




A Retrospective Study of Verruca

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ABSTRACT

Background: Verruca (non genital warts) is a quite common public health problem caused by viral infection of low risk Human Papilloma Virus (HPV) types, risking patients of all backgrounds. There is still no ideal treatment for verruca with little knowledge regarding the effectiveness of the available therapies, which results in the lack of therapeutic standard for patients. **Purpose:** To evaluate the incidence, management, and effectiveness of verruca treatment. **Methods:** This was a descriptive, retrospective study with a cross-sectional design. All patients diagnosed with verruca in Tumor and Skin Surgery Division of the Dermatology and Venereology Outpatient Unit at Dr. Soetomo General Academic Hospital Surabaya between January 2016 and December 2020 were included in the study. **Result:** The results of this study obtained a total of 113 verruca patients, consisting of 61 (53.98%) male patients and 52 (46.01%) female patients, mostly aged 20-60 years old (45 patients [39.82%]). The upper extremity was the most common location where the lesion was found (39 patients [34.5%]). Electrosurgery was the most performed method (38 patients [33.6%]). Thirty-one patients who were treated and returned to the clinic at least once during the month were evaluated for the resolution of the lesion after undergoing therapy. Among 31 patients, resolution was reported in 35.5% of cases. **Conclusion:** Verruca is a common condition in general practice with many treatment options available yet often neglected. Knowing the available evidence for efficacy of those treatments is critical for dermatologist when considering treatment and educate patients.

Keywords: warts, verruca, epidemiology, treatment, resolution, public health.

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BACKGROUND

Verruca is a benign hyperkeratotic growth caused by certain types of HPV that spread by direct contact and indirectly from the environment to the skin's microlesions. Verrucas also known as common warts, are associated with decreased quality of life (QOL) due to recurrence and other psychosocial factors.¹ There is little information on the epidemiology of verruca cases, the most performed treatment, and the treatment outcome in the Tumor and Skin Surgery Division of the Dermatology and Venereology Outpatient Unit, Dr. Soetomo General Academic Hospital Surabaya. This retrospective study was conducted to provide data regarding the characteristics of verruca patients in the form of number of cases, distribution of sex and age,

management, and effectiveness of the therapy performed in the Tumor and Skin Surgery Division of the Dermatology and Venereology Outpatient Unit, Dr. Soetomo General Academic Hospital Surabaya during January 2016-December 2020.

METHODS

This study was a cross-sectional, retrospective, descriptive study to determine the profile of verruca patients, their management, and outcome of therapy observed during 1 month after receiving therapy in the Tumor and Skin Surgery Division of the Dermatology and Venereology Outpatient Unit, Dr. Soetomo General Academic Hospital Surabaya for the period January 2016-December 2019. All patients diagnosed

with verruca in the Tumor and Skin Surgery Division of the Dermatology and Venereology Outpatient Unit at Dr. Soetomo General Academic Hospital Surabaya between January 2016 and December 2020 were included in the study. All the case records of the patients were retrieved and the clinical information on the patient's sex, age, location of the lesion, treatment performed, and outcome of therapy were collated. Complete clearance was defined as total clearance of the lesion, with no evidence of residual lesion observed clinically, whereas incomplete resolution was defined as a lesion that is still observed clinically, reduced in number or size, or worsened with treatment. The evaluation was performed 1 month after receiving therapy. All data were processed with SPSS version 21 for Windows and presented in tables. This study has received ethical approval from the Hospital Ethics Committee of Dr. Soetomo General Academic Hospital Surabaya (0462/LOE/301.4.2/V/2021).

RESULT

One hundred and thirteen verruca patients were recruited to the study. Thirty eight patients had not yet received verruca treatment and did not visit the clinic again, 44 patients underwent treatment once but did not return, and 31 had visited the clinic at least once after receiving treatment over the course of the month.

Out of 113 patients, 61 (53.98%) were male and 52 (46.01%) were female. Forty-five (39.82%) of the study subjects were between 20 - 60 years old. Most of the lesions were in the upper extremities (39 cases [34.5%]). Electrosurgery was the most performed method (38 cases [33,6%]). Resolution of those lesions was only able to be observed in 31 patients who returned to the clinic at least once during the month and was achieved in only 11 cases (35.5%). Table 1 shows the description verruca cases that were recruited for the study.

Table 1. The characteristics of verruca cases which were treated and controlled at least once after therapy for a period of 1 month at the Tumor and Skin Surgery Division of the Dermatology and Venereology Outpatient Unit, Dr. Soetomo General Academic Hospital Surabaya during January 2016 - December 2019

Subject's characteristic	Total (%)
Sex	
Male	61 (53.98)
Female	53 (46)
Age	
Baby (0-1 years old)	0 (0)
Children (2-10 years old)	2 (6.5)
Young adult (11-19 years old)	10 (32.3)
Adult (20-60 years old)	45 (39.82)
Elderly (>60 years old)	6 (19.4)
Location	
Face	16 (14.2)
Upper extremities	39 (34.5)
Lower extremities	14 (12.4)
Multiple	7 (32.7)
No data	37 (32.7)
Management	
Excision	7 (22.6)
Electrosurgery	12 (38.7)
Cryotherapy	5 (16.1)
TCA	0 (0)
CO ₂ laser	2 (6.5)
Combination	5 (16.1)
Resolution	
Resolved	11 (35.5)
Not resolved	20 (64.5)

Note: TCA = Trichloroacetic acid; CO₂ = Carbon dioxide

DISCUSSION

Verrucas (common warts) are benign epidermal tumors caused by Human Papillomaviruses (HPV) low-risk types 1, 2, 3, 4, 7, 10, 27, 28, 48, 57, 60, and 63.^{1,2} It is said that most people will experience an HPV infection during their lifetime.³ Common warts are the most common manifestation of low risk type HPV and are believed to affect quality of life (QOL) due to pain or being cosmetically unacceptable to the patient.²

HPV is believed to affect all age groups.² In our study, there was a higher incidence of verruca in male patients (53.98%). Our study was in line with Dalimunthe et al. in Medan in 2013 and Liu J et al. in Beijing in 2022.^{4,5} This may be related to the higher physical activity factor along with lower hygienic factors in male patients. Higher physical activity risks exposure of male patients to microtrauma, which is an entry point for HPV.⁶ Hygienic factors were reported to be significantly related with the incidence of common warts, which was reported from previous studies. On other hand, our study was not in line with Bruggink et al. in Leiden in 2012 and Nogueron et al. in 2016 that women dominated the most their study subjects.⁷

In our study, patients were referred from the General Dermatology and Pediatric Dermatology Outpatient Units at Dr. Soetomo General Academic Hospital Surabaya. The most common age in our subject were in their adulthood for 45 (39.8%) of our patients. This was in line with Asghar et al. in India in 2022.⁶ Previous population studies showed that the distribution of common warts was 2-20% in school-age children, 10% in young adults, and 3.5% among adults, and the prevalence decreased with age.^{1,8} This observation could be explained by the fact that where there are more chances of contact in schools, colleges, and workplaces, the transmission of HPV is enhanced. Adults are more prone to trauma secondary to more physical activities or participation in sports enhancing infection. However, El-Gilany, Tomson et al, and Liu et al, on the other hand, discovered no relationship with age.^{5,9,10}

Upper extremities were the most common site of involvement in our study and this was in line with previous studies by Asghar et al. in 2022, Liu et al. in 2018, and Dalimunthe et al. in 2013.^{4,6} Upper extremities were prone to trauma during daily activity; thus, higher activity has a higher risk of virus contact. This might explain the reason for our findings. This was not in line with El-Gilany in 2022, who reported the majority of verruca in their study was in the lower extremities, followed closely by the upper extremities.¹⁰

In our setting, verruca is treated by electrosurgery, cryotherapy, CO₂ laser, excision, or combination treatment. Treatment is chosen when there are symptoms, disfigurement, or disabling effects due to the lesion and can be based on the patient's desirability, which most of our patients had complained about the lesion.¹¹ Most of our study subjects underwent electrosurgery. This may be due to the fact that electrosurgery was the first line therapy in our setting and was one of the most of our study subjects are adults.¹² Electrocautery is preferred for older patients over younger patients due to the increased risk of trauma and pain associated with injection local anesthesia and treatment.¹¹ Excision is the second most common therapy performed in our setting, following electrosurgery. This may be due to excision's ability to completely remove the lesion in one treatment and the availability of excision in our setting. Excision is reported to have a 65-94% success rate and a 30% remission rate.¹³ Excision has a high risk of scarring which was estimated in a previous study to be 30%, so for patients with solitary warts (2 or 3 at most) who are in physical and psychological discomfort, electrosurgery under local anesthesia is preferable to excision.¹ Another destructive method performed on our study subjects was cryotherapy, CO₂ laser, and treatment combinations usually using TCA. Cryotherapy is also a standard method used to treat verruca and is usually followed by a combination treatment with the application of salicylic or lactic acid. The advantages of cryotherapy is induction of tissue necrosis through direct cell damage, stimulation the immune system, leading significant inflammatory reaction, and had reported to have 50-70% success rate in previous Cochrane review of 21 studies. The disadvantages of cryotherapy are the risk of pain and blister formation. Another reason cryotherapy was not performed in our setting was the unavailability of the device in our clinic during 2016-2017. Treatment combinations involving excision and cryotherapy were observed in two cases, and electrosurgery and TCA was observed in one case. The CO₂ laser was only performed in 2 cases. This might be due to the unavailability of CO₂ laser in our clinic during 2016-2018.

Resolution was only able to observe from 31 (27.43%) patients who returned to the clinic at least once after receiving treatment. Eleven (35.5%) of 31 patients resolved after receiving treatment and consisted of 4 patients who underwent excision and 7 patients who underwent electrosurgery. This may be related to how excision and electrosurgery are able to remove the lesion in one treatment. Lipke, Sterling et al., and Farhadian et al. reported the success rate of

excision and electrosurgery were estimated to be 65-94% and the recurrence rate was estimated to be 30%. The effectiveness of cryotherapy is said to be the same as with salicylic acid, which has a success rate of 50-70%.¹³ Pramita et al. also reported no new wart was found after electrosurgery followed by 80% trichloroacetate (TCA) at 1-week intervals.¹⁴ Meanwhile, most of the patients (64.5%) did not resolve after receiving treatment. They only had their lesion reduced in number or size, or they have have their lesion reduced at all. Destructive modalities for treating verruca nonselectively destroy the infected keratinocytes and the surrounding cells using physical or mechanical exposure but are not able to kill the virus itself, so that the recurrence rate was also reported to be significantly high. Destructive methods are also spared to treat lesions that are clinically visible. However, many factors influence the resolution of verruca after treatments, including patient age, sex, race, activity, environment, season, socioeconomic status, trauma, pre-existence warts, and hygiene, which were not assessed in this study due to a lack of data.¹³ Some limitations in our study were its retrospective study nature, small sample size, lack of data, and longer time observation might be needed to observe the resolution of the lesion. However, further studies with large numbers of verruca patients and longer periods of observation will be required in the future to prove the effectiveness of verruca treatment.

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