Duct Tape Occlusion Therapy in the Treatment of Plantar Warts

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Contents

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ABSTRACT

Background: Plantar warts are generally unsightly, often painful, and they can resist typical forms of treatment. Generally, these treatments involve a combination of procedures including topical application, excision, and cryotherapy and can require numerous office visits. This paper reports on the efficacy of duct tape occlusion therapy in the treatment of plantar warts that resisted all other forms of treatment over a ten-year period.

Methods: At the time the patient began duct tape occlusion therapy he had developed a 2.5 cm diameter verrucous plaque on his right heal with nine additional solitary plantar warts distributed from the head to the ball of the foot. Strips of duct tape 8-10 cm in length were applied over the affected area and changed every 1-3 days. Occasionally the warts were pared down with a razor blade.

Results: A two-month treatment of plantar warts by duct-tape occlusion therapy resulted in complete disappearance of a 2.5 cm verrucous plaque and nine solitary plantar warts distributed from the heel to the ball of the foot, including warts that had never been covered by the tape.

Conclusion: Duct tape occlusion therapy proved to be an effective therapy for treatment of plantar warts that had resisted repeated treatment by traditional methods.

INTRODUCTION

Plantar warts caused by chronic *Verruca vulgaris* infection with excessive callus formation are unsightly and often painful. Treatments for warts have traditionally included topical application of salicylic or lactic acid, cryotherapy, electorcautery, laser treatment, surgical excision, and immunotherapy.[1, 2] In addition, warts can spontaneously disappear. Recently, occlusion therapy has been suggested to be as effective as any of the traditional methods.[3-12] Occlusion therapy involves covering warts with a sticky tape, and duct tape seems to be the popular choice.

This paper documents a case history of a patient's decade-long battle with plantar warts; a battle that ended with a two-month-long treatment by duct-tape occlusion therapy.

CASE REPORT

In May 1993, a 38-year old male sought treatment for a relatively large (0.5 cm diameter) plantar wart on his posterior right heel (Figure 1A). The wart had been causing some discomfort, and the patient commonly pared down the wart with a razor blade. This patient had a history of wart occurrences that included a large plantar wart on the ball of the right foot at the age of 14, which spontaneously disappeared within two years, and he periodically had small warts on the hands that were removed by self-treatment. The wart on the heel was treated by freezing with liquid nitrogen and then extensive pared using electrocautery for hemostasis. The wart returned at the same site and was treated similarly in September of the same year. The patient was again seen by a dermatologist in September 1995 with mosaic of 4 plantar warts present over

the right heel. The patient relayed that he had been treating them for about a year with over-the-counter topical applications. The warts were subsequently treated by paring and electrocautery. However, within a few months the mosaic of warts reappeared above the right heel.

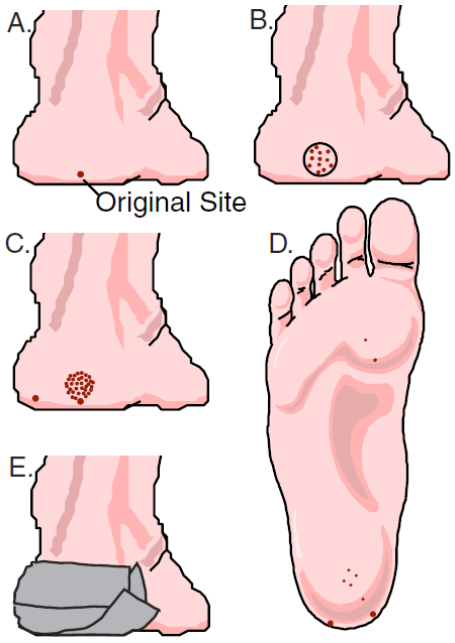

Figure 1. A) Original site of plantar wart at the time of initial treatment. B) Location of warts at the time of cryotherapy. The circle defines the limits of the resulting blister. C) Condition of the heel and D) bottom of the foot prior to treatment by occlusion therapy. E) Example of the pattern of duct tape application for occlusion therapy.

By the time the patient again sought treatment in October 1997 the number of warts had grown to twelve (Figure 1B). This time the warts were treated with cryotherapy. The cryotherapy of the wart colony resulted in the formation of a 2.5-cm diameter blister (Figure 1B) that caused a great deal of discomfort and was lanced and drained during a visit to an urgent-care facility.

The cryotherapy had no effect on the mosaic of warts and the patient continued self-treatment by paring down the surface of the warts to relive discomfort. In August 2001 the patient again sought treatment from a dermatologist. By this time the patient had developed a 2.5 cm verrucous plaque of approximately 30 individual warts with a smaller solitary wart located medial to the plaque (Figure 1C). In addition, other small warts appeared on the bottom of the heel and on the ball of the foot (Figure 1D). The dermatologist concluded that the density of warts in the large colony was too great for

excision and prescribed imiquimod 5% ointment for topical treatment, which the patient used for several weeks and then abandoned for lack of obvious improvement.

OCCLUSION THERAPY

The patient heard anecdotally from a friend that duct tape had been used effectively in the treatment of plantar warts, and in June of 2003 the patient began self-treatment with duct tape occlusion therapy with the knowledge of his physician. The patient applied one strip of duct tape across the large colony and the single wart on the heel. The tape was changed daily. Although no change in the size of distribution of warts was noted over the ensuing month, the patient did get relief from pain. The tape allowed the skin to remain moist and skin cracking between the warts was eliminated.

In early July 2003, the patient entered a more aggressive phase of self-administered duct tape occlusion therapy. Three strips of duct tape were applied across the heel as illustrated in Figure 1E: one strip across the wart colony and the adjacent single wart and this piece was sealed with two additional strips. The patient reported that the three strips made a nearly “air tight” seal over the affected area on the heel. Several of the solitary warts on the bottom of the heel were also covered by this tape configuration. The tape was left in place and changed only every two to three days. Daily showers and swimming did not affect the adhesion of the tape. When changing the tape the patient pared down the warts with a razorblade. Within two weeks the patient began to notice that warts on the perimeter of the large colony on the heel were diminishing in size. The patient reported that minor bleeding was common during the paring of the wart surfaces during the first 4 weeks of the aggressive treatment, but after 6 weeks of the

nearly airtight cover by duct tape all of the warts had significantly changed their appearance and pain and bleeding during paring had ceased. In addition, warts on the ball of the foot had disappeared even though they were never covered by tape.

After 8 weeks, the patient stopped occlusion therapy as it appeared that all warts on the heel were no longer living although the sites occupied by the warts were still identifiable. During the ensuing weeks, the skin heeled over the site of the wart colony and other solitary wart sites. The patient declared himself wart free, a conclusion verified by the patient's physician.

As of September 2020, 17 years since the treatment, no additional warts have occurred at the site.

CONCLUSIONS

A decade-long series of treatments ranging from excision under local anesthetic, cryotherapy, hot footbaths, and topical application of lactic acid and imiquimod cream was unsuccessful in treating this patient's plantar warts. Excision of the warts was commonly followed intermittent bleeding and discomfort, and warts returned within a few weeks. The cryotreatment that led to the formation of the 2.5 cm blister was likely responsible for the dramatic increase in the number of warts in the mosaic because of spreading of the virus through the fluid in the blister. However, after two months of duct-tape occlusion therapy the patient's warts had disappeared, and there have been no reoccurrences. Since the patient had not pursued treatment by hot footbaths and had not completed a serious course of topical application as directed by his physicians, it is not clear whether these traditional therapies would have resulted in the effective

treatment of plantar warts. What this patient found is that occlusion therapy was easy to use, resulted in immediate relief because of the prevention of excessive skin dryness and callusing, and yielded visible results in a few week and complete treatment of the plantar warts over 8 weeks. Possibly the most significant outcome is the resolution of the verrucous plaque that proved difficult to treat by other methods.

Duct tape occlusion therapy is an excellent treatment option whether monitored by a physician or taken on as a home remedy. Since no drugs are involved, occlusion therapy has great potential as a treatment in areas of the world where access to medicine or medical treatment is limited.

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