INTRALESIONAL VITAMIN D3 IN PALMO-PLANTAR WART: A CASE SERIES

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Abstract-
Introduction: Palmo-plantar wart is a fairly common condition with a plethora of treatment options having different success rates. Many a times they are refractory to treatment with often disappointing results. Often they are treated with destructive methods such as electro cautery, it may be associated with scarring in multiple warts and they are resistant to treatment. Treatment with intralesional vitamin D3 have gained popularity recently as it induces cell mediated immunity and leads to clearance of treated as well as distant warts. In our study, we have tried to explore the efficacy of intralesional vitamin D3 in treatment of palmo-plantar warts.
Aims and objectives: To study the efficacy and safety of intralesional Vitamin D3 in the treatment of palmo-plantar warts.
Materials and Methods: Twenty patients with palmo-plantar warts varying in size, number and duration were included in this study. about 0.2- 0.3 ml of injection Vitamin D3 (600000 IU, 15 mg/ml) was injected at the base of warts. The injections were given at the interval of 2 weeks and maximum of 4 sessions or until complete clearance, whichever was earlier. A maximum of 3 warts were injected per session. Improvement and adverse effect were noted at each visit and patients were followed up for 3 months after last injection.
Results: Out of 20 patients, 17 patients completed the study. Complete response was seen in 8 (45%), partial response in 8 (45%), and 1 (10%) patient showed no response. On an average 3 injections were required to achieve a complete resolution. Complete resolution of distant warts was noticed in patients.
Conclusions: Intralesional vitamin D3 is a safe, effective and an inexpensive treatment option for multiple palmo-plantar warts. Study needs confirmation with large sample size.

***Keywords*: palmoplantar wart, intralesional Vit D.**

INTRODUCTION

- Warts are benign epidermal growths caused by various strains of human papillomavirus (HPV) and their prevalence has been reported to be around 2-30% in different age-groups.(1)
- Palmo-plantar wart is a fairly common condition with a plethora of treatment options having different success rates.
- Rate of spontaneous clearance of the warts is quite low in adults and persistence for 5-10 years is not unusual.(2)
- Many a times they are refractory to treatment with often disappointing results.
- Myriad of treatment modalities are available but none of them is completely effective. These include topical trichloroacetic acid and salicylic acid, cryotherapy, radiofrequency ablation, LASER ablation, photodynamic therapy, 5-fluorouracil, imiquimod, bleomycin sulphate, interferons, contact sensitizers like dinitrochlorobenzene, oral drugs such as zinc sulphate, levamisole, cimetidine, systemic retinoids, etc. (3,4)
- Destructive methods are often associated with scarring and are resistant to treatment.
- Immunotherapy is a promising modality for the treatment of resistant and recurrent warts without any disadvantage of scarring and also boosts the host's immunity against the causative organism, thus leading to complete resolution and fewer recurrences.
- Several agents have been used for immunotherapy such as Tuberculin Purified Protein Derivative (PPD), Bacillus Calmette Guerin (BCG) vaccine, Measles Mumps and Rubella (MMR) vaccine, Mycobacterium w, Candida albicans, Trichophyton, etc. (5)
- Vitamin D plays an important role in the proliferation and differentiation of keratinocytes and induces antimicrobial peptides.(6)
- Thus, in our study, we evaluated the response of intralesional vitamin D3 in palmoplantar warts.

MATERIALS AND METHODS

- This study was carried out at SMBT IMS & RC, Dhamangaon, Ghoti, Igatpuri, Nashik. 20 diagnosed cases of palmo-plantar warts were included in this study.
- Warts were diagnosed by history and clinical examination.
- Number, location and site of wart were noted on each visit.
- Photographic documentation was done to support the data.
- The statistical analysis was done on Microsoft Excel and P value or Chi Square test was done and its significance noted.

METHOD-

- About 0.2- 0.3 ml of injection Vitamin D3 (6,00,000 IU, 15 mg/ml) was injected at the base of warts.
- The injections were given at the interval of 2 weeks and a maximum of 4 sessions or until complete clearance, whichever was earlier.
- A maximum of 3 warts were injected per session.
- Improvement and adverse effects were noted at each visit.
- Patients were followed up for 3 months after last injection.

AIMS AND OBJECTIVES

- To study the efficacy and safety of intralesional Vitamin D3 in the treatment of palmo-plantar warts.

INCLUSION CRITERIA

- Patients comprising both male and female with no prior treatment history having palmo-plantar warts.

EXCLUSION CRITERIA

- Patients <18 years and >40 years
- pregnant and lactating women
- immunocompromised patients and
- person living with HIV.

RESULTS

- In our study, we included 20 patients, 17 patients completed the study.
- Out of 17 patients, 12 were male and 5 were female.
- Age of the patients ranged between 18-40 years.
- Response to the treatment with intralesional vitamin D3 is given in the table 1.

Response	Complete response	Partial response	No response
Number of patients	8	8	1
Percentage of patients (%)	45%	45%	10%

TABLE 1: RESPONSE TO THE TREATMENT

PHOTOGRAPH 1: PICTURES AT 1ST VISIT, AT 2 WEEKS AND AT 4 WEEKS RESPECTIVELY

PHOTOGRAPH 2: PICTURES AT 1ST VISIT AND AT 4 WEEKS RESPECTIVELY

- Adverse effect like pain during injection was noted in all the patients.
- Adverse effect in the form of local tenderness and and swelling at the site of injection were noted in 2 patients.
- Adverse effects were self limited and resolved in 7-10 days.

DISCUSSION

- Following trauma, HPV infects the basal layer of keratinocytes where it remains latent in the cell for 1-8 months. Epidermal cell differentiation and migration triggers the virus to undergo replication until it is shed from the stratum corneum. In most viral infections, the viral proteins cause damage to the host cell leading to stimulation of cytotoxic T-cells which then destroy the virally infected cells. (7)
- However, HPV prevents cell lysis during replication and there is consequently no release of viral proteins into the circulating dendritic cells and thus no antigen presentation to the immune system. (8)
- Treatment of multiple palmoplantar warts is difficult and it needs multiple sittings by destructive methods. These destructive procedures are usually associated with scarring and pigmentation. In addition, some warts are resistant to these treatments and recurrence rate is also high.
- immunotherapy seems to be the best available option for the treatment of warts as it boosts the immune system against HPV, leading to clearance of both treated as well as untreated lesions.
- Intralesional immunotherapy induces a strong non-specific proinflammatory signal and attracts the antigen-presenting cells at the site of infection, thereby leading to release of different cytokines such as interleukin (IL)-2, IL-8, IL-12, IL-18, tumor necrosis factor (TNF)-α, and interferon-γ. A Th1 cytokine response is initiated due to peripheral mononuclear cell proliferation. This leads to the activation of natural killer cells and cytotoxic T-cells to eradicate the virus-infected cells. (9)
- Furthermore, the trauma due to injection may lead to resolution of lesions in previously sensitized individuals. (10).

- The exact mechanism of action of vitamin D3 against warts is not clearly known, but it has immunoregulatory activities and controls the cellular proliferation and differentiation while also modulating cytokine production. Its effects are mediated through the vitamin D receptor (VDR), which is present in keratinocytes, fibroblasts, melanocytes, and immune cells of the skin.
- Experimental evidence suggests it has an immunomodulatory effect by inhibiting the expression of TNF-α and β, IL-6, and IL-8 acting via a VDR-dependent pathway. (11).
- The efficacy of intralesional vitamin D3 injection in the treatment of warts has also been demonstrated in several studies. Aktas et al. reported 80% complete clearance of palmar warts with intralesional vitamin D3. No recurrences were noticed in their 6-month follow-up period (17). Kavya et al. demonstrated complete clearance of cutaneous warts in 78.5% patients by intralesional vitamin D3. Complete clearance was observed in 19 (82.60%) out of 23 patients with palmoplantar warts. Recurrence was observed in one patient with a palmoplantar wart during 6-month follow-up period (18). Raghukumar et al. reported complete clearance of recalcitrant warts in 90% patients, partial response in 6.66%, and no response in 3.33% patients using intralesional vitamin D3.(19). Singh et al. performed a comparative study between intralesional PPD and vitamin D3 in the treatment of viral warts. Amongst the total of 80 patients, group 1 patients received 10 TU of intralesional tuberculin PPD (0.1 mL), while group 2 patients were injected with 0.5 mL of vitamin D3. In group 1, 80% (32 patients) had complete clearance while in group 2, 72.5% (29 patients) presented complete disappearance of warts. However, side-effects noted with tuberculin PPD were pain (75%), nodule formation (25%), hyperpigmentation (30%), swelling, fever, blister formation, and erythema (10%) with induration (10%), whereas pain was the most common side-effect with intralesional vitamin D3, which was managed by injecting local anesthetic prior to injecting vitamin D3 (20).

CONCLUSION

Our results show that intralesional vitamin D is a novel addition to the therapeutic armamentarium of palmo-plantar warts. It is a safe, effective and a cost effective treatment option for multiple palmo-plantar warts. However, this study needs confirmation with large sample size.

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