

SURGICAL APPROACH TO ONYCHOMYCOSIS

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The current therapeutic approaches to onychomycosis are limited. Patients presenting with fungal toenails have few simple, effective options. In the past several years the medical treatment of this disorder has been heavily promoted. Although oral agents have been available for many years, the older agents (i.e. griseofulvin) had to be taken for a year or more and had poor clinical results. A newer agent, ketaconazole, appeared to be more effective, but long-term use necessary for the treatment of onychomycosis resulted in an unacceptable incidence of hepatotoxicity.

Most recently two oral agents have been approved for the treatment of onychomycosis. Terbinafine and itraconazole seemed to provide the first real chance of curing dystrophic fungal nails. Unfortunately, these agents have a number of short comings. The package insert for terbinafine quotes the results of two US/Canadian placebo-controlled clinical trials for toenail infections. The first study was performed on nails that cultured positive for dermatophytes only. The second study cultured positive for dermatophytes and non-dermatophytes. Only 38% of the patients demonstrated both mycologic and clinical cure. The clinical relapse rate one year after completing therapy was 15%.

The package insert for itraconazole quotes data from three double blinded placebo-controlled studies. A total of 214 patients participated, with 110 receiving itraconazole 200mg daily for 12 consecutive weeks. Although 35% were considered to have achieved an overall success, only 14% were considered clinically cured. The overall success group had a 21% recurrence rate. Aside from the significant cost of these medications and drug interactions, a low incidence of serious hepatic side effects have recently been reported to occur in patients with no previous history of liver disorder and no co-morbid factors.

Many podiatrists in private practice have not seen the success as detailed by pharmaceutical representatives. This in part may be due to the low incidence of dermatophyte involvement in fungal nails. A recent study of clinically dystrophic nails in

a 450-patient geriatric population in southern Florida revealed only a 23.8% incidence of dermatophyte infections. The most common dermatophyte was *t. rubrum*, present in 13.5% of the cultures and *t. mentagrophytes* in 6.3% of the results. Of the 209 patients with a single organism cultured, 25.8% had dermatophytes only, and 23.1% of the nails had no fungal growth.

Only one topical agent has been approved for treatment of fungal nails. It does have an extended spectrum over the oral agents, but a very low published cure rate. The package insert for ciclopirox 8% solution presents data from two double-blinded, placebo-controlled studies of patients with 20-65% fungal involvement of the great toenail. Patients applied the medication daily and had monthly nail debridements. A complete cure was obtained in 16 out of 241 patients after 48 weeks of therapy. Follow-up 12 weeks later showed only 7 remained clinically and mycologically cured. An additional 14 were considered almost cured at 48 weeks having less than 10% involvement of fungus in the nail plate. Additionally, all oral and topical agents do not change the clinical appearance of the existing nail. It can take up to a year for new plate to grow. Certainly an unacceptable time frame if pain is a presenting complaint.

The typical alternative to painful fungal nails is removal with phenol matricectomy (Figures 1-3). Although usually effective, the phenol can lead to a month or longer of healing, possible recurrence and a bulbous, disfigured appearance to the toe. An alternative not usually discussed is temporary removal of the nail plate with treatment of the nail bed with antifungal agents as the new plate regrows. Two articles published in the podiatric literature demonstrate nearly a complete cure. Freund (*Journal of the American Podiatric Association, 1974*) avulsed the nail and then had the patient daily scrub the nail bed with chlorinated scrubbing powder and apply topical antifungal daily. He followed 12 patients between 4 and 33 months and had a 100% cure rate. Hettinger and

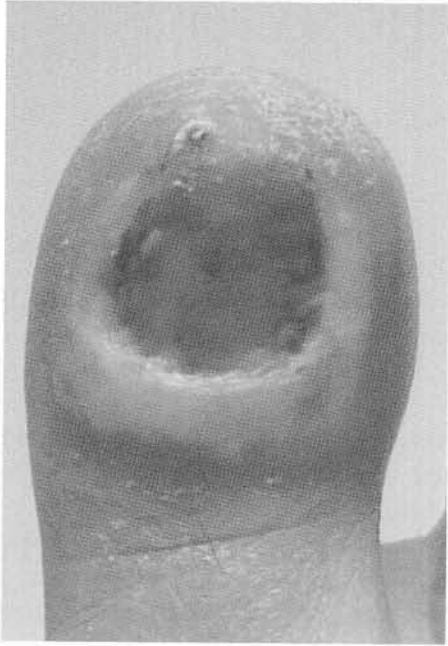


Figure 1. Prolonged inflammatory response post-phenol matricectomy



Figure 2. One week following the temporary removal of the plate, the bed is fully epithelialized



Figure 3. Six months following removal of mycotic hallux nail.

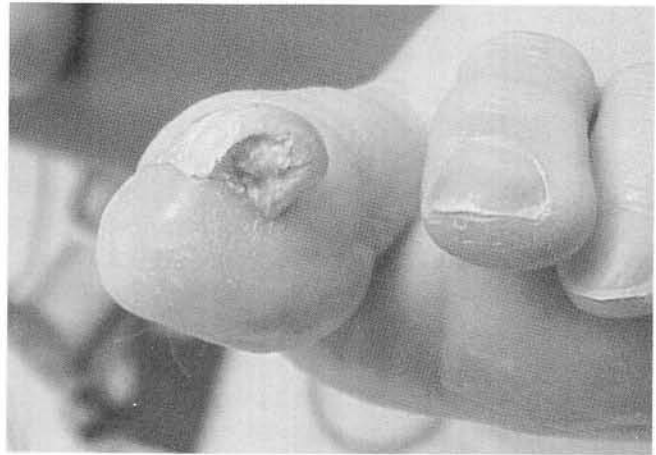


Figure 4. Preoperative appearance.



Figure 5. At one year postoperative, the appearance is improved, but some distal mycotic infection persists.

Valinsky (*Journal of the American Podiatric Association, 1991*) avulsed 23 nails on 13 patients. Patients applied ketaconazole nightly under occlusion. After an average follow of 11 months, they reported a 96% success rate.

My experience over the last year has been a positive one, but I have not seen the same level of success as reported above. To date, all patients have been comfortable and no one has required any additional care. Clinical appearances have improved but few plates are free of fungus (Figures 4, 5). Most have some degree of distal onychomycosis. This may be the result of patients not applying the topical medication for a long enough period of time. Temporary removal of mycotic nail plates with application of topical antifungals is a viable alternative to permanent removal or the administration of oral antifungal agents.