

# EVALUATION OF TWO METHODS , CONVENTIONAL SCRAPING AND STRIPPING , FOR DIAGNOSIS OF DERMATOPHYTOSIS\*

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**Key words:** *Dermatophytosis , skin stripping , skin scraping*

## Abstract

In a study of 310 patients with suspected dermatophytic lesions , 110 cases of dermatophytosis , diagnosed by direct smear in 10% KOH and culture by two methods , skin stripping with use of adhesive tape and scraping with scalpel blade conventional technique). Out of 65 positive culture , in 33 cases , growth was obtained by both methods (scraping and stripping) , 23 by the conventional technique and 9 cases with the use of scotch tape only.

## Introduction

Skin stripping has been used for many dermatological purposes , such as collecting materials for bacteriological and mycological studies (5). The use of adhesive tape for laboratory diagnosis of cutaneous mycoses has several advantages. Technically , collecting fungal materials from the skin by stripping is easy , quick and useful for inexperienced examiner. In contrast of scraping method , it does not have unpleasant affect on the patient , especially the children (4).

## Materials and methods

During twenty months from September 1989 to May 1991 , 310 samples were collected from the suspected cases of dermatophytosis , cultured by two methods , scraping (conventional technique) and stripping. The specimens which were collected by scraping with the scalpel blade , were examined

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directly by KOH 10% and cultured on two plates , containing Sabouraud's glucose agar (S) and Sabouraud's glucose agar with Streptomycin and Cycloheximide (SCC).

For collecting materials by stripping , a piece of adhesive vinyl tape was attached over the lesion then pressed on skin with the thumb , finally placed on two plates containing (S) and (SCC). All plates were incubated at room temperature. After two weeks the cultures were examined. If the suspected colonies of dermatophyte appeared on S or SCC media , they were identified by slide culture and differential tests , including corn meal agar , urease and hair penetration tests to identify *Trichophyton mentagrophytes* from *Trichophyton rubrum*

## Results

110 patients with dermatophytosis , consist of 34 cases of *Tinea manum* , 32 *Tinea corporis* , 29 *Tinea pedis* and 15 cases of *Tinea cruris* were studied in this research. Out of these number 65 were positive by culture. In 33 cases growth of dermatophytes were obtained by both methods (scraping and stripping) , 23 cases by the conventional technique and 9 cases with the use of scotch tape (table 1).

The dermatophytes were isolated on culture composed of *Trichophyton mentagrophytes* 26 cases , *Microsporum canis* 12 cases , *Trichophyton rubrum* 11 cases , *Epidermatophyton floccosum* 7 cases , *Trichophyton verrucosum* 7 cases , *Trichophyton violaceum* and *Microsporum gypseum* 1 case respectively (Table 2).

## Discussion

Vinyle adhesive tape is a conventional method for diagnosis of pityriasis versicolor. Also tape stripping of skin have been used for isolating dermatophytes from footwear (6) , storage of dermatophytes (5) and detecting of pathogenic fungi on the skin (1,2,7) , but the results were contraindicated. Knudsen in 1971 (3) showed that , in all examined cases , growth by routine culture was as well as strippings. Also in another report he observed the survival of dermatophytes on skin strippings was at least as good as in conventional skin scrapings (5). In 1974 he obtained 82

dermatophytes by both methods , 31 by the conventional technique and 8 cases with the use of tape , out of 121 positive cultures as well (4). Milne and Barneston in their report of the preliminary findings of a comparison of adhesive tape strippings and skin scrapings for the microscopy and culture of dermatophytosis , illustrated of 53 positive cases , 23 were diagnosed from skin scrapings and 39 from tape specimens (7). In our study out of 65 positive cultures , 33 cases were positive by both methods , 23 by conventional technique and 9 cases with the use of tape. The difference between these two methods in *Tinea manum* in significant ( $p < 0.02$ ). It has been shown that the tape dose not inhibit the growth of fungi and does not reduce the viability of the organism (4). So the difference must be due to the strip technique is not suitable for collecting specimen from the palm.

As a result , in *Tinea pedis* , *Tinea cruris* and *Tinea corporis* , the tape method is relatively as effective as the conventional technique.

In conclusion it seems that scotch tape is convenient for culturing of skin materials , collected from the patient with the *Tinea pedis* , *Tinea cruris* and *Tinea corporis* , for the isolating of dermatophytes on culture but not for *Tinea manum*.

Table 1- Comparison of the growth of dermatophytes on S and SCC media obtained from different parts of the body , by the two methods , conventional method and skin stripping.

Type of infection	No of cases			Total no of culture
	Growth by conventional culture & tape culture	Growth by conventional culture only	Growth by tape culture only	
<i>Tinea manum</i>	11	9	1	21
<i>Tinea corporis</i>	9	6	2	17
<i>Tinea pedis</i>	7	4	3	14
<i>Tinea cruris</i>	6	4	3	13
Total No	33	23	9	65

Table 2 - Comparison of the growth on S and SCC media of different dermatophytes, obtained by the conventional method and skin stripping.

Species of dermatophytes	No of cases			Total no of culture
	Growth by conventional culture & tape culture	Growth by conventional culture only	Growth by tape culture only	
T.mentagrophytes	15	9	2	26
M.canis	7	3	2	12
T.rubrum	5	3	3	11
E.floccosum	2	4	1	7
T.verrucosum	4	3	-	7
T.violaceum	-	-	1	1
M.gypseum	-	1	-	1
Total No.	33	23	9	65

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