

Topical Adapalene 0.1% Gel under Occlusion for Periungual Verruca Vulgaris: A Case Report

Dr. Nikhat Sajjad¹, Dr. Syeda Mouzama Zahera², Dr. Hafsa Hajera Fatima³

¹Department of Dermatology, Professor, Shadan Institute of Medical Sciences, Hyderabad, Telangana, India

²Department of Dermatology, Resident, Shadan Institute of Medical Sciences, Hyderabad, Telangana, India
Corresponding Author Email: [mouzama1294\[at\]gmail.com](mailto:mouzama1294[at]gmail.com)

³Department of Dermatology, Resident, Shadan Institute of Medical Sciences, Hyderabad, Telangana, India

Abstract: *Verruca vulgaris is a common cutaneous infection caused by human papillomavirus (HPV), often challenging to treat in periungual locations due to pain, recurrence, and patient refusal of ablative therapies. We report a case of a patient with a periungual verruca who achieved complete clearance using topical adapalene 0.1% gel under occlusion, highlighting the potential utility of topical retinoids as a non-invasive, cost-effective treatment alternative.*

Keywords: Verruca vulgaris; periungual warts; adapalene; topical retinoids

1. Introduction

Warts, or verrucae, are benign epidermal proliferations caused by human papillomavirus (HPV). Periungual warts are particularly challenging as they are often painful, cosmetically concerning, and resistant to standard therapies. Conventional options such as cryotherapy, electrosurgery, or intralesional immunotherapy are frequently limited by pain, recurrence, and patient reluctance [1]. Topical retinoids like tretinoin have demonstrated efficacy in wart treatment by modulating keratinocyte proliferation and differentiation [2]. Adapalene, a third-generation retinoid, offers improved cutaneous tolerability, greater chemical stability, and reduced irritation compared to earlier retinoids [3]. Beyond its established role in acne, adapalene exerts its effect through selective binding to retinoic acid receptors (RAR- β and RAR- γ), thereby normalizing keratinocyte growth and differentiation, while also providing anti-inflammatory and immunomodulatory benefits [3,4]. These mechanisms provide a strong rationale for its off-label use in HPV-induced lesions, with growing evidence supporting its efficacy in plantar and plane warts [4,5].

2. Case Report

A 30-year-old male presented with a 6-month history of a gradually enlarging verrucous lesion on the proximal nail fold

of the left middle finger. No history of trauma, systemic illness, or similar lesions was reported. Examination revealed a well-defined, rough, hyperkeratotic verrucous growth (1 × 1 cm) over the proximal nail fold without associated paronychia, nail dystrophy, or satellite lesions. A clinical diagnosis of periungual verruca vulgaris was made.

Differential diagnosis considered included:

- 1) Periungual fibroma (tuberous sclerosis, but absent systemic signs)
- 2) Onychomatricoma (rare, associated with nail plate changes, not seen here)
- 3) Hypertrophic lichen planus (violaceous hue, Wickham striae absent)
- 4) Verrucous carcinoma (would show induration and atypical features, not present).

The patient declined ablative therapies such as electrocautery, cryotherapy, or intralesional immunotherapy. He was started on topical adapalene 0.1% gel, applied once daily under occlusion with micropore dressing. After 21 days, complete resolution was observed, with restoration of normal nail fold anatomy and no scarring. No adverse effects such as erythema, irritation, or paronychia were noted. At 1-month follow-up, no recurrence was detected.



Figure 1: Verrucous growth at proximal nail fold of the left middle finger.



Figure 2: Image showing complete resolution of the lesion after 21 days of usage of topical Adapalene under occlusion with restoration of normal nail fold anatomy and no scarring.

3. Discussion

Topical retinoids, including adapalene, exert their effect by modulating epidermal proliferation and differentiation through nuclear retinoic acid receptor (RAR) pathways, thereby disrupting the viral replication cycle of HPV and promoting lesion clearance [3,6]. Specifically, adapalene has high selectivity for RAR- β and RAR- γ , which are predominantly expressed in keratinocytes, allowing targeted normalization of abnormal cell turnover [3]. This selective action not only induces keratolysis of hyperkeratotic tissue but also prevents viral persistence by promoting orderly keratinocyte maturation.

In addition, adapalene possesses anti-inflammatory properties by inhibiting lipoxygenase activity and reducing the expression of pro-inflammatory cytokines, which may further help in controlling local inflammation often seen in periungual lesions [3,6]. Its immunomodulatory role, enhancing local immune surveillance against HPV-infected keratinocytes, may also contribute to sustained clearance and reduced recurrence.

Clinical evidence supports these mechanisms. A randomized comparative trial in plantar warts demonstrated that adapalene 0.1% gel under occlusion achieved faster clearance (36.7 ± 19.2 days) compared to cryotherapy (52.2 ± 30.1 days), with fewer adverse effects [4,7]. Another pediatric study reported complete clearance in approximately 59% of

patients after 3 months of adapalene therapy, with minimal irritation [5]. Combination approaches with other retinoids, such as tretinoin, have also shown encouraging results, with clearance rates up to 82% in plane warts [8].

Thus, the efficacy observed in our case may be attributed to adapalene's multifaceted actions—keratolytic, anti-inflammatory, and immunomodulatory—making it a practical non-invasive option for patients unwilling to undergo destructive therapies in sensitive periungual sites.

4. Conclusion

Topical adapalene 0.1% gel under occlusion represents a simple, effective, and well-tolerated therapeutic option for periungual verruca vulgaris, especially in patients unwilling to undergo procedural interventions. Larger controlled studies are required to establish its long-term efficacy and recurrence rates.

Conflict of Interest: None

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