

Research Article

Challenges in the Application of ITART Clinical Diagnostic Criteria Among Patients with Suspected Dermatophytosis Infection: A Cross-Sectional Study from a Tertiary Care Centre

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Abstract

Background: The Indian Association of Dermatologists, Venereologists and Leprologists Task Force Against Recalcitrant Tinea (ITART) proposed standardized clinical criteria for the diagnosis and classification of dermatophytosis. Although these criteria have improved uniformity in clinical diagnosis, their practical application is often challenging because of overlapping disease categories, steroid-modified lesions, and discrepancies between clinical and mycological findings. **Objectives:** To evaluate the challenges encountered in the application of ITART clinical diagnostic criteria among patients with suspected dermatophytosis. **Methods:** A hospital-based cross-sectional study was conducted among 118 consecutive patients with clinically suspected

dermatophytosis attending a tertiary care dermatology clinic. Patients were classified according to ITART diagnostic criteria, followed by KOH microscopy and fungal culture wherever feasible. The frequency of overlapping ITART categories, mycological positivity, and diagnostic discrepancies were analyzed. **Results:** Among 118 patients, 86 (72.9%) fulfilled more than one ITART category, indicating substantial overlap between clinical definitions. Chronic dermatophytosis (61.9%), recurrent dermatophytosis (56.8%), and steroid-modified dermatophytosis (40.7%) were the predominant categories. Despite fulfilling ITART criteria, 21 patients (17.8%) were mycologically negative, highlighting discordance between clinical diagnosis and laboratory confirmation. *Trichophyton mentagrophytes* was the predominant

fungal isolate among confirmed cases.

Conclusion: Although ITART criteria provide a structured clinical framework, considerable overlap among diagnostic categories and the presence of mycologically negative patients remain major challenges. Clinical diagnosis should therefore be complemented by laboratory confirmation whenever possible.

Keywords: Dermatophytosis, ITART, Clinical diagnosis, KOH microscopy, Diagnostic challenges, Dermatology

Introduction

Dermatophytosis is one of the most common superficial fungal infections worldwide, affecting keratinized tissues including the skin, hair, and nails. In recent years, India has witnessed a marked increase in the incidence of chronic, recurrent, recalcitrant, and steroid-modified dermatophytosis, posing a significant public health challenge. This changing epidemiology has been attributed to irrational use of topical corticosteroid combinations, antifungal misuse, poor treatment adherence, environmental factors, host susceptibility, and the emergence of more virulent dermatophyte species, particularly the *Trichophyton mentagrophytes* complex [1-3].

The clinical presentation of dermatophytosis has undergone considerable changes over the past decade. Classical annular lesions with central clearing are increasingly replaced by atypical, extensive, inflammatory, and steroid-modified lesions, making clinical diagnosis difficult. Furthermore, several inflammatory dermatoses such as eczema, psoriasis, seborrheic dermatitis, pityriasis rosea, candidiasis,

and contact dermatitis closely resemble dermatophytosis, leading to potential diagnostic errors when based solely on clinical examination [2,4].

Recognizing the need for standardized terminology and uniform clinical definitions, the Indian Association of Dermatologists, Venereologists and Leprologists (IADVL) Task Force Against Recalcitrant Tinea (ITART) published consensus recommendations in 2020. The ITART criteria classify dermatophytosis into six clinical categories: naïve, chronic, recurrent, recalcitrant, steroid-modified, and tinea incognito. These definitions have facilitated uniform reporting in clinical practice and research and have improved communication among dermatologists[5].

Despite these advantages, the practical application of ITART criteria presents several challenges. Patients frequently satisfy more than one diagnostic category simultaneously because chronicity, recurrence, and steroid modification often coexist. Moreover, the clinical criteria do not incorporate laboratory confirmation, resulting in possible discrepancies between clinical diagnosis and mycological evidence. Previous studies have demonstrated that a proportion of clinically diagnosed dermatophytosis cases remain negative on potassium hydroxide (KOH) microscopy and fungal culture, particularly among patients with steroid-modified lesions or partially treated infections.[6-7]

Another emerging challenge is the changing mycological profile of dermatophytes in India. Recent molecular studies have demonstrated a shift from *Trichophyton rubrum* to the *Trichophyton mentagrophytes* complex as the predominant etiological agent.

This shift has been associated with increased disease chronicity, recurrence, therapeutic failure, and reduced susceptibility to antifungal agents, further complicating clinical diagnosis and management.[3,8]

Although ITART criteria have become widely accepted in India, evidence regarding their applicability and limitations in routine clinical practice remains limited. Understanding the practical challenges encountered during their application is essential for improving diagnostic accuracy and optimizing patient management. Therefore, the present study was undertaken to evaluate the challenges associated with the application of ITART clinical diagnostic criteria among patients with suspected dermatophytosis attending a tertiary care centre.

Materials and Methods

Study Design: Hospital-based cross-sectional observational study.

Study Setting: Department of Dermatology, AIIMS Bhubaneswar.

Study Duration: June 2022–December 2023.

Sample Size: 118 clinically suspected dermatophytosis patients.

Inclusion Criteria

- Age ≥ 18 years

Results

Table 1. Overlap Among ITART Diagnostic Categories

Variable	n (%)
Patients fulfilling one category only	32 (27.1)
Patients fulfilling >1 category	86 (72.9)

- Clinically suspected dermatophytosis
- Diagnosis confirmed independently by at least two dermatologists using ITART criteria

Exclusion Criteria

- Pregnant women
- Lactating mothers
- Tinea capitis
- Onychomycosis
- Recent antifungal therapy

Diagnostic Evaluation

Each patient underwent:

- Detailed history
- Clinical examination
- ITART categorization
- KOH microscopy
- Fungal culture whenever feasible

Statistical Analysis:-Data were entered into Microsoft Excel 2019 and analyzed using IBM Statistical Package for the Social Sciences (SPSS) version 23.0 (IBM Corp., Armonk, NY, USA). Continuous variables were assessed for normality using the Shapiro–Wilk test and expressed as mean $\pm$ standard deviation (SD) for normally distributed data or median with interquartile range (IQR) for non-normally distributed data. Categorical variables were summarized as frequencies and percentages.

Table 1 demonstrates the overlap among the ITART clinical diagnostic categories. Of the 118 patients included in the study, 86 (72.9%) fulfilled more than one ITART diagnostic category, whereas only 32 (27.1%) could be classified into a single category

Table 2. Distribution of ITART Categories

Category	n (%)
Chronic	73 (61.9)
Recurrent	67 (56.8)
Steroid modified	48 (40.7)
Naïve	18 (15.3)
Recalcitrant	17 (14.4)
Tinea incognito	9 (7.6)

Table 2 shows the distribution of patients according to the ITART clinical diagnostic criteria. Chronic dermatophytosis was the most common category, affecting 73 (61.9%) patients, followed by recurrent dermatophytosis in 67 (56.8%) patients. Steroid-modified dermatophytosis was

identified in 48 (40.7%) patients, while naïve dermatophytosis, recalcitrant dermatophytosis, and tinea incognito were observed less frequently. The predominance of chronic and recurrent disease reflects the changing epidemiological pattern of dermatophytosis in India.

Table 3. Clinical-Laboratory Discordance

Finding	n (%)
ITART positive + Mycology positive	97 (82.2)
ITART positive + Mycology negative	21 (17.8)

Table 3 compares the clinical diagnosis based on ITART criteria with laboratory confirmation. Among the 118 patients diagnosed clinically using

ITART criteria, 97 (82.2%) showed positive KOH microscopy and/or fungal culture, whereas 21 (17.8%) had negative mycological findings.

Table 4. Factors Contributing to Diagnostic Challenges

Challenge	Clinical implication
Overlapping ITART categories	Difficult classification
Steroid-modified lesions	Altered morphology
Previous antifungal therapy	Reduced fungal burden
Mycological negativity	Diagnostic uncertainty
Similar appearance of eczema, psoriasis	Differential diagnosis difficult

Table 4 summarizes the major challenges encountered during the practical application of the ITART clinical diagnostic criteria. The most important challenge was the overlap of

multiple clinical categories in individual patients, followed by altered lesion morphology due to topical corticosteroid use. Previous antifungal treatment reduced the likelihood of

laboratory confirmation, while several inflammatory dermatoses closely mimicked dermatophytosis, contributing to clinical diagnostic uncertainty

Discussion

The present study evaluated the practical challenges associated with the application of the Indian Association of Dermatologists, Venereologists and Leprologists Task Force Against Recalcitrant Tinea (ITART) clinical diagnostic criteria in patients with suspected dermatophytosis. The findings demonstrated that although ITART criteria provide a standardized clinical framework, several limitations affect their routine clinical application. A major challenge observed in the present study was the considerable overlap among ITART diagnostic categories. Nearly 72.9% of patients fulfilled more than one ITART category simultaneously, indicating that chronic, recurrent, steroid-modified, and recalcitrant dermatophytosis frequently coexist. This overlap makes exclusive categorization difficult and may reduce the reproducibility of clinical diagnosis. Similar observations were made by the IADVL Task Force Against Recalcitrant Tinea, which acknowledged that these clinical entities often overlap and recommended individualized patient assessment rather than rigid categorization [5].

Another important finding was that 17.8% of patients who fulfilled ITART clinical criteria were mycologically negative. This discrepancy highlights one of the major limitations of relying solely on clinical diagnosis. Previous studies have shown that several inflammatory dermatoses, including eczema, psoriasis, seborrheic dermatitis, pityriasis rosea, and contact dermatitis, may clinically mimic

dermatophytosis, particularly following indiscriminate use of topical corticosteroids.[2,9] Therefore, laboratory confirmation by KOH microscopy and fungal culture remains essential whenever feasible.

Steroid-modified dermatophytosis accounted for 40.7% of patients in the present study, representing another important diagnostic challenge. Topical corticosteroid misuse alters the characteristic morphology of dermatophyte lesions by suppressing inflammation, producing atypical presentations, and reducing fungal load, thereby decreasing both clinical and mycological diagnostic accuracy. Dogra and Uprety described the widespread misuse of topical corticosteroid-containing fixed-dose combinations as one of the principal factors responsible for the changing epidemiology and atypical clinical presentation of dermatophytosis in India [2].

The predominance of chronic dermatophytosis (61.9%) and recurrent dermatophytosis (56.8%) observed in the present study further reflects the changing clinical spectrum of dermatophytosis in India. Similar findings have been reported by Pathania et al., who demonstrated that chronic and recurrent infections are becoming increasingly common because of poor treatment compliance, inappropriate antifungal therapy, steroid abuse, environmental factors, and host susceptibility[6].

Another challenge encountered during the application of ITART criteria was the changing epidemiology of dermatophyte species. In the present study, *Trichophyton mentagrophytes* was the predominant isolate among culture-positive cases. Similar observations have been reported by Nenoff et al., who demonstrated a nationwide epidemiological shift from

Trichophyton rubrum to the *Trichophyton mentagrophytes* complex, which has been associated with chronicity, recurrence, and reduced response to conventional antifungal therapy [3]. Tigga et al. also reported that infections caused by the *T. mentagrophytes* complex were more frequently associated with extensive disease and recurrent infections [8].

The present findings support the recommendation that ITART criteria should be considered a clinical classification system rather than a definitive diagnostic tool. Clinical diagnosis alone may overestimate active dermatophytosis because a proportion of clinically suspected patients remain mycologically negative. Similar conclusions have been drawn by Chanyachailert et al., who emphasized that direct microscopy and fungal culture continue to represent the cornerstone of laboratory diagnosis despite advances in clinical classification systems [4].

Overall, the present study demonstrates that although ITART criteria have significantly improved standardization of dermatophytosis terminology in India, their application is challenged by overlapping clinical categories, atypical steroid-modified lesions, changing fungal epidemiology, and discordance between clinical and laboratory findings. Therefore, integrating ITART-based clinical assessment with routine KOH microscopy and fungal culture is likely to improve diagnostic accuracy and facilitate appropriate therapeutic decision-making. [4-5]

Conclusion

The ITART clinical diagnostic criteria provide a standardized approach for classifying dermatophytosis; however, significant challenges remain in their practical application. Overlapping diagnostic categories, steroid-modified

lesions, atypical clinical presentations, and discordance with mycological findings reduce the specificity of clinical diagnosis. Routine KOH microscopy and fungal culture should therefore complement ITART-based clinical assessment, particularly in chronic, recurrent, and steroid-modified dermatophytosis.

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