

Comment on: “Efficacies and merits of the cotton swab technique for diagnosing tinea capitis in the pediatric population”



To the Editor: We read with great interest “Efficacies and merits of the cotton swab technique for diagnosing tinea capitis in the pediatric population” by Le et al.¹ Tinea capitis is a common, easily treatable dermatophyte infection of the scalp predominantly found in children. A variety of techniques to obtain fungal culture specimens from the hair and scalp have been described in the literature, including scrape, scrape-and-pluck, cotton swab, toothbrush, and tape methods.²⁻⁵

In a prospective Institutional Review Board-approved study at Montefiore Medical Center and Jacobi Medical Center, we sought to directly compare the cotton swab method to the traditional scrape-and-pluck method. Children aged 6 months to 18 years seen in the dermatology clinic with scalp findings suspicious for tinea capitis were enrolled. Two samples were collected from each patient.

To obtain a sample using the scrape-and-pluck method, the affected area was scraped with a number 15 blade to collect scale, and approximately 12 hairs were plucked from the area. To obtain a sample for the cotton swab method, a sterile cotton tip applicator was moistened with transport media from the fungal transport bottle and vigorously rubbed and rotated over the affected area for no more than 15 seconds (Fig 1). All samples were sent for assessment of culture and speciation using

Remel Mycobiotic Agar (Thermo Fisher Scientific, Waltham, MA).

We enrolled 9 patients between August 2018 and September 2019. Patient demographic information was collected. The average age of patients was 6.78 years, 7 (77.8%) were female, and 7 (77.8%) identified as African American, 1 (11.1%) as Hispanic, and 1 (11.1%) as both African American and Hispanic. Associated symptoms included pruritus (100%), scaling (100%), posterior cervical lymphadenopathy (66.7%), hair loss (55.6%), and erythema (22.2%).

The cultures were negative by both sampling methods for 5 patients and were positive by both sampling methods for 4 patients. Of all the positive cultures, there was 100% concordance between sampling methods in dermatophyte speciation, namely *Trichophyton tonsurans* (Table I).

We have found that the efficacy of the cotton swab method for the diagnosis of tinea capitis is indistinguishable from the scrape-and-pluck method. The Le et al.¹ study showed similar efficacy of the cotton swab method compared with the scrape method. The concordance between our findings and those of Le et al. further support that the cotton swab method is as efficacious as other methods for confirming a diagnosis of tinea capitis. Our study additionally shows that this method proves to be effective in African American patients for the diagnosis of tinea capitis, a disease more prevalent in this demographic group.

One limitation of the cotton swab technique is that examination with potassium hydroxide or Swartz Lamkins fungal stain to detect dermatophyte presence at bedside cannot be performed. However, as mentioned in the discussion by Le et al.¹ of the cotton swab method, this technique requires minimal training and is nontraumatic and nonthreatening to the patient. Given the concordance of our findings, we support adopting the cotton swab method as an efficacious, inexpensive, and nonpainful method for

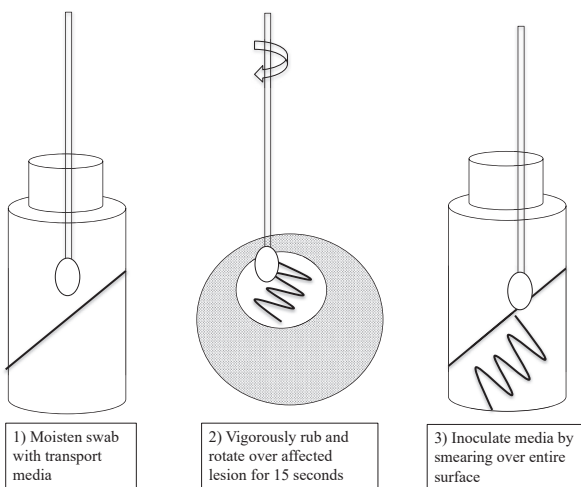


Fig 1. Proper technique for inoculation of culture media using the cotton swab method.

Table I. Culture results

Patient	Scrape-and-pluck result	Cotton swab result
1	<i>Trichophyton tonsurans</i>	<i>Trichophyton tonsurans</i>
2	No fungi isolated	No fungi isolated
3	<i>Trichophyton tonsurans</i>	<i>Trichophyton tonsurans</i>
4	No fungi isolated	No fungi isolated
5	No fungi isolated	No fungi isolated
6	<i>Trichophyton tonsurans</i>	<i>Trichophyton tonsurans</i>
7	No fungi isolated	No fungi isolated
8	No fungi isolated	No fungi isolated
9	<i>Trichophyton tonsurans</i>	<i>Trichophyton tonsurans</i>

the diagnosis of tinea capitis in the pediatric population.

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REFERENCES

1. Le M, Gabrielli S, Ghazawi FM, Alkhodair R, Sheppard DC, Jafarian F. Efficacies and merits of the cotton swab technique for diagnosing tinea capitis in the pediatric population. *J Am Acad Dermatol*. 2020;83(3):290-292.
2. Head ES, Henry JC, Macdonald EM. The cotton swab technic for the culture of dermatophyte infections—its efficacy and merit. *J Am Acad Dermatol*. 1984;11(5 Pt 1):797-801.
3. Friedlander SF, Pickering B, Cunningham BB, Gibbs NF, Eichenfield LF. Use of the cotton swab method in diagnosing tinea capitis. *Pediatrics*. 1999;104(2 Pt 1):276-279.
4. Hubbard TW, de Triquet JM. Brush-culture method for diagnosing tinea capitis. *Pediatrics*. 1992;90(3):416-418.
5. Miranda MF, Silva AJ. New uses of vinyl tape for reliable collection and diagnosis of common superficial mycoses. *Skinmed*. 2003;2(3):156-158.

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