequency, percentage, mean, and standard deviation where appropriate. Group comparisons used Student’s t-test or tests for two proportions as applicable. A p value <0.05 was considered statistically significant.

2.8. Ethical considerations

The study protocol was approved by the Scientific Council and Ethics Council of Tue Tinh Hospital - Vietnam University of Traditional Medicine. All participants were informed about the study objectives and provided consent before enrolment. Patients could withdraw at any time without affecting their care.

3. Results

Baseline cervical inflammation was present in both groups, and the distribution of cervical endoscopic findings was comparable at D0. After 10 days of treatment, cervical findings returned to normal in 26/30 patients (86.7%) in the study group and 17/30 patients (56.7%) in the control group. Erythematous inflammation and ectropion with inflammation decreased markedly in both groups, with better improvement observed in the study group (Table 2).

Table 2. Cervical endoscopic findings before and after treatment

Finding	Group	D0 n	D0 %	D10 n	D10 %	P
Normal	Study	0	0.0	26	86.7	<0.05
Normal	Control	0	0.0	17	56.7	<0.05
Erythematous inflammation	Study	19	63.3	0	0.0	
Erythematous inflammation	Control	20	66.7	4	13.3	
Ectropion with inflammation	Study	11	36.7	0	0.0	
Ectropion with inflammation	Control	10	33.3	0	0.0	
Ectropion only	Study	0	0.0	4	13.3	
Ectropion only	Control	0	0.0	9	30.0	

The amount of vaginal discharge improved substantially after treatment. At D10, scant discharge was recorded in 27/30 patients (90.0%) in the study group and 22/30 patients (73.3%) in the control group, whereas abundant discharge persisted in only 3/30 patients (10.0%) and 8/30 patients (26.7%), respectively (Table 3).

Table 3. Amount of vaginal discharge before and after treatment

Discharge amount	Group	D0 n	D0 %	D10 n	D10 %
Scant	Study	0	0.0	27	90.0
Scant	Control	0	0.0	22	73.3

Discharge amount	Group	D0 n	D0 %	D10 n	D10 %
Abundant	Study	30	100.0	3	10.0
Abundant	Control	30	100.0	8	26.7

The characteristics of vaginal discharge also shifted toward normal after treatment. Clear discharge was observed in 28/30 patients (93.3%) in the study group and 22/30 patients (73.3%) in the control group at D10. Meanwhile, yellow-green, powdery white, purulent white, and bloody discharge markedly declined in both groups (Table 4).

Table 4. Characteristics of vaginal discharge before and after treatment

Discharge characteristic	Group	D0 n	D0 %	D10 n	D10 %	P
Clear	Study	0	0.0	28	93.3	<0.05
Clear	Control	0	0.0	22	73.3	<0.05
Yellow-green	Study	6	20.0	0	0.0	
Yellow-green	Control	7	23.3	1	3.3	
Powdery white	Study	5	16.7	1	3.3	
Powdery white	Control	5	16.7	2	6.7	
Purulent white	Study	15	50.0	1	3.3	
Purulent white	Control	15	50.0	5	16.7	
Bloody	Study	4	13.3	0	0.0	
Bloody	Control	3	10.0	0	0.0	

Candida test results improved in both groups, with complete clearance in the study group. The proportion of Candida-negative patients increased from 43.3% at baseline to 100.0% at D10 in the study group, compared with an increase from 60.0% to 86.7% in the control group. Residual positivity at the 1+ level was found only in the control group after treatment (Table 5).

Table 5. Candida test results before and after treatment

Candida test	Group	D0 n	D0 %	D10 n	D10 %	P
Negative	Study	13	43.3	30	100.0	<0.05

Candida test	Group	D0 n	D0 %	D10 n	D10 %	P
Negative	Control	18	60.0	26	86.7	<0.05
1+	Study	4	13.3	0	0.0	
1+	Control	2	6.7	4	13.3	
2+	Study	5	16.7	0	0.0	
2+	Control	3	10.0	0	0.0	
3+	Study	8	26.7	0	0.0	
3+	Control	7	23.3	0	0.0	

Gram-positive bacterial findings also improved after treatment. At D10, 29/30 patients (96.7%) in the study group and 25/30 patients (83.3%) in the control group were negative for Gram-positive bacteria. Only 1 patient in the study group and 5 patients in the control group remained positive at the 1+ level (Table 6).

Table 6. Gram-positive bacterial findings before and after treatment

Gram-positive bacteria	Group	D0 n	D0 %	D10 n	D10 %	P
Negative	Study	2	6.7	29	96.7	
Negative	Control	4	13.3	25	83.3	
1+	Study	4	13.3	1	3.3	<0.05
1+	Control	5	16.7	5	16.7	
2+	Study	10	33.3	0	0.0	
2+	Control	12	40.0	0	0.0	
3+	Study	11	36.7	0	0.0	<0.05
3+	Control	8	26.7	0	0.0	
4+	Study	3	10.0	0	0.0	

Gram-positive bacteria	Group	D0 n	D0 %	D10 n	D10 %	P
4+	Control	1	3.3	0	0.0	

All participants were Gram-negative positive at baseline. Following treatment, Gram-negative bacterial clearance was achieved in 28/30 patients (93.3%) in the study group and 23/30 patients (76.7%) in the control group. Residual positivity at the 1+ level remained in 2 patients in the study group and 7 patients in the control group (Table 7).

Table 7. Gram-negative bacterial findings before and after treatment

Gram-negative bacteria	Group	D0 n	D0 %	D10 n	D10 %	P
Negative	Study	0	0.0	28	93.3	
Negative	Control	0	0.0	23	76.7	
1+	Study	0	0.0	2	6.7	<0.05
1+	Control	0	0.0	7	23.3	
2+	Study	9	30.0	0	0.0	
2+	Control	7	23.3	0	0.0	
3+	Study	9	30.0	0	0.0	
3+	Control	10	33.3	0	0.0	
4+	Study	12	40.0	0	0.0	
4+	Control	13	43.3	0	0.0	

Overall treatment response favored adjunctive Phu Thao Khang-PTP. Grade A response was achieved in 83.3% of patients in the study group compared with 56.7% in the control group, while Grade C response was less frequent in the study group (3.3% vs. 26.7%) (Figure 1).

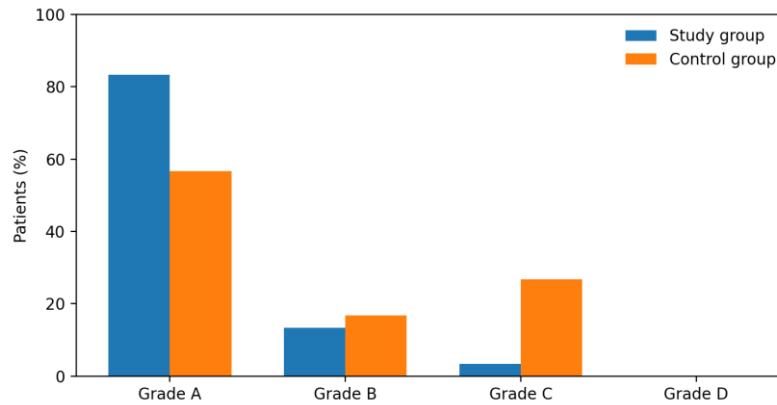


Figure 1. Overall treatment response by study group

4. Discussion

This study suggests that adjunctive genital cleansing with Phu Thao Khang-PTP may improve short-term paraclinical outcomes when combined with Polygynax in women with mixed vaginitis and cervicitis. Compared with Polygynax alone, the combined regimen was associated with greater normalization of cervical findings, lower persistence of abnormal discharge, and higher microbial clearance after 10 days. These findings are clinically relevant because lower genital tract infection is common in women of reproductive age and often involves mixed bacterial and fungal pathogens (Grigoriou et al., 2006; Ngo, 2021; Pham, 2022).

The improvement in *Candida*, Gram-positive, and Gram-negative test results is clinically important because mixed lower genital tract infection is often difficult to eradicate completely, and recurrence remains a frequent problem after standard local treatment (Grigoriou et al., 2006; Ngo, 2021; Petersen & Magnani, 2002; Pham, 2022). In the present study, *Candida* clearance reached 100% in the study group, while Gram-positive and Gram-negative bacterial clearance exceeded 90%. These findings support the rationale for combining a cleansing herbal solution with intravaginal antimicrobial therapy (Petersen & Magnani, 2002).

The better response in discharge quantity and quality may reflect improved local hygiene and reduction of inflammatory exudate before insertion of vaginal medication. Abnormal vaginal discharge is one of the most common manifestations of vaginitis and cervicitis and may be associated with bacterial or fungal overgrowth, cervical inflammation, and disturbance of the local vaginal environment (Duong, 2007; Ngo, 2021; Vu, 2007). In our study, the proportion of clear discharge increased substantially after treatment, while purulent, powdery white, yellow-green, and bloody discharge markedly declined in both groups, especially in the adjunctive-treatment group.

Improvement in cervical endoscopic findings is another notable result. Before treatment, both groups showed cervical erythema and inflammatory ectropion. After treatment, the proportion of normal cervical appearance was higher in the study group than in the control group. This observation is consistent with the expected anti-inflammatory and cleansing effects of adjunctive local treatment, as well as the role of standard antimicrobial therapy in reducing infection-related cervical inflammation (Duong, 2007; Vu, 2007).

From the perspective of traditional medicine, the herbal components of Phu Thao Khang-PTP are commonly used for clearing heat, drying dampness, reducing inflammation, and cleansing the affected area. The formulation includes *Crotonis tonkinensis*, *Phellodendri cortex*, *Fibraureae caulis et radix*, *Lactucae indicae herb*, and *Cnidii fructus*, which are listed in the Vietnamese Pharmacopoeia V and traditionally used in anti-inflammatory and anti-infective preparations (Ministry of Health, 2019). Although the present study was not designed to determine the pharmacologic contribution of each individual ingredient, the overall formulation may have provided supportive local effects that enhanced the action of Polygynax.

Our results compare favorably with previous reports on treatment outcomes in lower genital tract infection. Ngo (2021) reported a high prevalence of vaginitis and related factors among women attending gynecologic examination, highlighting the burden of this condition in Vietnamese clinical practice. Pham (2022) also showed that lower genital tract infection remains common and that treatment outcomes may vary according to pathogen pattern and clinical presentation. In addition, Petersen and Magnani (2002) found that local treatment may be effective in vaginal infections of varying etiology, supporting the principle that topical therapy can play a major role in infection control.

The superior outcome observed in the study group may therefore reflect the advantage of combining two local approaches: external cleansing with a herbal solution and intravaginal antimicrobial treatment. Cleansing before intravaginal administration may help remove discharge, reduce the local microbial burden, and improve contact between the vaginal medication and the mucosal surface. This may partly explain why the study group showed better results across several paraclinical indicators than the control group (Ministry of Health, 2019; Petersen & Magnani, 2002).

This study has several limitations. The sample size was modest, allocation was not randomized, and follow-up was limited to 10 days, so recurrence after treatment could not be assessed. In addition, the study focused mainly on paraclinical outcomes and did not include broader patient-reported symptom scores or quality-of-life measures. Therefore, although the findings are promising, larger randomized studies with longer follow-up are needed to confirm the adjunctive value of Phu Thao Khang-PTP in the management of mixed vaginitis and cervicitis (Grigoriou et al., 2006; Petersen & Magnani, 2002; Pham, 2022).

5. Conclusion

Adjunctive use of Phu Thao Khang-PTP solution with Polygynax was associated with better short-term paraclinical outcomes than Polygynax alone in women with mixed vaginitis and cervicitis. The combined regimen improved cervical findings, reduced abnormal vaginal discharge, enhanced *Candida* and bacterial clearance, and produced a higher overall grade A response without observed adverse effects.

Statements and Declarations

Ethics approval and consent to participate: The study protocol was approved by the Scientific Council and Ethics Council of Tue Tinh Hospital - Vietnam University of Traditional Medicine. All participants provided consent before enrolment.

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Author contributions: Thuy Phuong Pham contributed to study conception, patient management, data collection, analysis, and manuscript drafting. Hoang Anh Bui contributed to study design, supervision, interpretation of results, and critical revision of the manuscript. Both authors approved the final version.

Data availability: The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

References

- [1]. Duong, T. C. (2007). Common lesions of the cervix. In *Obstetrics and Gynecology Lectures, Volume I* (pp. 278–281). Medical Publishing House.
- [2]. Grigoriou, O., Baka, S., Makrakis, E., Hassiakos, D., Kapparas, G., & Kouskouni, E. (2006). Prevalence of clinical vaginal candidiasis in a university hospital and possible risk factors. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 126(1), 121–125.
- [3]. Ministry of Health (2019). *Vietnamese Pharmacopoeia V (Vol. 2)*. Medical Publishing House.
- [4]. Ngo, Q. V. (2021). Prevalence of vaginitis and related factors among women attending gynecologic examination at Can Tho Central General Hospital. *Can Tho Journal of Medicine and Pharmacy*, 39, 216–222.
- [5]. Petersen, E. E., & Magnani, P. (2002). Local treatment of vaginal infections of varying etiology with dequalinium chloride or povidone iodine. *Arzneimittelforschung*, 52(9), 706–715.
- [6]. Pham, M. H. (2022). Current status and treatment outcomes of lower genital tract infections in patients attending gynecologic examination at Thai Nguyen University of Medicine and Pharmacy Hospital. *Vietnam Medical Journal*, 2, 64–69.
- [7]. Vu, N. T. (2007). Genital tract inflammation. In *Obstetrics and Gynecology Lectures* (pp. 268–277). Medical Publishing House.