Letters to the Editor

The reliability of periodic acid-Schiff staining in the diagnosis of onychomycosis

Sir,

We read with great interest the article on "Comparison of potassium hydroxide mount and mycological culture with histopathological examination using periodic acid-Schiff staining of nail clippings" in a recent issue of IJDVL.^[1] The authors' findings about high sensitivity of periodic acid-Schiff (PAS) staining in the diagnosis of onychomycosis is consistent with previous studies on the subject.^[2,3] However, certain fallacies of PAS staining in this context deserve consideration as appended below.

Morphological differentiation of nondermatophytes from dermatophytes is not always feasible with PAS staining,^[4] whereas culture shows significantly higher isolation rates and allows for accurate identification of genus and species of organism.^[5] Culture has a high specificity of 82% compared with 72% with PAS staining.^[6] Nondermatophytes and yeasts are not always contaminants, but can be primary invaders and pathogens.^[4,7] Their identification is important as they are less sensitive and even unresponsive to current antifungal treatment available.^[8] Moreover erroneous false PAS positivity is seen with psoriasis, starch particles, and serum parakeratotic cells.^[4] As a result, a patient may be mistakenly diagnosed as a case of onychomycosis resulting in erroneous diagnosis and inappropriate treatment.

Therefore, despite its high sensitivity, PAS staining with histopathology is not an invaluable test in the diagnosis of onychomycosis owing to its,

- 1. Ineffectiveness in identifying the causative pathogen, which would aid in advocation of correct treatment.
- 2. False positivity with other inflammatory nail dermatoses as they may be indistinguishable histologically as also clinically.^[9]
- 3. PAS is the least cost effective compared to potassium hydroxide mount and mycological culture.^[10]

Thus concluding, culture remains the indisputable gold standard in diagnosis of onychomycosis.^[11]

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REFERENCES

- Shenoy MM, Teerthanath S, Karnaker VK, Girisha BS, Krishna Prasad MS, Pinto J. Comparison of potassium hydroxide mount and mycological culture with histopathological examination using periodic acid-Schiff staining of nail clippings. Indian J Dermatol Venereol Leprol 2008;74:226-30.
- 2. Lawry MA, Haneke E, Strobeck K, Martin S, Zimmer B, Romano PS. Methods for diagnosing onychomycosis: A comparative study and review of the literature. Arch Dermatol 2000;136:1112-6.
- Hsiao YP, Lin HS, Wu TW, Shih HC, Wei SJ, Wang YL, et al. A comparative study of KOH test, PAS staining and fungal culture in diagnosis of onychomycosis in Taiwan. J Dermatol Sci 2007;45:138-40.
- 4. Pierard GE, Quatresooz P, Arresse JE. Spot light on histomycology. Dermatol Clin 2006;24:371-4.
- 5. Gupta AK, Ryder JE, Summerbell RC. Onychomycosis: Classification and diagnosis. J Drugs Dermatol 2004;3:51-6.
- Weinberg JM, Koestenblatt EK, Tutrone WD, Tishler HR, Najarian L. Comparison of diagnostic methods in evaluation of onychomycosis. J Am Acad Dermatol 2003;49:193-7.
- Kaur R, Kashyap B, Bhalla P. Onychomycosis epidemiology, diagnosis and management. Indian J Med Microbiol 2008;26:108-16.
- Gupta AK, Linh Q. Therapies for onychomycosis: A review. Dermatol clin 2006;24:375-9.
- Griffin TD. Inflammatory diseases of the nail. In: Elder DE, Lever WF, Elenitsas R, Johnson BL, Murphy GF, editors. Lever's histopathology of skin. 9th ed. Lippincott Williams and Wilkins; 2004. p. 514.
- Lilly KK, Koshnick RL, Grill JP, Khalil ZM, Nelson DB, Warshaw EM. Cost- effectiveness of diagnostic tests for toenail onychomycosis: A repeated measure, single-blinded, cross- sectional evaluation of 7 diagnostic tests. J Am Acad Dermatol 2006;55:620-6.
- Reisberger EM, Abels C, Landthaler M, Szeimies RM. Histological diagnosis of onychomycosis by PAS stained nail clipping. Br J Dermatol 2003;148:749-54.