

# Onychomycosis: Confirming the Diagnosis is Critical

Failure to confirm the diagnosis can have significant long-term consequences for patients.

**BY PAUL WINNINGTON, EDITORIAL DIRECTOR**

Onychomycosis is estimated to account for about half of all patient visits related to a nail dystrophy. According to Molly Hinshaw, MD, Director of the Nail Clinic at University of Wisconsin School of Medicine and Public Health, the prevalence of onychomycosis in North America is actually up to about 14 percent of the population of adults and about 2.5 percent of children. Speaking at the Summer Meeting of the American Academy of Dermatology in July, Dr. Hinshaw offered an update on the diagnosis and treatment of onychomycosis. She also gave an interview to DermTube.com, in which she emphasized the importance of having a confirmed diagnosis of onychomycosis before pursuing treatment.

## CONFIRM THE DIAGNOSIS

Although onychomycosis is the single most common cause of nail dystrophy, “about 50 percent of the patients who present with an onychodystrophy do not have onychomycosis,” Dr. Hinshaw says. “That’s why it’s very important to make an actual diagnosis with confirmatory testing of onychomycosis before proceeding with treatment.”

The AAD has a position statement that recommends that all physicians make a confirmatory diagnosis of onychomycosis before proceeding with treatment.

“Confirmatory testing for onychomycosis involves multiple methodologies. The most readily available and least expensive in most physicians’, certainly dermatologists’, offices is the KOH stain. That’s very quickly applied, something that has a 90 percent sensitivity and 80-plus percent specificity for dermatophytes—those long septate hyphae that we know as reproducibly diagnostic of onychomycosis in the proper clinical context,” Dr. Hinshaw says. “In addition, the KOH can be supplemented by other testing, spe-

cifically the PAS stain, which, as we all know, is something where clippings are placed in a formalin container and sent to Dermpath for diagnosis of onychomycosis.”

Alternatively, culture is very readily available. However, “these are at best, 50 percent sensitive. That means that we are going to have negative cultures in the setting of true onychomycosis, infectious onychomycosis, 50 percent of the time. And that’s best case scenario,” Dr. Hinshaw stresses.

Newly available to aid diagnosis is polymerase chain reaction (PCR). “The advantage of this is that it’s very quick. The disadvantage is cost. These are going to be on the range of up to \$200 per test, depending on what level of sensitivity we’re going to go for diagnosis,” Dr. Hinshaw says. “In addition, PCR is very sensitive and is actually going to give you a report back that, in many settings that are currently available, either commercially available or in direct-to-patient marketing, more than 2,000 fungal organisms and more than 3,000 bacterial organisms. Then when that test comes back, that PCR, we won’t know viability of those organisms, and we also won’t know whether those are contaminants within the specimen or whether they’re truly relevant for the patient’s clinical presentation. In addition, we must remember that, like all our other testing, our KOH, our PAS, our culture, we must take the diagnosis of PCR positive dermatophyte in context with the remainder of the patient’s clinical findings.”

## CONFIRM THE CORRELATION

Clinical/pathological correlation is an essential element of diagnosis and treatment, Dr. Hinshaw says. “We know that patients may have underlying nail disease and may have onychomycosis. For example, patients with psoriasis

with onychodystrophy at baseline are a setup for infection with dermatophyte. Why is that? We think the pathogenesis of tinea pedis is the first infection that then, in a dystrophic nail, allows that dermatophyte just to spread within the separated onychodermal band in the space between the lifted nail plate, or onycholytic nail plate and the nail bed; it's a setup for infection with onychomycosis."

Simply addressing the fungal infection without addressing the underlying disease will not improve onychodystrophy.

"A very serious consequence of addressing onychomycosis without a proper clinical path correlation is that, at least in the setting I'm in... I'm seeing these tertiary referrals: I have a very unfortunate number of patients who have had underlying squamous cell carcinoma or even melanoma that's been treated as onychomycosis for up to 18 months," Dr. Hinshaw observes. "I unfortunately, just a few weeks ago, had one of those patients who, the very first time I saw her, came in with a diagnosis of 'onychomycosis and chronic paronychia.' She ended up having a biopsy her first day of visit, because the clinical/path correlation was way off. Single nail dystrophy in an adult should always be evaluated for the possibility of neoplasm; unfortunately she went 18 months without a diagnosis...She had a 1.3 mm melanoma [and a] positive lymph node."

### EDUCATED PATIENTS ARE HAPPIER PATIENTS

With a firm diagnosis in hand, patient education is the next critical step, Dr. Hinshaw says. "There are numerous

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### TREATMENT CONSIDERATIONS

Treatments for onychomycosis continue to expand, with attention even turning to devices. Also speaking at the Summer AAD, Shari Lipner, MD, PhD, FAAD, an assistant professor of dermatology at Weill Cornell Medicine in New York, addressed treatment options.

Oral medication has high success rate, but Dr. Lipner points out that it may cause significant side effects or interact with other drugs. Newer topical formulas have shown improved efficacy compared to older ones, she says, and topical treatments may be more feasible for patients with certain underlying medical conditions or those on multiple medications.

Dr. Lipner also emphasized that nail fungus often arises from fungal infections of the skin, such as athlete's foot, so antifungal treatment of affected skin may lead to improved results.

Oral medications can typically treat fingernail fungus in six weeks and toenail fungus in three months, while topical treatments must be applied for as long as it takes nails to grow out. In some cases, topical and oral medications may be combined to provide the best possible treatment.

Laser procedures are only approved by the FDA for cosmetic improvement of nail fungus, but Dr. Lipner says researchers are looking into ways to improve laser treatment and potentially use it to clear onychomycosis. She is currently investigating the use of a non-thermal plasma device as an additional treatment option.

predictors of optimal and poor response to medical management of onychomycosis. Specifically things we see that we know in a patient are going to challenge them to have a normal nail when they have onychomycosis is a dermatophytoma.

"We also know that patients who have an oncolytic or lifted nail are going to do less well than patients whose nail plate is firmly attached to the nail bed. This is, of course, for reasons of lack of drug penetration from the nail bed to that lifted nail plate. If a patient has tinea pedis that is not treated, that reservoir of infection can lead to nail re-infection. Dr. Hinshaw recommends advising tinea pedis with topicals in addition to treating the onychomycosis. The list goes on."

Educated patients are happy patients. "We have to be aware of educating the patient as to appropriate expectations of management so that we have happy patients who are glad that they undertook the cost and time and put their trust in us to treat their onychomycosis to a level that they are going in the end be happy with that nail function and pain and appearance," Dr. Hinshaw says ■