



NAIL DISORDERS

FAST AND RELIABLE DIAGNOSTICS OF FUNGAL SKIN INFECTIONS

Bieber Katja⁽¹⁾

University Of Lübeck, Lübeck, Germany⁽¹⁾

Nail fungal infections are the most common diseases of the nails, making up about 50 percent of nail abnormalities. In fact, up to 10% of all adults in Western countries have fungal infection of the nails. This percentage increases to 20% of adults who are age 60 or older. There are many species of fungi that can affect nails. By far the most common, however, is *Trichophyton rubrum*. Physical exam alone has been shown to be an unreliable method of diagnosing fungal nails as only 50% of cases of abnormal nail appearance are caused by fungal infections. Differentials includes psoriasis, lichen planus, contact dermatitis, trauma, nail bed tumor, eczema, as well as yellow nail syndrome. Therefore, laboratory testing is almost always indicated. A nail sample is obtained by debris scraped from the nail. The nail scrapings are used in several diagnostic tests including culture that usually requires several weeks until diagnosis can be made, or direct microscopic analysis that has a low sensitivity. For improvement of reliability and time to diagnosis we therefore established a PCR-based molecular diagnosis of fungal nail infections. The herein used EUROArray Dermatomycosis test system, 50 different dermatophytes can be specifically detected, including 23 dermatophytes as well as 6 yeasts and molds – pathogens which are difficult to culture, mixed infections or, most importantly, already treated dermatomycoses. Here, we compared the sensitivity and specificity of more than 300 samples by (i) “expert” molecular diagnosis (in the EUROIMMUN laboratory), “user” molecular diagnosis, fungal culture and direct microscopy. We found the EUROArray Dermatomycosis to be a prompt, safe and unambiguous test that provides the basis for a timely identification of the pathogen and also the source of infection. In this way, an efficient therapy targeted to this specific pathogen can be initiated within 2-3 days after the suspected diagnosis.

