

## REVIEW ARTICLE

# Effects of vitamin E and physical therapy in alleviating the symptoms of vulva pruritus: A review of 49 cases

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## Abstract

This was a retrospective study. Vulva pruritus is a common symptom in gynaecology and causes mental burden in patients. This study aimed to analyze effects of the Vitamin E and physical therapy on alleviating the symptoms of vulva pruritus. Forty nine (49) women diagnosed with vulva pruritus in the Huai'an First People's Hospital from November 2019 to November 2020 were included. All diagnosed cases received oral administration of Vitamin E, topical application of Vitamin E, and physical therapy consisting of low-frequency pelvic circulation and trigger point acupuncture. Clinical data, degree of itching, visual analog scale for evaluating pain, self-rating scale score for evaluating depression, and sexual function index were recorded. After treatment, the degree of itching, pain, and depression levels were significantly decreased. We conclude that a combination of Vitamin E plus physical therapy can alleviate symptoms of patients with vulva pruritus. We therefore recommend the use of this approach in clinical practice. (*Afr J Reprod Health* 2024; 28 [10]: 208-212).

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**Keywords:** Vitamin E; Physical therapy; Vulva pruritus; Pain; Depression

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## Résumé

Il s'agissait d'une étude rétrospective. Le prurit vulvaire est un symptôme courant en gynécologie et entraîne une charge mentale chez les patients. Cette étude visait à analyser les effets de la vitamine E et de la physiothérapie sur le soulagement des symptômes du prurit vulvaire. Quarante-neuf (49) femmes diagnostiquées avec un prurit vulvaire à l'hôpital du premier peuple de Huai'an entre novembre 2019 et novembre 2020 ont été incluses. Tous les cas diagnostiqués ont reçu une administration orale de vitamine E, une application topique de vitamine E et une thérapie physique comprenant une circulation pelvienne à basse fréquence et une acupuncture des points trigger. Les données cliniques, le degré de démangeaisons, l'échelle visuelle analogique pour évaluer la douleur, le score de l'échelle d'auto-évaluation pour évaluer la dépression et l'indice de fonction sexuelle ont été enregistrés. Après le traitement, le degré de démangeaisons, de douleur et de dépression a été considérablement réduit. Nous concluons qu'une combinaison de vitamine E et de thérapie physique peut soulager les symptômes des patients présentant un prurit vulvaire. Nous recommandons donc l'utilisation de cette approche en pratique clinique. (*Afr J Reprod Health* 2024; 28 [10]:208-212).

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**Mots-clés:** Vitamine E ; Physiothérapie ; Prurit vulvaire ; Douleur; Dépression

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## Introduction

Vulvar pruritus belongs to an unpleasant sensation and common symptoms related to many dermatologic conditions, containing infectious, inflammatory, as well as neoplastic dermatoses influencing the female genitalia. It can result seriously impair the quality of life of affected women, influencing sexual function, relationships, sleep, as well as self-esteem<sup>1</sup>. Statistically, 15%~20% of patients with pruritus vulva have depression. The itching aggravated at night and decreased during the day. Hard scratch often leads to

itch in a more severe way. Common conditions linked to vulvar itch include atopic and contact dermatitis. Reviews of the potential physiologic, environmental, as well as infectious factors that promote the development of vulvar itch, highlight the significance of addressing complex interaction when dealing with this devastating and challenging symptom<sup>2,3</sup>.

Treatment for vulvar pruritus consists of corticosteroids, non-histaminergic, and anti-inflammatory drugs<sup>3</sup>. Vitamin E is a main fat-soluble antioxidant that cleans up peroxy radicals, terminates the oxidation of polyunsaturated fatty

acids, and is recommended for treatment of pruritus<sup>4,5</sup>. It can reduce levels of oxidative stress markers in atopic dermatitis<sup>6</sup> and is used for the prevention and treatment of hypertrophic scars<sup>7</sup>. Vegetable oils are major dietary sources of vitamin E, and nuts are also good sources<sup>8</sup>. Vitamin E can confer protection by enhancing immune responses in animal and human models<sup>9</sup>.

In this study, we evaluated the clinical effects of Vitamin E combined with physical therapy on patients with vulvar pruritus. The physical therapy focuses on low frequency pulse and electrical trigger point. The former method can excite the proprioceptors, and the latter method can inactive the muscle trigger point.

## Methods

This was a retrospective study. Patients with vulva pruritus were enrolled from November 2019 to November 2020. Excluding the malignant disease cases, totally 49 patients were included in the study. Patients were informed with the possibility of side effects, and all participants signed informed consents. This study was approved by the Ethical Review Committee of the Huai'an First People's Hospital.

### Treatments

All patients received Vitamin E and physical therapy treatment for 8 weeks. Vitamin E was taken daily by both oral administration (100 mg/day, H20003539, Zhejiang Medicine, Shaoxing, Zhejiang, China) and topical application (2 times a day, H33022010, Conba, Lanxi, Zhejiang, China). Physical therapy was performed once a week. Low-frequency plus electrical stimulation was conducted by putting the electrode slice on the main vessel of the legs for 30 min using a Low frequency neuromuscular therapeutic instrument BioStim Ble6 (Shanshan, Guangzhou, Guangdong, China). The trigger point method was operated as follows: finding the painful points in abdomen/legs and back, then sterilizing the local skin, and pinning the point by sterile acupuncture needle.

When the muscle of the patient felt sore, swollen, or even throbbled, the trigger point was considered inactivated.

### Measured variables

The age of genital itching, duration and number of patients with genital pruritus, and situation of pruritus in patients with genital itching were recorded. The diagnosis of genital itching is non-specific vulvovaginitis, pruritus or (and) pain is obvious, gynecological examination has vulvar skin or mucosa erythema, edema, increased secretion, and even exudation. Using the visual analog scale (VAS)<sup>10</sup>, the degree of itching before and after treatment was assessed. The score range was 0-10 points, and 0~3 score was for those with mild pruritus, 4~6 score for moderate pruritus, while 7~10 for severe pruritus. Using the self-rating scale (SDS)<sup>11</sup>, the degree of depression before and after treatment was assessed. The score <53 was those with no depression; 53~62 was mild depression; 63~72 was moderate depression; while >72 was severe depression. The Free Software Foundation of India (FSFI) questionnaire<sup>12</sup> was used to score the female sexual function. The total score was 36, while figures below 26 suggest sexual dysfunction. A higher score indicates better health.

### Statistical analysis

The SPSS 19.0 software package was utilized for statistical analysis, and the measurement data was expressed as  $\bar{x} \pm s$ . The independent sample *t* test was utilized to compare the age and medical history of the two groups of patients, and the paired sample *t* test was utilized to evaluate the pruritus before and after treatment in each group.  $P < 0.05$  means the difference is statistically significant.

## Results

The youngest patient enrolled was 14 years old and the oldest was 72 years old, while the average age was 42.3 years old.

**Table 1:** Age of the genital itching

Age (years)	Number (%)
<21	3 (6.1)
21-35	13 (26.5)
35-42	9 (18.4)
43-49	7 (14.3)
50-56	10 (20.4)
56-63	5 (10.2)
>63	2 (4.1)
total	49 (100.0)

**Table 2:** Duration and number of patients with genital pruritus

Duration (months)	Number (%)
<6	3 (6.1)
6-12	6 (12.3)
24-36	7 (14.3)
36-60	3 (6.1)
>60	15 (30.6)
>120	15 (30.6)
total	49 (100.0)

**Table 3:** Age and duration of itching of participants

Age (year)	Duration of itching (months)					
	<6	6-12	24-36	36-60	>60	>120
<35	2	1	0	0	0	0
35-49	2	3	1	6	2	1
50-63	1	1	2	3	8	6
>63	0	0	0	0	0	2

From Table 1, we see that genital itching was most common in patients aged 21~35 years old, followed by those aged 50~56 years old. In addition to genital itch, the youngest girl had a large amount of leucorrhea and occasionally soaked her clothes with discharge. The oldest woman had vulvar itching that lasted for more than 30 years. When the pruritus was severe, she often washed the part with boiling water at night. The vulvar skin subsequently became rough and wrinkled like cigarette-paper during gynecological examination.

The duration of itch shown in Table 2 indicated that most patients had itching for more than half a year, while 61.2% (30/49) of the patients had itching for more than 5 years.

**Table 4:** Situation of pruritus in patients with genital itching

Itching parts	Number (%)
Labium majus pudenda	21 (42.9)
Nympha	10 (20.4)
Mons veneris	6 (12.2)
Perineal and anus	7 (14.3)
Vaginal orifice	5 (10.2)

**Table 5:** Degree of itching before and after treatment

Degree of itch	Before (cases)	After (cases)	X <sup>2</sup>	p
Mild	7	18	7.1	0.0
Medium	32	26		
Severe	10	5		

**Table 6:** Comparison of VAS scores before and after treatment

Before	After	T	P
8.5±0.7	2.4±0.5	45.0	0.0

These patients visited various hospitals repeatedly. All the treatment options were medications, including local external washing and vaginal plugs, but the effect was not satisfactory.

The relationship between pruritus and age shown in Table 3 indicate that that the older the age, the longer the duration of pruritus, which is in line with the patient's medical treatment. Generally, patients experience genital itching from about 50 years old, which can last for about 20 years. From the course of the disease, we can infer that the patients took a long time before seeing a doctor. The traditional treatment methods are basically used, but the effect is still not satisfactory.

Table 4 shows that 42.9% (21/49) of the patients had itching in the labium majus pudenda while 20.4% (10/49) had itching in the nympha.

The degree of pruritus is shown in Table 5. It can be seen that, after treatment with Vitamin E and physical therapy, degree of itch was alleviated in patients.

As shown in Tables 5 and 6, relative to before treatment, the VAS scores after treatment presented lower (P<0.05).

**Table 7:** Depression in patients with pruritus before and after treatment

Degree of depression	Before (cases)	After (cases)	X <sup>2</sup>	P
No depression	29	42		
Mild depression	14	6	9.4	0.0
Medium depression	4	1		
Severe depression	2	0		

**Table 8:** Sexual function index of patients before and after treatment

Before	After	T	P
25.2±3.0	32.2±3.7	10.0	<0.05

The results in Table 7 show that relative to before treatment, the patients had lower level of depression after treatment (P<0.05).

The improvement of women's sexual function before and after treatment is shown in Table 8. Relative to before treatment, the sexual function index of patients presented higher after treatment (P<0.05).

### Discussion

Vulva pruritus is a common disease in gynecology. It is mainly caused by different types of vulvar skin diseases or vulvar tumors, such as chronic simple lichen of the vulva. Other causes include chronic inflammatory irritation of the vulva, such as cervicitis, vulvitis, vaginitis and other secretions on the local irritation, systemic Moisteners diseases, such as uremia, diabetes, and poor personal hygiene causing local eczema and other lesions<sup>13</sup>. The treatment methods for genital itching generally include the following: (1) lifestyle adjustments, such as wearing loose and breathable underwear and eating less spicy food, and (2) drug treatment, mainly for the cause of infection of pathogens. Drug treatments include traditional Chinese medicine, Western medicine or a combination of Chinese and Western medicine, and physiotherapy, such as CO<sub>2</sub> laser, and cryotherapy<sup>14</sup>. Such treatment method is traumatic, especially after laser treatment, the local

leakage is serious, and the patient needs a long time to recover, which brings a greater mental burden to the patient.

Vitamin E is a strong antioxidant that maintains the integrity of cell membranes and protects skin blood vessels from damage. It is fat-soluble vitamin, which is mainly stored in the liver and can cause poisoning if taken in excess. Thus, after using vitamin E for 2~3 months, it is recommended to stop its use. Some free radicals accumulate in the vulva for a long time, resulting in tissue oxidative damage, which may be an important factor in vulvar dystrophy<sup>15</sup>.

Vitamin E can prevent premature aging caused by the accumulation of harmful substances caused by abnormal oxidation in the metabolic process, strengthen the oxygen supply in the tissues, promote energy metabolism, promote capillary blood circulation, protect the elasticity of the blood vessel wall, enhance cell activity, improve the nutritional status of local tissues, and protect the vigorous function of various organs. Thus, the skin and mucosa of the vulva have sufficient nutrition, the elasticity of the skin and mucosa is restored to normal, the itching symptoms are alleviated, and the color of the skin and mucosa is restored to normal. The treatment of pruritus vulvae with vitamin E is convenient, simple, cheap, quick and without side effects.

Our center uses PHNEIX U4 of Guangzhou Shanshan Company for low-frequency pelvic circulation treatment, which increases the tension of vascular smooth muscle and promotes the blood supply of the pelvic floor<sup>16</sup>. The results of this study manifested that the pruritus scores of patients after treatment decreased significantly. Since the pressure of the pelvic floor blood vessels or nerves was relieved during the treatment, the pelvic floor microcirculation was theoretically improved, the post-pruritic score decreased significantly after treatment. Besides, our study also manifested that relative to before treatment, the patients had lower level of depression and higher sexual function index after treatment, suggesting that combination of Vitamin E and physical therapy has a definite positive effect in treating genital pruritus by decreasing itch, pain, and depression levels and

improving women sexual functions, which was consistent with previous reports<sup>17,18</sup>.

Strengths of the study included multiple measures related to degree of itching, degree of depression and sexual function, and the affordability and availability of Vitamin E. This study also has some shortcomings. The sample size of cases is small, and no follow-up analysis was conducted. In-depth analysis will be carried out in subsequent studies.

## Conclusion

Combination of Vitamin E and physical therapy has a definite positive effect in treating genital pruritus by decreasing itch, pain, and depression levels and improving women sexual functions. The treatment is easy for patients with pruritus vulvae to accept and can be widely promoted.

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## Authors contribution

Hong Wang and Can Shi: conceived and designed the study. Hong Wang and Yingchun Gao: collected and analysed the data, as well as prepared the manuscript. All authors approved the manuscript.

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