New Contrast Stain for the Rapid Diagnosis of Dermatophytic and Candidal Dermatomycoses

Rapid diagnosis of superficial dermatomycoses is important so that treatment can be initiated without delay. We compared a new contrast stain with the routine test of potassium hydroxide (KOH) wet mount and culture for the diagnosis of dermatophytic and candidal dermatomycoses.

Methods. Skin scrapings were taken from outpatients with superficial dermatomycoses and cultured in Sabouraud dextrose agar with cycloheximide. They were then evaluated under a microscope using both the KOH wet mount technique and the new contrast stain. Two investigators read the slides together but were blinded to all other test results.

The new contrast stain contains 1% Chicago sky blue 6B and 8% KOH as the clearing agent. Staining was performed as previously described. Slides were scanned at original magnification ×10 to locate blue-staining fungal hyphae. Dermatophytes were confirmed at original magnification ×40 on the finding of septate filaments. Candidal yeasts were detected as refractile oval budding yeast cells and/or pseudohyphae after lowering the condenser. Candidal slides were returned to the humidifying chamber and read again the following day to detect any change in staining intensity.

A 20% KOH solution was used for the KOH wet mount, and microscopic examination was performed in the usual manner.

Results. The findings in 36 of 59 specimens were culture positive (61%)—27 dermatophytes (24 Trichophyton species and 3 Microsporon species) and 9 candidiasis (8 Candida albicans and 1 Candida guilliermondii).

Overall sensitivities were 86% for the contrast stain and 75% for the KOH wet mount (P = .23). Overall specificities were 96% and 83%, respectively (P = .16). Respective false-positive rates were 4% and 14%, and respective false-negative rates were 17% and 25%. The stain detected 26 of 27 dermatophytic infections (96%); KOH wet mount detected 22 of 27 infections (81%) (P = .08). They were both equally sensitive in detecting 5 of 9 candidiasis cases (56%).

Dermatophytes appeared as blue septate filaments against purplish cellular debris (Figure 1). Candida species stained poorly at 20 minutes and were confirmed, with the condenser lowered, as refractile oval budding yeast cells and/or pseudohyphae (Figure 2). Reexamination the following day confirmed that Candida species took up enough stain to be directly visualized without lowering the condenser.

Comment. The KOH method does not produce a color contrast and requires experience and skill to perform and interpret. The Parker-KOH stain works better for Malassezia furfur than for dermatophytes. The procedure of obtaining skin surface biopsy specimens followed by staining is more complicated and less suitable for obtaining samples from interdigital webs because of the anatomy. Chlorazol-KOH testing is 60% sensitive and 71.9% specific, but the compound may be a carcinogen. Potassium hydroxide–acridine orange staining has a sensitivity of 61.7% and specificity of 67.2%, and testing with calcofluor white with KOH is 92% sensitive and 95% specific, but both require a fluorescent microscope.

Analysis with the new contrast stain was more sensitive and specific than the KOH wet mount, although the difference was not statistically significant. It made locating dermatophytes particularly easy. We also found in an earlier study that this stain was as good as the Parker-KOH stain for confirming the diagnosis of pityriasis versicolor.

The new contrast staining method described herein is rapid and simple, requiring only an ordinary light microscope. We recommend further evaluation of this staining technique by experienced investigators in a larger study.

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The Isomorphic Response in Morphealike Chronic Graft-vs-Host Disease

The isomorphic response of Koebner, also known as the Koebner phenomenon, is a well-recognized dermatologic manifestation first described in psoriasis. The isomorphic response occurs when a dermatologic disease develops at a site of normal-appearing skin that is injured in some manner.1

Chronic graft-vs-host disease (cGvHD) is a multisystem disorder that commonly affects the skin and may present with protein manifestations. Sclerotic cGvHD features are categorized as lichen sclerosus–like, morphealike, or sclerosis involving the subcutaneous tissue and fascia.2 Morphealike lesions of cGvHD are characterized by localized dyspigmented indurated plaques of skin thickening.

Methods. A retrospective analysis was performed of 110 consecutive patients with a diagnosis of cGvHD of any...