When it comes to management of superficial fungal infections, dermatologists find most cases relatively straightforward. Available topical and systemic agents can be used safely and effectively to overcome fungal infections. Yet from time to time, certain diagnostic challenges or resistant cases arise.

Thankfully, there are ways for dermatologists to get better results when it comes to identifying causative dermatophytes and ensuring better treatment outcomes. The following round-up offers diagnostic and treatment tips, updates on recently published reports, and some important patient education advice.

Spot Griseofulvin Resistance in Children
When pediatric patients seem to be unresponsive to griseofulvin, dermatologists may need to troubleshoot, suggests Sheila Fallon-Friedlander, MD of San Diego Children’s Hospital and Health Center. Usually, she says, the problem isn’t resistance. Ask yourself and the patients’ family these four questions:

1. Did the patient take the medication?
2. Has the patient taken the medication with food? Consuming fatty foods along with the drug helps increase absorption.
3. Is the dose correct? To improve compliance, Dr. Friedlander recom-
mends 20-25mg/kg micronized griseofulvin once-daily. If headaches or other symptoms develop, split the dose.

4. Is the child in contact with people or animals that can cause reinfection?

It’s important to recall people, animals, and objects can carry the causative arthrospores, leading to re-infestation. When unresponsive patients present to the office, Dr. Friedlander says, question the family about pets—often a leading cause of reinfection.

In cases of true griseofulvin resistance, if *Trichophyton tonsurans* is the causative organism, consider use of terbinafine. Be sure to discuss the off-label nature of this therapy with parents. Itraconazole and fluconazole are alternative options, though neither is approved for pediatric tinea capitis.

Don’t Go Natural…Yet

When it comes to natural antifungal options, tea tree oil or *Melaleuca alternifolia* is probably the most popular agent. While there is some data to support both antifungal and antimicrobial activity of the plant derivative, there doesn’t seem to be enough scientific evidence to support its use in superficial cutaneous infections. In fact, when it comes to the treatment of both “dandruff and related conditions,” tinea pedis, and onychomycosis, the multi-disciplinary, peer-reviewed website NaturalStandard.com gives tea tree oil an evidence grade of “C,” signifying “unclear or conflicting scientific evidence.”

The site, by the way, is a comprehensive guide to integrative medicine with reviews on a wide range of herbs and supplements, as well as complementary practices. According to the site, “a research team systematically gathers scientific data and expert opinions” in order to compile its monographs and it “is not supported by any interest group, professional organization, or pharmaceutical manufacturer.” Each monograph also includes a summary of folklore and popular use as well as safety reviews.

Tea tree oil, NaturalStandard.com says, is “likely safe” when used topically in concentrations up to 100 percent in patients with no known allergy to the oil or other plants in the Myrtle (Myrtaceae) family. However, patients who have used the oil in the past may be sensitized to it and at risk for developing an allergic contact dermatitis. The agent is likely unsafe when ingested orally at any concentration or when applied topically to individuals with allergies to it or its constituents.

Despite the lack of good scientific evidence to support use of tea tree oil for management of superficial fungal infections, the agent remains popular, perhaps due to promising results from some small studies. Australian researchers...
Facing Off with Fungus

in 2002 published two positive studies for tea tree oil, demonstrating significantly better improvement than placebo, in the treatment of interdigital tinea pedis1 and dandruff.2 The dandruff study used tea tree oil 5% with no reported adverse effects.3 In tinea pedis, patients using tea tree oil 25% had a higher rate of clinical response and just one adverse event compared to those using the 50% concentration (three patients in the latter group developed moderate to severe dermatitis).1

NaturalStandard gives topical Garlic (Allium sativum L.) a “C” for treatment of tinea pedis. Aloe vera earns a “B” for use in seborrheic dermatitis based on a study using 30 percent aloe lotion applied to the skin twice daily for four to six weeks. The authors recommend a wider study to better substantiate use of aloe in seborrheic dermatitis.

Look for the Warning Signs

From its mildest presentation as dandruff to fuller involvement of the face and scalp, seborrheic dermatitis rarely poses significant clinical challenges for dermatologists. But, warns an Italian researcher in a recent issue of American Journal of Clinical Dermatology, seborrheic dermatitis could be a sign of an undiagnosed eating disorder. Along with other dermatologic signs and symptoms, including xerosis, telogen effluvium, carotenoderma, acne, hyperpigmentation, petechiae, edema, slow wound healing, and more, seborrheic dermatitis can signify a history of anorexia nervosa and/or bulimia nervosa. Some skin signs, the author notes, result from abuse of laxatives and diuretics.

While dermatologists need not be hyper-sensitive, consider the possibility of an undiagnosed eating disorder if patients demonstrate other signs of such diseases. Treatment of specific skin diseases is the same as for cases not related to eating disorders, though appropriate diet will also help alleviate symptoms. If an eating disorder is suspected, recommend appropriate interventions, the author says, and avoid over-treating conditions that the patient’s distorted perception of skin appearance may over-emphasize.

Put Your Foot Down on OTCs

Dermatologists know that when it comes to diabetic patients, effective management of tinea pedis takes on extra significance. According to Thomas M. Ruenger, MD, PhD, Professor of Dermatology at Boston University School of Medicine, diabetic patients are more prone to more widespread distribution of infection or moccasin-type distribution. Furthermore, he notes, “Tinea pedis is a common entry port for cellulitis of the lower leg. Since diabetic patients are also more prone to bacterial infections, tinea pedis increases the risk of cellulitis.” Adds Dr. Ruenger, “I am not sure whether this has ever been systematically studied.”

When it comes to treatment selection, topical antifungal agents are generally effective and therefore sufficient for management of most cases of tinea pedis, Dr. Ruenger says. Though he notes that non-prescription agents can also be effective, he favors prescription formulations. The reason for his preference is that OTC antifungal creams, “are usually sold in small tubes (7.5g), which is by far not enough,” he says. “Therefore, in practical terms, OTC formulations do not work, as patients do not purchase several tubes.”

Get Testy

Two separate groups of Japanese researchers recently proposed two new methods for obtaining samples from the toenail and interdigital regions. Researchers recently stressed the importance of proper histopathologic analysis. Since KOH and fungal culture often produce false-negatives, a new report says, clinicians should consider a nail plate biopsy with period acid-Schiff stain to confirm diagnosis when clinical suspicion is high. Studies suggest that nail plate biopsy with period acid-Schiff stain is the most sensitive method for diagnosing onychomycosis.4


Drill Technique. Mochizuki, et al5 report a drilling technique that leaves the nail relatively more intact than some other methods. The process involves using a ball-shaped metal file to drill a 3mm-wide area at the most proximal part of a white band or spike. Once the superficial nail plate is removed from this section, soft nail material underneath is sampled for KOH evaluation.

Fingertip Swipe. According to Sano, et al,6 a novel culturing method dubbed the “finger-sampling method” is more efficient and less costly than other methods. The toes are swept with the fingertips and collected material is deposited on a culture dish—four toe webs on one dish. The approach can complement microscopy and helps confirm causative dermatophytes, the authors report.  

References: