

Combining 90% trichloroacetate acid with electrosurgery to treat recurrent verruca vulgaris: A case report

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Abstract Verruca vulgaris is a benign skin tumor that caused by Human papillomavirus (HPV) which a DNA virus that has more than 100 genotypes that being known. Verruca vulgaris commonly affects the hands, arms, legs, and feet, particularly in areas where there has been minor trauma, like the knuckles or the area around the nails. A 38-year-old man came in with chief complaints of lumps on his left thumb and right index finger since 1 month ago. Any histories of being trauma or scratched was denied. The patient had the same chief complaint approximately 2 months ago. The patient was undergoing physical and supportive examination using dermoscopy and he was diagnosed with recurrent verruca vulgaris. The patient was given the combination therapy using electrosurgery and 90% trichloroacetate (TCA) and five months later he went back for the follow up and there was no new lesion was found.

Key words

Verruca vulgaris; Viral warts; Infectious disease.

Introduction

Verruca vulgaris is a benign skin tumor that caused by Human papillomavirus (HPV) which a DNA virus that has more than 100 genotypes that being known.¹⁻³ HPV infection affects people of various ages and geographical locations. It is estimated that 30-70% of the children on the school age have benign cutaneous warts, which are most prevalent cases in childhood and into the twenties.^{2,3}

Direct contact, inoculation or trauma can spread the illness, but the virus particles that are

released from epithelial surfaces as keratinocytes shed may linger in the environment for an unknown amount of time and subsequently infect someone else. Even after infection, a noticeable wart may not form for several months.^{2,3}

Verruca vulgaris commonly affects the hands, arms, legs, and feet, particularly in areas where there has been minor trauma, like the knuckles or the area around the nails.^{2,3} Age, viral reinfection, subclinical HPV deoxyribonucleic acid (DNA) immunological status, and smoking are all associated with recurrent verruca vulgaris.²

Salicylic acid topically and undergoing physical therapy with cryotherapy are the two most widely utilized destructive wart treatments. Treatment must be given repeatedly and for a long time to have the maximum impact. It is

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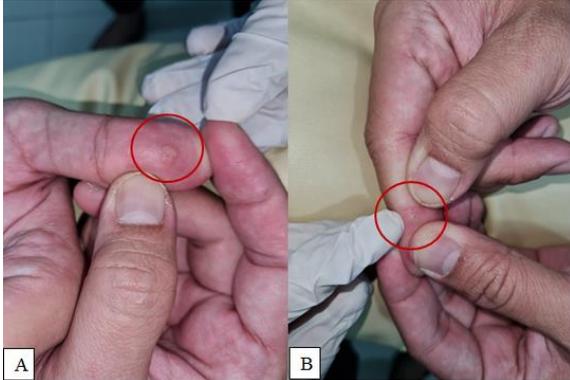


Figure 1 A skin-colored papules with clear boundaries in approximately 0.2 to 0.5 cm in diameter with verrucous surface in A. digiti I manus sinistra and B. digiti II manus dextra.

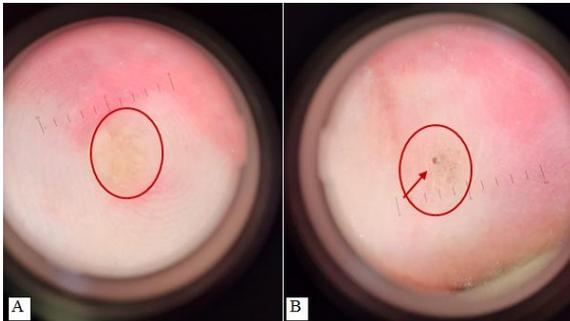


Figure 2 A yellow background with ill-defined margins (red circle) and red dots that surrounded by a white halo (red arrow) in A. digiti I manus sinistra and B. digiti II manus dextra.

important to let patients know that they will likely need to receive regular treatment for at least three months, though not longer.³

The combination of electrosurgery and trichloroacetate (TCA) showed excellent genital wart eradication and decreased recurring warts in several case reports. In cases of verruca vulgaris that are persistent and resistant, combination treatment can be an option.² This case report explores and emphasizes recurrent verruca vulgaris and the combination therapy that being used as a therapy of recurrent verruca vulgaris.

Case report

A 38-year-old man came in with chief

complaints of lumps on his left thumb and right index finger since 1 month ago. The chief complaints were not accompanied by pain and itching. Any histories of being trauma or scratched was denied. Any histories of the similar chief complaints in the family or at the coworkers was denied. Any history of being an active smoker was denied. The patient was working as a marketing manager and admits that he always used personal items and never borrowed any goods from his coworkers.

The patient had complained the same chief complaint approximately 2 months ago at the same area on the right and left thumbs and that time he was underwent electrosurgery treatment on both lumps.

From physical examination it was found a skin-colored papules with clear boundaries, about 0.2 to 0.5 cm in diameter with verrucous surface in the digiti II manus dextra et digiti I manus sinistra (**Figure 1**). From the dermoscopy examination it was found a yellow background with ill-defined margins and red dots that surrounded with a white halo (**Figure 2**).

We performed a combination therapy using electrosurgery and 90% trichloroacetate right after the lesion was removed. Five months later the patient came in for the followed up and there were no complaints or growth of new lesions either on the previous area or any other part of the finger (**Figure 3**).

Discussion

Cutaneous warts are caused by HPV, a group of double-stranded DNA viruses. The target cells for HPV infection are the stem cells in the basal layer of the epidermis. The main cause are low-risk types 1, 2, 3, 4, 7, 10, 27, 28, 48, 57, 60, and 63 which HPV 7 causes butcher's warts. It is said that most people will experience an HPV infection during their lifetime.²⁻⁵



Figure 3 The clinical presentation after the fifth month of the combination treatment.

The risk factor for HPV infection is the disruption of the epidermal skin barrier function, for example because of traumatic abrasion or maceration. Based on the study by Fadila *et al.* in 2022 in the General Dermatology and Pediatric Dermatology Outpatient Units at Dr. Soetomo General Academic Hospital Surabaya, the most common age of the patient with verruca is the adulthood with the age range in 20-60 years old. This was in line with Asghar *et al.* study in India. The upper extremities were the most common site of involvement in their study as the previous studies by Asghar *et al.* in 2022 and Liu *et al.* in 2018. Upper extremities were prone to trauma during daily activity; thus, higher activity has a higher risk of virus contact.^{6,7}

People above 25 years old had a twice-higher probability of recurrence, according to the research by Bencini *et al.* A smoker's risk of recurrence is also five times higher than a nonsmoker's. Inflammation and a weakened immune system are two chronic impacts of smoking that are well-known.^{1,2}

Viral warts initially asymptomatic and frequently undetectable but eventually develop into well-defined, thickened and hyperkeratotic lesions. Warts are classified according to their anatomical location as Butcher's warts, which are numerous verrucous papules on butchers' hands, mosaic verrucae which are extensions of palmar or plantar verrucae, and palmar or

plantar verrucae which are hyperkeratotic, thick, and papule lesions with tenderness. Based on their morphology, it can be differentiate between verruca vulgaris which are keratotic, rough, scaly papules with a diameter of 1 mm to 1 cm, filiform verruca which resemble horns, and verruca plana which a slightly elevated papules with a flat top.³

In this patient, verruca vulgaris was located on left thumb and right index finger since 1 month after the procedure of electrosurgery was done. He was a marketing manager and denied being an active smoker. The patient also denied any history of being scratched and borrowed any goods from his coworkers. From physical examination it was found a skin-colored papules with clear boundaries, about 0.2 to 0.5 cm in diameter with verrucous surface.

Generally, warts can be diagnosed clinically without any supportive examinations however dermoscopy examination can aid in differentiation. Multiple papules, frogspawn, and papilloform structures with yellowish color and whitish halo are visible during dermoscopy. A histological investigation might necessary to diagnose atypical lesions.^{2,3,8} In this case we were performed dermoscopy examination and it was found an ill-defined margins and red dots that surrounded by a white halo that caused by the thrombosed capillaries.

The size of the lesion and the location will affect

the management of verruca. Viral warts frequently spontaneously disappear, especially in children. According to a 2018 Chinese research of 130 patients with viral warts, 30.8% of them spontaneously disappeared within a year and more than 50% did so within two years.^{3,9}

There is no specific antiviral treatment for HPV which current warts therapy has three aim such as inhibits or destroys infected epithelial cells, disrupts the viral life cycle, especially DNA replication, reduces epidermal proliferation, and stimulates immune responses. Clinicians still struggle with managing verruca vulgaris, especially when it is a recurrence case. Both topical and traditional invasive therapies produced varying effects. Combination therapy can be given in recurrence or recalcitrant cases.^{2,3}

The therapy that was given in this case was combination of electrosurgery and 90% TCA. The patient complained of minimal pain and burning sensation. At the 5 months observation, no new wart was found either in the previous area or any other area of the fingers and the body.

Although not intended to eradicate the virus, electrosurgical therapy is a destructive treatment that aim to remove the lesion. Trichloroacetic acid is a caustic substance that has a similar viscosity to water and easy to penetrate on the superficial layer of the skin. It will coagulates skin proteins throughout the skin layers, destroys the epidermis and upper papillary dermis. It causes collagen in the papillary to upper dermis layer to necrotize, precipitate, and coagulate. It also causes death of the infected epithelium in the epidermis that cant been seen with bare eyes. Burning sensation during application, dryness, fissuring, and contact sensitivity are some of the side effects of TCA.^{2,10}

A case of recurrent verruca vulgaris has been reported in a 38-year-old man. The diagnosis of recurrent verruca vulgaris is based on history taking, physical and dermoscopy examination. Electrosurgery and 90% TCA were used as a combination therapy to treat recurrent verruca vulgaris. Five months of observation revealed no new warts. The prognosis is good, however the patient is warned about the possibility of recurrence.

Conclusion

Verruca vulgaris commonly reappears after monotherapy, necessitating the use of other modalities. Electrocautery and 80% TCA perform successfully together to achieve good clearance and minimal recurrence. Combination therapy can be given in recurrence or recalcitrant cases.

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