

# IMMUNOTHERAPY OF VERRUCA WITH CANDIDA ANTIGEN INJECTION

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## INTRODUCTION

Patients requesting the removal of warts from various parts of the body are one of the most common dermatologic conditions reported to dermatologists, podiatrists, and primary care physicians. Although many treatment regimens have been discussed and studied, no single form of therapy has emerged as the clear method of choice. The optimal method would remove the lesion without scarring, painlessly, quickly, without untoward effect and with low cost to the physician and the consumer. Few methods utilized achieve most of these criteria and none achieves all. Candida test antigen (Hollister-Stier Laboratories, Spokane, WA) injection is a relatively new method that often delivers many of these criteria. The technique has the added benefit of removing lesions distant from the treated lesion. The injection of candida antigen has been shown to elicit a cell-mediated immune response that is felt to be the process by which the lesion is eradicated. A review of the literature on this procedure and our experience is presented.

## METHODS

Though the technique varies slightly depending on the investigator, in general it involves the intralesional injection of a 1:1 mixture of local anesthetic and candida test antigen. Most often 1% lidocaine plain is described. I however, typically will use 1 or 2% lidocaine with epinephrine 1:100,000. Some describe injecting multiple lesions while others inject only one lesion usually with total volume of the mixture between 0.1 ml and 0.2 ml into a single lesion. Injections are given at intervals of 3 to 4 weeks until the lesion resolves. Most investigators limit the number of injections to 3 or 4 before considering the treatment unsuccessful.

## LITERATURE REVIEW

The first published study describing this technique was published in 2000 by Phillips et al (1). However; they credited an unpublished study at the 1984 Annual Conference of the American Academy of Family Practice for reporting the technique. Their described method included

the intralesional injection of 0.1 ml of a 1:1 mixture of candida antigen and 1% lidocaine plain into each single lesion up to a maximum of 1 ml total per visit. Injections were given at monthly intervals for 3 months or until complete clearance was achieved. Of the 149 charts that were reviewed, 104 patients were contacted a year following their final visit. The patients were asked to report their satisfaction with the candida antigen injection technique, and 86% were happy with their outcome while 14% were unhappy. Complete clearance of the treated lesion occurred in 72% of patients. No serious adverse effects were reported, however 52% had mild skin irritation, peeling, or blistering. Only 3% reported severe pain, and systemic symptoms of fever (1 patient) and body aches (1 patient) were also described.

Maronn et al (2) reported similar success in pediatric patients with no serious side effects. Both verruca and molluscum contagiosum were treated with cure rates of 87 and 56% respectively. Horn et al (3), reported a controlled double blind study utilizing multiple antigens including Trichophyton, mumps, and candida with and without interferon. No improvement in response was seen when interferon was added to the antigen injection. However, there was a significant difference in lesion clearing in younger (<40) patients compared to older adults. Both the injected lesion and distant lesion improvement was significant versus saline injection used as placebo.

A single case report discussed a potentially serious untoward effect of a candida antigen injection into a digit (4). A 20-year-old woman that had responded with a positive reaction to sensitivity testing to candida antigen received 0.1 ml injection into periungual warts of the thumb and index finger. Upon follow up one month later she presented with tenderness and inflammation of both digits but also with apparent eradication of the verruca. However, the patient returned 3 months later with recurrence of the warts. At that time, she was retreated with intradermal injection of candida antigen into the thumb and index finger. The index finger became painful and purple over the next 24 hours. Doppler studies were normal and incision failed to reveal hematoma formation. Over the following few days the problem resolved without further complication.

## DISCUSSION

Candida antigen injection has become an important procedure in my practice and I have encouraged many others to try the technique because of its relative simplicity and high success rate in treating recalcitrant verruca. I found it significant that most authors that have discussed this technique make mention that many of the subjects in their studies had already failed treatment with multiple modalities. It is unclear if verruca that had not been previously treated would have had a different cure rate percentage. However, my personal experience with candida antigen has resulted in many very grateful patients that felt they would simply have to live with the warts (Figures 1, 2).

I have found that intralesional injection, while somewhat painful is fairly well tolerated by children if slowly given with a 30 gauge needle with a 1 cc syringe. Multiple lesions including very distant ones that resolve following candida immunotherapy are frequent occurrences as other authors have discussed.

My technique sometimes involves a local regional block of the site of the verruca with 1% lidocaine prior to giving the candida and lidocaine intralesional injection. I rarely treat more than one lesion but will inject the same lesion in multiple locations to encourage the inflammatory response. As with any technique that works less than 100% of the time there is a tendency for the practitioner to become somewhat “superstitious” about their technique. The reason there are so many “remedies” for warts is likely related to the fact that



Figure 1. The pretreatment appearance of a large plantar verruca of the heel. These lesions are frequently difficult to resolve.

these lesions can spontaneously resolve seemingly overnight although they may have been present for several years. With this in mind, it is therefore especially important that methods for the treatment of such recalcitrant and difficult lesions be viewed objectively. Although this method of treatment has been somewhat slow to become mainstream I feel it has proven its worth and will become a preferred method of treatment as more health care providers discover the technique.

There are two main sources for the candida antigen. Allergan (San Diego CA; 1-800 221-2748) makes the original candidin antigen and Hollister-Stier (Spokane, WA; 1-800-992-1120) makes a generic form candida antigen

The procedure is coded as an intralesional injection CPT 11900 for up to 7 lesions. For injection of more than 7 lesions use CPT code 11901.

## REFERENCES

1. Phillips RC, Ruhl TS, Pfenninger JL. Treatment of warts with Candida antigen injection. *Arch Dermatol* 2000;136:1274-5.
2. Maronn M, Salm C, Lyon V, Galbraith S. One-year experience with candida antigen immunotherapy for warts and molluscum. *Pediatr Derm* 2008;25:189-92.
3. Horn TD, Johnson SM, Helm RM, et al. Intralesional immunotherapy of warts with mumps, Candida, and Trichophyton skin test antigens: a single-blinded, randomized, and controlled trial. *Arch Dermatol* 2005;141:589-94.
4. Perman M, Sterling JB, Gaspari A. The painful purple digit: An alarming complication of candida albicans antigen treatment of recalcitrant warts. *Dermatitis* 2005;16:38-40.



Figure 2. The appearance of the heel at 6 weeks following 2 injections of candida antigen at 3 week intervals. Note the normal skin lines that have returned to the area indicating the complete resolution of the lesion.