Trichophyton indotineae in Ireland

A Case Series of Antifungal-Resistant Dermatophytosis at University Hospital Galway

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BACKGROUND

Trichophyton indotineae has emerged as a principal driver of difficult-to-treat, antifungal-resistant dermatophytosis worldwide. Formally described as a distinct species in 2020, it cannot be reliably distinguished from related species by conventional culture alone – ITS-region molecular sequencing is required for definitive identification. Its geographical footprint has expanded exponentially, rising from 2 published studies in 2019 to 37 in 2024, and has now been identified in 41 countries across 6 continents. The Indian subcontinent accounts for 48.2% of global isolates, with *T. indotineae* largely displacing *T. rubrum* as the dominant dermatophyte in endemic regions. A significant paradigm shift is now underway in Europe – European studies represent 24.3% of isolates, and UK reference laboratory data indicate *T. indotineae* constitutes >30% of all referred dermatophytes in 2024–2025. Resistance to terbinafine, the standard first-line systemic antifungal, is documented in up to 72% of isolates in endemic regions, with rising rates in non-endemic regions. Transmission occurs via direct skin contact, shared fomites (bedding, towels), and potentially zoonotic routes, with intrafamilial spread well documented. The cases presented here are among the first reported in Ireland, highlighting the need for heightened national clinical awareness.

AIMS

To describe the clinical presentation, diagnostic challenges, and management of T. indotineae in a novel Irish cohort – among the first reported cases in Ireland.

METHODS

Study design: Retrospective case series
Setting: Dermatology service, University Hospital Galway
Period: 2024–2026
Diagnosis: Mycological culture + molecular sequencing
Susceptibility: MIC-based antifungal susceptibility testing performed in all confirmed cases
Ethics: Patient consent obtained for all cases included in this series

ANTIFUNGAL SUSCEPTIBILITY PROFILE

MIC-based susceptibility testing was performed on all confirmed T. indotineae isolates. Results are summarised below:

Case	Terbinafine	Fluconazole	Itraconazole	Griseofulvin
1	R	R	S	S
2	S	S	S	S
3	—	R	S (0.5)	MIC 2

R = Resistant S = Sensitive — = not formally tested

RESISTANCE CONTEXT (GLOBAL DATA)

Terbinafine: Resistant in up to 72% of isolates in India. Globally 65.4% (CLSI, MIC ≥4 µg/mL). Clinical resistance in ~82% of cases. Dominant mechanism: Phe397Leu SQLE mutation (46.8%). SQLE-mutant isolates have median cure of 16 weeks vs 8 weeks (wild-type).

Itraconazole: Emerging resistance: 23.7% in Canada, 14% in India.

Fluconazole: 89.1% of isolates resistant (CLSI, MIC ≥4 µg/mL). Avoid.

Griseofulvin: Generally poor systemic activity. Topical application showed unexpected efficacy in our most refractory case†.

Voriconazole / Posaconazole: Extended-spectrum triazoles for multi-drug refractory disease. Reserve for specialist-guided use.

CASE SUMMARIES

1 — 33F • from India • 4-year tinea corporis, refractory

⚠ *Terbinafine & fluconazole resistant*

History: 4-year history of spreading pruritic rash unresponsive to multiple antifungal courses including itraconazole and fluconazole. Originally from India, resident in Ireland for approximately one year.

Examination: Multiple annular scaly plaques with raised active borders affecting right neck, jawline and bilateral buttocks.

Investigations: Mycological culture and molecular sequencing confirmed *T. indotineae*. Terbinafine and fluconazole resistant. Itraconazole and griseofulvin sensitive on MIC testing.

Treatment: Itraconazole 100mg OD x 8 weeks. Topical adjuncts; griseofulvin oral suspension and ketoconazole 2% wash twice weekly.

Outcome: Complete clinical resolution at follow-up. Residual post-inflammatory hyperpigmentation only. Discharged to primary care.

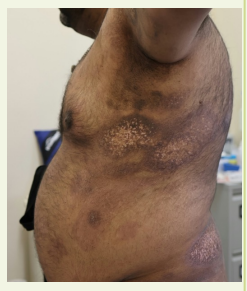
Patient preferred not to share clinical photographs

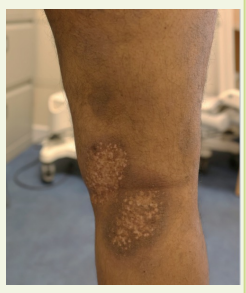
2 — 43M • from Pakistan • Years-long refractory diffuse rash

⚠ *Pan-sensitive T. indotineae*

History: Years-long recalcitrant rash with multiple topical antifungal treatment failures. Originally from Pakistan, residing in Ireland >20 years. Rash preceded his arrival in Ireland. GP referred to Dermatology querying psoriasis.

Examination: Large annular plaques with central clearing and overlying scale across torso and limbs.





Investigations: Initial biopsy showed interface dermatitis pattern. Positive anti HMGCR antibodies on an autoimmune panel further complicated the clinical picture. Ultimately, skin scrapings sent for mycological culture and molecular sequencing confirmed pansensitive *T. indotineae.*

Treatment: Itraconazole 200 mg OD × 8 weeks.

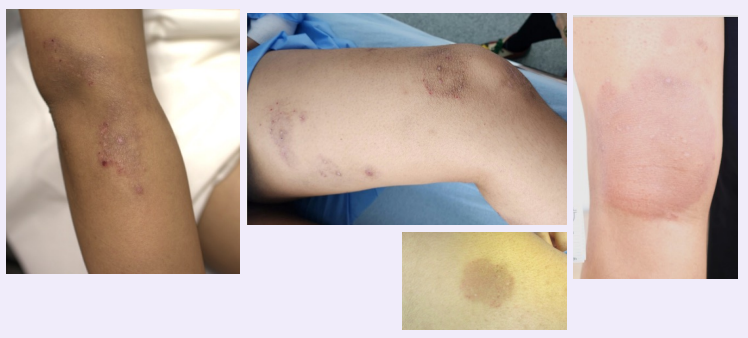
Outcome: Pruritus fully resolved. Lesions clinically inactive at review. Post-treatment cultures negative.

3 — 17F • from Bangladesh • Recurrent, highly refractory rash

⚠ *Fluconazole resistant; failed multiple prolonged itraconazole courses*

History: Initially presented with a 2-month history of severely pruritic recurrent eruptions. Resident in Ireland for 1 year. Secondary school student. No affected family members or household contacts. Quality of life significantly impacted.

Examination: Widespread annular lesions with peripheral scale and inflamed active borders: lower limbs, back, chest.



Investigations: Initial skin scrapings grew *trichophyton interdigitale.* Biopsy showed fungal hyphae on PAS staining. Repeat scrapings confirmed *T. indotineae.* Fluconazole resistant. Griseofulvin MIC 2. Itraconazole MIC 0.5 µg/mL.

Treatment: Multiple extended courses of Itraconazole were completed. Two 8-week courses of 100mg daily and an 8-week course of 200mg daily. Active lesions recurred despite treatment. Trial of topical griseofulvin oral suspension applied directly to residual lesions†, informed by prior published UHG observation.

Outcome: Full clinical resolution following topical application of oral griseofulvin solution daily x 6 weeks

DISCUSSION

Diagnostic delay: All three cases had significant diagnostic delay. Routine culture cannot distinguish *T. indotineae* from related species. ITS molecular sequencing is essential. Globally, 36.9% of cases present with multifocal or atypical morphology. *T. indotineae* has been documented at nearly every cutaneous site, from tinea faciei to tinea universalis . Lesions can mimic eczema or psoriasis, particularly post-corticosteroid use.

Terbinafine resistance: Globally, 65.4% of CLSI-tested isolates carry resistance, driven by Phe397Leu SQLE mutations. Clinical resistance confirmed in ~82% of MIC-concordant cases. Empiric terbinafine should be avoided in South Asian patients with treatment-refractory tinea.

Itraconazole: Extended itraconazole (100–200 mg OD × 8 weeks) was the cornerstone of therapy for Cases 1 and 2, consistent with literature reporting mean cure at ~6.6 weeks. Higher doses give faster responses. Emerging resistance (23.7% Canada; 14% India) warrants vigilance.

Novel topical griseofulvin †: Full resolution in our most refractory patient (Case 3) using topically applied griseofulvin oral suspension, a treatment decision informed by a prior UHG-published observation. Despite generally poor systemic activity, topical delivery may circumvent pharmacokinetic limitations. Warrants prospective evaluation.

Public health implications: Household contacts should be evaluated and treated. Antifungal stewardship, including avoidance of indiscriminate topical corticosteroids, is critical to limit resistance emergence and community spread.

CONCLUSIONS

1. **Suspect early:** Consider *T. indotineae* in any patient with recalcitrant, widespread tinea – especially those with South Asian travel or family links. Disease may persist for months to years without appropriate diagnosis.
2. **Diagnose correctly:** ITS molecular sequencing and MIC-based antifungal susceptibility testing are essential. Conventional culture cannot reliably identify this species. Do not rely on morphology or culture alone.
3. **Treat appropriately:** Avoid empiric terbinafine. Extended itraconazole (100-200 mg OD × 6-8 weeks) is the current mainstay of treatment. Dose escalation to 400 mg/day may be appropriate in severe or resistant cases.
4. **Prevent transmission:** Assess and treat household contacts. Advise on hygiene: launder clothing and bedding at high temperatures, avoid sharing personal items, and consider household pets as potential reservoirs.
5. **Novel salvage therapy†:** Topical griseofulvin oral suspension achieved full resolution in our most refractory case (Case 3), building on a prior UHG-published observation. This may represent a novel option for difficult-to-treat infections.
6. **National awareness:** These cases are among the first reported in Ireland. Clinicians should maintain heightened vigilance and report cases to support national epidemiological surveillance of this emerging pathogen.

KEY REFERENCES

1. † Carroll E, Leahy M, Stanciu M, Laing M. Trichophyton indotineae: first case in Ireland and response to topical griseofulvin. Clin Exp Dermatol. 2024;49(12):1707–1708. doi:10.1093/ced/llae264
2. Gupta AK et al. Global Emergence of T. mentagrophytes ITS Genotype VIII (T. indotineae): A Scoping Review 2019–2025. Infect Drug Resist. 2026;19:592684
3. Jabet A et al. Trichophyton indotineae, from epidemiology to therapeutic. J Med Mycol. 2023;33(3):101383
4. Ebert A et al. Alarming India-wide phenomenon of antifungal resistance in dermatophytes: a multicentre study. Mycoses. 2020;63(7):717–728
5. Khurana A et al. Effect of different itraconazole dosing regimens on cure rates in tinea corporis/cruris. JAMA Dermatol. 2022;158(11):1269
6. Czerniewska A et al. Rapid emergence of T. indotineae in the UK, up to August 2025. Eurosurveillance. 2025;30(49):2500892

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