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Original Research

Treatment of Recalcitrant Dermatophytosis Using Combined Oral Acyclovir and Oral Antifungal: A Case Series

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Abstract

Objective: The purpose of this study was to evaluate the efficacy of combination therapy with oral acyclovir and antifungal drugs in addressing persistent dermatophytosis, particularly in patients with viral co-infections and impaired immune systems. **Methods:** A prospective study was performed on eight patients with persistent fungal infections who were all treated with a combination of antifungal drugs, oral acyclovir, topical steroids, antihistamines, and supportive care. Patient outcomes were monitored over six months. Recovery time and the efficacy of preventive courses were assessed. **Results:** All patients were fully recovered within six months. Symptoms subsided within 2-4 weeks, and full recovery occurred in 6-8 weeks. Preventive courses helped to avoid relapses. Combining antiviral and antifungal drugs proved valuable, especially in cases of treatment resistance or recurring infections. **Conclusion:** The study focuses on the potential benefits of combining oral acyclovir with antifungal medications for treating recalcitrant dermatophytosis. This method is a promising strategy for improving outcomes in difficult cases, particularly for patients with viral co-infections. Further research with controlled studies is necessary to confirm these findings.

Keywords: Dermatophytosis, recalcitrant fungal infections, acyclovir, antifungal therapy, combination treatment, viral co-infections, immune compromise.

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INTRODUCTION

Fungal infections are classified into superficial, subcutaneous, and systemic infections, considering superficial cutaneous fungal infections the most prevalent in hot and temperate climates[1]. It affects around 20% to 25% of the population globally[2]. Superficial fungal Infections are mainly triggered by a group of keratinophilic fungi identified as dermatophytes that attack the skin and appendages of keratin, namely

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Epidermophyton, Trichophyton, and Microsporum. On the other hand, non-dermatophyte fungi and yeast can also give rise to superficial fungal infections[3,4]. It is noted that patients suffering from dermatophytoses have high dermatology life quality index (DLQI) scoring, with the disease negatively affecting their financial, psychological, and social lives[5].

Recurrent, reinfection, relapse, resistant, and persistent tinea are termed recalcitrant dermatophytoses[6]. The evolving resistance to most topical and systemic antifungals utilized in dermatophyte treatment has recently become a challenging public health subject worldwide[7,8]. Expected causative factors implicated in the failure of therapeutic response to antifungals are fungal virulence, impaired host immunity, antifungal drug resistance, and ecological factors[9]. Host response to fungal infections relies on non-immunological inhibitory factors and cell-mediated immunity systems in which monocytes, specifically macrophages, play a crucial role[10].

Innate immune responses to the fungal invasion were observed in murine studies where macrophage recruitment to the site of infection was the first step, followed by a fungal engulfment process known as phagocytosis. Phagosome-containing engulfed fungi fuse with the lysosome, ending in phagolysosome formation and fungal degradation[11]. Accordingly, any defect in macrophage homeostasis will lead to a faulty immune response to fungal infections, as macrophages may act as reservoirs that promote fungal persistence and spreading. It is likely that dual infections at the level of macrophages will initiate interactions ending in disease aggravation. HSV-1 and fungal coinfection cases were reported in which HSV-1 caused impaired antifungal immune response through macrophage malfunction[12] .One study predicted that macrophages in immunocompetent patients may defeat HSV spreading through phagocytoses. However, macrophages will be infected abortively[13]. Quiescent viral infection at the level of macrophages is not exclusive to HSV; numerous viral strains can act similarly, for example, influenza, dengue, rabies, and many other viruses[14].

Most clinicians, scientists, and researchers have been working hard to solve the mystery of recalcitrant fungal infections, focusing on antifungal resistance. This time, we planned to think outside the box and pay attention to the possibility of impaired host immunity at the level of macrophages due to quiescent viral infections that will render them incapable of overcoming fungal infections. Our prediction depends on the fact that viral infections worldwide have increased since the COVID-19 pandemic, increasing the likelihood of aborted macrophage viral infections. HSV1 infection is one of the most common, precisely as it is one of the most common viral infections globally, and as we included earlier, dual infections of both HSV1 and fungal infections end by faulty macrophages' antifungal response.

From this scope, we will introduce our case series of recalcitrant dermatophytoses who suffered from their conditions for more than three months and failed to respond to the standard (broad spectrum) topical and oral antifungals despite high Compliance with the treatment.

Rationale and Mechanisms of Combined Antifungal and Antiviral Therapy

In cases with resistant dermatophytosis, the combination of antifungal and antiviral treatments is justified by the theory that quiescent viral infections, especially HSV-1, affect macrophage function, which in turn compromises antifungal immune responses. Macrophages play a central role in fungal clearance via phagocytosis and cytokine-mediated immune activation[15-17]. HSV-1 infection disrupts macrophage activity by inhibiting phagocytosis and immune signaling pathways, creating an environment conducive to fungal persistence. When antifungal and antiviral drugs are used together, they kill the fungal pathogen and reduce viral interference, which successfully restores macrophage function[18-20]. This method offers a credible explanation for the improved treatment outcomes observed in our study.

Further, the impairment of macrophage function by HSV-1, including inhibition of inflammasome activation and cytokine release, exacerbates the challenge of fungal clearance. The importance of this disturbance is highlighted by macrophages' pivotal role in antifungal immunity since HSV-1-induced functional deficiencies in phagocytosis and immunological signaling impair the host's capacity to combat fungal infections successfully[21,22].

MATERIALS AND METHODS

Study design and patients

This was a prospective study in compliance with the norms set by the local ethics guidelines. All participants were specifically informed of the study's demands, and written patient consent was obtained from each of these eight people. The recruitment was done continuously from a dermatology clinic in Abu Dhabi, UAE, over 2023–2024, and we included them. We included patients with recalcitrant dermatophytosis and excluded those with immunosuppression or taking immunosuppressive medications.

Intervention

After reviewing the patient's history and performing clinical examinations, including testing for herpesvirus antibodies Immunoglobulin G and Immunoglobulin M **(**HSV IgG and IgM), the diagnosis was confirmed by potassium hydroxide (KOH) testing. Every patient was given a conventional treatment regimen that included oral acyclovir and oral antifungals, such as terbinafine or itraconazole, based on the severity of the infection and the patient's features. Local symptoms were treated with topical medications, including steroids, antifungals such as ketoconazole, antihistamines for itching relief, and zinc oxide for skin irritation prevention.

Study Visits and Outcome Measures

Patients were evaluated over six months with regular follow-up visits. Baseline assessments were conducted. The primary goal was the resolution of dermatophytosis symptoms, while secondary outcomes were the time to symptom relief and full

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recovery, defined as complete healing with no recurrence. Laboratory tests were used to confirm the resolution of both fungal and viral infections. For patients who did not fully recover within the typical 4–6-week period, an extended course of combination therapy was administered.

RESULTS

Patient Demographics and Clinical Presentation in Patients with Dermatophytosis (Table 1).

Summary of Laparoscopic Findings of Patients with Dermatophytosis (Table 2).

Summary of Management, Follow-up, and Outcomes in Patients with Dermatophytosis (Table 3).

CASE 1

A married 39-year-old woman from Sudan has complained of frequent white vaginal discharge and severe vulval and submammary itching for the past year. After she saw an obstetrician, she was given the diagnosis of candidal vulvovaginitis. Oral antihistamines, topical antifungals administered once a week for three weeks, and oral antifungals for one month were all part of the initial therapy plan. She also saw a dermatologist for tinea cruris and was treated with steroids, topical antifungals, soap, and calming cream. However, the illness reappeared within ten days and continued for a year with multiple recurrences despite repeated topical and oral antifungal treatments. Her symptoms included severe itching, hyperpigmentation, erythematous scaly spots with erosions, active boundaries, and cheesy vaginal discharge. She did not have a chronic disease history, but there was a positive family history, as her husband suffers from a similar condition. Her completed blood count (CBC), renal function test (RFT), and liver function test (LFT) results were normal, but her HbA1c was 6.4%. The final diagnosis was recalcitrant tinea cruris and Candida vulvovaginitis. A revised therapy plan includes Acyclovir 800 mg five times per day for a week, itraconazole 100 mg for two weeks, and clotrimazole 500 mg vaginal pessaries weekly for three weeks. After two weeks of 180 mg of fexofenadine, a topical ointment containing mometasone furoate, miconazole, and zinc oxide was applied for two weeks. Despite this, after four days, she developed severe blisters, erythema, vesicles, and eroding macules, necessitating the use of topical Acyclovir for ten days. After two weeks, the patient's

Table 1. Patient Demographics and Clinical Presentation in Patients with Dermatophytosis.

	Case 1	**Case 2**	**Case 3**	**Case 4**	**Case 5**	**Case 6**	**Case 7**	**Case 8**
Age (years)	39	23	47	12	9	41	34	32
Gender	Female	Female	Male	Female	Male	Female	Male	Female
Nationality	Sudan	Syria	Sudan	Syria	Sudan	Emirate	Sudan	Sudan
Marital Status	Married	Single	Married	Single	Single	Married	Married	Married
Chronic Conditions	-	-	Hypertension, Gout	Liver Disease	-	Diabetes	-	-
Presentation / Duration	Severe, itchy rash, white vaginal discharge / One year	Severe, itchy rash / 18 months	Severe, itchy rash on penis / Nine months	Scaly scalp rashes / Two years	Dry rash on the right thumb / Six months	Itchy rash, intermittent vaginal secretions / Seven months	Severe itchy groin rash / Eight months	Severe, itchy rash on the genital area and thighs / Six months
Family History	+	+	+	+	-	+	+	+

Table 2. Summary of Laparoscopic Findings of Patients with Dermatophytosis.

	Case 1	**Case 2**	**Case 3**	**Case 4**	**Case 5**	**Case 6**	**Case 7**	**Case 8**
CBC	Normal	Normal	Normal	Normal	Not done	Normal	Normal	Normal
LFT	Normal	Alkaline Phosphatase: 120 U/L ALT: 44 U/L	Normal	Impaired	Not done	Normal	Normal	Normal
RFT	Normal	Normal	Normal	Normal	Not done	Normal	Normal	Normal
HbA1C	Normal	6.1	Normal	5.5	Not done	High	Normal	Normal
HSV1 IgM	Negative	1.1	Normal	Negative	Not done	Negative	Not done	Negative
HSV1 IgG	Positive (6.4)	Positive -2.5	Not done	Positive	Not done	Positive (4.6)	Not done	Positive
KOH Test	Not done	Positive	Positive	Not done	Not done	Positive	Positive	Not done

The investigations included **CBC** (Complete Blood Count), **LFT** (Liver Function Test), **RFT** (Renal Function Test), **HbA1C** (Glycated Hemoglobin), **HSV1 IgM** (Herpes Simplex Virus 1 Immunoglobulin M), **HSV1 IgG** (Herpes Simplex Virus 1 Immunoglobulin G), and the **KOH** test (Potassium Hydroxide test).

Table 3. Summary of Management, Follow-Up, and Outcomes in Patients with Dermatophytosis.

	Diagnosis	Initial Treatment Plan	Follow-up 1	Follow-up 2	Follow-up 3	Outcomes	Long-term Follow-up
Case 1	Recalcitrant tinea cruris, candidal vulvovaginitis	Acyclovir, Itraconazole, Clotrimazole pessaries, Miconazole Nitrate + Mometasone, zinc oxide + calamine	(4 days): Painful blisters appeared; examination showed vesicles and macules / Adjusted to topical acyclovir cream, Terbinafine	(2 weeks): Itching minor, pain and blisters resolved, vaginal discharge decreased / Continued Acyclovir, Itraconazole, Terbinafine	(6 weeks): Patient satisfied; only pigmentation remained/ Prescribed a third course of Acyclovir	Fully recovered	No relapse during 6-months follow-up
Case 2	Recalcitrant tinea corporis, tinea cruris, HSV infection	Itraconazole, Acyclovir, Cetirizine, Miconazole Nitrate + Mometasone, zinc oxide + calamine cream	(2 weeks): Rash improved; new blisters and vesicles appeared; patches varied in colour and size / Adjusted to topical Acyclovir, Lamifen, extended Itraconazole	(6 weeks): Rash resolved; no blisters; significant shrinkage of remaining patches / Extended Itraconazole + Lamifen	(8 weeks): All lesions cleared except for some blisters and patches on thighs / Prescribed another course of Acyclovir and Itraconazole	Body completely clear after 3 months, no new lesions or recurrence	No new lesions or recurrence after 3 months follow-up
Case 3	Penile dermatophytosis	Acyclovir, Itraconazole, Miconazole + Mometasone, zinc oxide + calamine, Cetirizine	(2 weeks): Lesion smaller, itching rare/Extended Itraconazole + Terbinafine	(1week): Lesion disappeared / Prescribed Acyclovir + Itraconazole	(2 months): No complaints, no itching/ Prescribed Acyclovir for 1 week, scheduled for monthly follow-ups	Fully recovered	No relapse during 6-months follow-up
Case 4	Recalcitrant tinea capitis	Terbinafine, Acyclovir, Miconazole Nitrate and Mometasone Furoate, Ketoconazole shampoo	(2 weeks): Rash color changed, erythematous plaques converted to into pigmented scaly patches/ Adjusted to topical acyclovir, Terbinafine	(1 month) mild scaling/ Terbinafine spray added BID (2 weeks)	(2 months): All lesions disappeared with no observation of any new lesions / Prescribed a third course of Acyclovir	Fully recovered	No relapse during 6-months follow-up
Case 5	Tinea manuum	Acyclovir, terbinafine, fucidin+ betamethasone, terbinafine, antifungal soap and moisturizing cream.	(1 month): the patch completely disappeared/ Terbinafine, terbinafine acyclovir suspension	(2 months): there were no complaints and no new lesions/ acyclovir suspension	-	Fully recovered	No relapse during 6-months follow-up
Case 6	Recalcitrant tinea cruris and candidal vulvovaginitis	Acyclovir, itraconazole, miconazole nitrate + mometasone furoate, zinc oxide + calamine, fucidin, fluconazole, clotrimazole, cetirizine, antifungal soap.	(2 weeks): reduction in itching, discharge and patches with pigmentation / prescribed Itraconazole and Terbinafine	(1 month): Itching rare; vaginal discharge resolved; most patches disappeared, but some pigmented patches persisted / prescribed Acyclovir, Itraconazole, Terbinafine and antifungal soap.	(2 months): No new lesions or itching; all patches resolved except post-inflammatory pigmentation/ prescribed Acyclovir and Terbinafine	Complete resolution of symptoms with persistent pigmentation.	No relapse during 6-months follow-up
Case 7	Recalcitrant tinea cruris	Acyclovir, Itraconazole, fucidic acid + mometasone Furoate, zinc oxide +Terbinafine, and antifungal soap	(1 month): No itching; all lesions resolved / prescribed Acyclovir, Itraconazole andTerbinafine	(2 months): No complaints or new lesions / continued Acyclovir	-	Fully recovered	No relapse during 6-months follow-up

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Case 8	Recalcitrant tinea cruris	Itraconazole, Miconazole Nitrate+ mometasone Furoate , zinc oxide+ calamine, Fexofenadine and antifungal soap.	**(2 weeks)**: Itching reduced, but burning sensation at lesion sites; patches decreased, some new patches appeared/ Prescribed Itraconazole, Terbinafine, Acyclovir, zinc oxide + calamine , cetirizine and antifungal soap	**(1 month)**: Itching occasional; no burning; most patches disappeared, remaining patches turned into pigmented lesions / Prescribed Acyclovir, itraconazole and terbinafine	**(2 months)**: No new lesions; complete resolution of symptoms / Continued Acyclovir	Fully recovered	No relapse during 6-months follow-up

symptoms improved, including decreased itching, vaginal discharge, crusted blisters, and brown scaly patches. Oral itraconazole and Terbinafine were prolonged for an additional two weeks. Her condition had greatly improved by the end of one month, and she was completely cured after six weeks. There were no signs of relapse eight weeks after treatment. Therefore, a third round of Acyclovir was given for one week. Six months later, the patient was still clear of recurrence and reinfection.

CASE 2

A 23-year-old Syrian woman suffered from a painful, itchy, and disfiguring body rash for 18 months. Despite seeing several dermatologists, her illness continued. Several diagnoses were made, including psoriasis and fungal infection. She tried numerous therapies over the months, including antifungal drugs, vitamin D supplements, steroids, and moisturizers, but none provided long-term relief. Upon examination, she revealed several red, scaly areas that covered more than 30% of her body. Her skin appeared abnormally dry and scraped from the acute itching. She had no chronic diseases, but several members of her family had the same condition. Her CBC and kidney function tests were also normal. However, her liver function tests revealed a slightly high Alanine Aminotransferase **(**ALT) level of 44 U/L. Her HSV1 IgG test results were also positive, and a KOH test indicated that she had a fungal infection. Based on these findings, recalcitrant tinea corporis and tinea cruris were diagnosed, which were exacerbated by a herpes simplex infection.

The treatment strategy includes Acyclovir 800 mg for one week, itraconazole 100 mg for two weeks, and a topical cream with mometasone and miconazole. In addition, she was given antihistamines, zinc oxide, moisturizers, and ketoconazole soap to reduce her symptoms. After two weeks of this treatment, her rash began to modify, with some lesions disappearing. However, new blisters formed, and the itching significantly decreased. Her medication was subsequently changed to include Acyclovir, itraconazole, lamifen cream, and antihistamines for another two weeks. By six weeks, her symptoms had much improved. The itching had subsided, the blisters had healed, and the rash had faded. The majority of the patches had shrunk in size. Her treatment was continued for another two weeks to guarantee a full recovery. At the eight-week follow-up, most of her lesions had healed, leaving only a few red, scaly patches and minor irritation. She had a further month of antifungal therapy and topical cream. Finally, after three months of constant treatment, she was completely healed, [Figure 1]. Her relatives, who had been treated using the same approach, also recovered successfully.

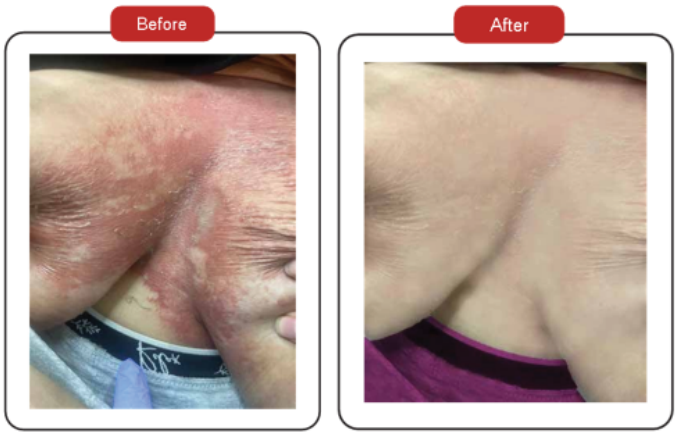

Figure 1. Treatment progress of patient with recalcitrant Tinea corporis and Tinea cruris with HSV infection.

CASE 3

A married 47-year-old man from Sudan complained of a terrible, ongoing, itching rash on his penis that had been plaguing him for the previous nine months. After speaking with another expert, tinea was suspected, although his first diagnosis was irritating contact dermatitis. He underwent multiple courses of oral and topical antifungal medicine, along with steroids, which caused him to experience brief remissions interspersed with relapses. His wife has the same condition, and his medical history includes hypertension. Upon examination, the patient had an ill-defined, pigmented, and moderately scaly patch on the glans penis that surrounded the meatal orifice. His lab findings, which included CBC, LFT, RFT, and HbA1c, were all within normal limits. HSV testing was not performed due to cost constraints. However, a KOH test showed the presence of a fungal infection, classifying him as having penile dermatophytosis. He was given 800 mg of Acyclovir five times a day for one week as part of his treatment and 100 mg of itraconazole for two weeks. He was also administered mometasone furoate in combination with

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miconazole for two weeks of topical use, as well as cetirizine 10 mg to treat allergies. Zinc oxide and calamine ointments were used to calm his skin, and ketoconazole soap was used to provide more moisture. After two weeks on this regimen, the patient had occasional itching, and the lesion had decreased to a smooth, light brown area. Following that, he received two weeks of oral itraconazole and Terbinafine. A month later, he noticed only a few instances of itching, and the patches had disappeared entirely. The next course of treatment was to take 800 mg of Acyclovir five times a day for one week and itraconazole 100 mg for one month. The patient reported no itching or visible lesions two months into this phase. During his final follow-up, he had a one-week course of Acyclovir, and thankfully, no relapses occurred.

CASE 4

A 12-year-old Syrian girl came to the dermatologist's clinic with almost two years' worth of scaly rashes on her head. At first, a fungal infection or psoriasis was suspected. Upon examination, she was found to have many well-defined, erythematous, scaly plaques on her scalp, although her hair was still intact. Her family history included multiple relatives. She also had a long-standing liver disease. The CBC, RFT, and Hemoglobin A1c **(**HbA1C) levels were all normal. Positive IgG and negative IgM antibodies verified her previous HSV1 infection; however, her LFT indicated some damage. The KOH test was not performed due to cost concerns. On these observations, the patient was diagnosed with intractable tinea capitis. Following consultation with a pediatrician, a treatment plan was implemented.

The patient was given Acyclovir 200 mg five times a day for one week and Terbinafine 250 mg for one month. In addition, a two-week topical regimen of mometasone furoate and miconazole was utilized, along with ketoconazole shampoo three times per week. Despite the treatment, there was no significant improvement. The first red rash deepened to brown and developed into brown scaly areas. The medication was modified in response, with an additional two weeks of topical Terbinafine. After one month, the patches had shrunk, and there was only minor scaling. The treatment was expanded to include another month of Terbinafine, topical therapy, one week of Acyclovir, and three times weekly ketoconazole shampoo. Two months into this treatment plan, the patient's condition improved significantly, with all lesions resolved and no new ones growing. The patient had topical antifungal treatment for an additional month, twice-weekly ketoconazole shampoo, Acyclovirof Acyclovir, and Terbinafine for maintenance. No relapse or recurrence over the six-month follow-up period [Figure 2].

CASE 5

A 9-year-old Sudanese boy came to the dermatology clinic with his mother, concerned about a six-month-long dry rash on his right thumb. Despite multiple treatments of antifungals and steroids, the rash did not improve. On inspection, we found a poorly defined, scaly, and erythematous fissured patch on the plantar side of his right thumb—no history of similar conditions or family history. Given the family's financial constraints, a clinical diagnosis of tinea manuum was given. The treatment regimen included Acyclovir 200 mg five times daily for one week, Terbinafine 250 mg for one month, and topical antifungal medication for the same period. In addition, a ten-day combination cream comprising Fucidin and betamethasone was administered, as well as antifungal soap and moisturizer. After one month, the rash had entirely resolved, with no

Figure 2. Treatment progress of patient with recalcitrant Tinea capitis

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more spots. Following this improvement, the youngster was prescribed half a tablet of Terbinafine for two more weeks, as well as the topical cream for Acyclovir and Acyclovir for another week. There were no new lesions two months after his first visit, Acyclovir was administered for another week as a precaution. The child had no symptoms at the six-month follow-up, and there was no sign of a relapse or recurrence, suggesting that the condition had been well treated.

CASE 6

A 41-year-old married Emirati woman presented at our clinic with a seven-month history of intermittent itching, rash, and vaginal discharge. She has tried numerous procedures without results. On examination, huge depigmented scaly patches with an erythematous border were seen, as well as cheesy white vaginal discharge, acute itching, excoriations, and lacerations. She had a history of diabetes, and her spouse had active tinea cruris. Lab testing revealed that her CBC, liver, and renal function were normal, but her fasting blood sugar (FBS) and HbA1c were excessive. A KOH test and a vaginal swab confirmed the presence of Candida albicans. Her HSV1 test resulted in negative IgM but positive IgG. The diagnosis was persistent tinea cruris and Candida vulvovaginitis. The initial treatment plan included Acyclovir 800 mg five times daily for one week, itraconazole 100 mg for two weeks, weekly clotrimazole 500 mg pessaries for three weeks, mometasone furoate with miconazole for two weeks, fluconazole 150 mg weekly for three weeks, cetirizine 10 mg for two weeks, zinc oxide with calamine for two weeks, antifungal soap, and Fucidin cream for ten days. The patient's skin patches, discharges, and itching all considerably improved after two weeks. After then, the course of treatment was changed to include two more weeks of terbinafine cream and continuation of itraconazole. Her symptoms had much subsided a month later; there were just a few areas left, and she was only sometimes scratching. She was prescribed acyclovir 800 mg for one week, itraconazole 100 mg for one month, terbinafine cream for one month, and told to keep using antifungal soap. Two months later, all symptoms had completely disappeared [Figure 3]. At her six-month follow-up, there was no evidence of relapse or recurrence, indicating complete recovery.

CASE 7

A 34-year-old married Sudanese man came to our clinic with a severe, intermittent, itchy rash on his groin that had been troubling him for eight months. On examination, we saw a broad, well-defined, scaly patch with deep pigmentation and an erythematous border in the pubic and groin areas. A fungal infection was found, but previous treatments with oral and topical antifungals did not produce total remission. He had no history of similar conditions or chronic diseases. The laboratory tests revealed a normal CBC, LFT, and HbA1C. A positive KOH test indicated the existence of a fungal infection. HSV Ig testing was not done due to cost constraints. The initial treatment regimen consisted of Acyclovir 800 mg, five times daily for one week, Itraconazole 100 mg for one month, and Clotrimazole 500 mg pessaries weekly for three weeks. He was also given antihistamines (fexofenadine 180 mg for two weeks and cetirizine 10 mg for two weeks), Mometasone Furoate with Fusidic Acid for two weeks, zinc oxide with calamine for one month, Terbinafine cream for one month, and antifungal soap. After one month of treatment, the patient stated that the itching had gone, and all the lesions had healed, with no new ones appearing. Acyclovir 800 mg for an extra week, Itraconazole 100 mg for two weeks, and Terbinafine cream for two weeks comprised the second phase of treatment.

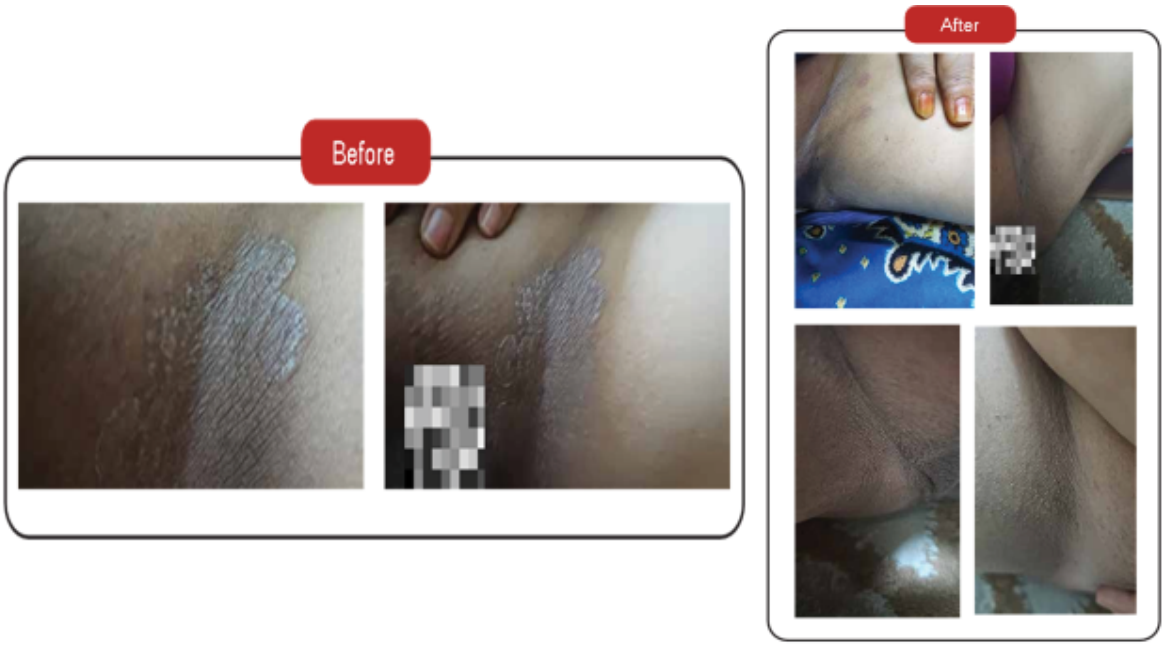

Figure 3. Treatment progress of patient with recalcitrant Tinea cruris and candida vulvovaginitis

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At the two-month follow-up, the patient had no symptoms, and no new lesions were discovered [Figure 4]. The fact that there were no signs of a relapse or recurrence six months later suggested that the condition had been successfully managed.

CASE 8

A 32-year-old married woman from Sudan has had a nasty, itchy rash on her private area and thighs for six months. She had not received complete relief despite repeated oral and topical antifungal medications. When examined, she had clearly defined, erythematous, and pigmented scaly regions with excoriations and active boundaries. She had no history of similar conditions or chronic disease. Her husband had a similar condition. All laboratory tests were normal, including CBC, RFT, LFT, and HbA1c. Her HSV1 test revealed negative IgM and positive IgG findings. Following these findings, she was diagnosed with intractable tinea cruris. The initial treatment regimen includes Acyclovir 800 mg, five times daily for one week, Itraconazole 100 mg for two weeks, Fexofenadine 180 mg for two weeks, Mometasone Furoate with Fucidic Acid for two weeks, zinc oxide with calamine for one month, and antifungal soap. The itching subsided after two weeks, but the patient complained of a persistent burning sensation and the appearance of new lesions. In response, the treatment was changed to include Itraconazole 100 mg for two more weeks, Terbinafine cream for two weeks, Acyclovir cream for two weeks, zinc oxide with calamine for another two weeks, Cetirizine 100 mg for two weeks, and continuing usage of antifungal soap. After one month, the occasional itching persisted, but most areas had vanished or transformed into brown, scaly patches, with no new lesions appearing. The treatment was extended to include an additional week of Acyclovir 800 mg, five times daily, Itraconazole 100 mg, and Terbinafine cream for one month. The patient was healed entirely two months later, with no new lesions [Figure 5]. At her six-month follow-up, she was symptom-free, with no relapses or recurrences.

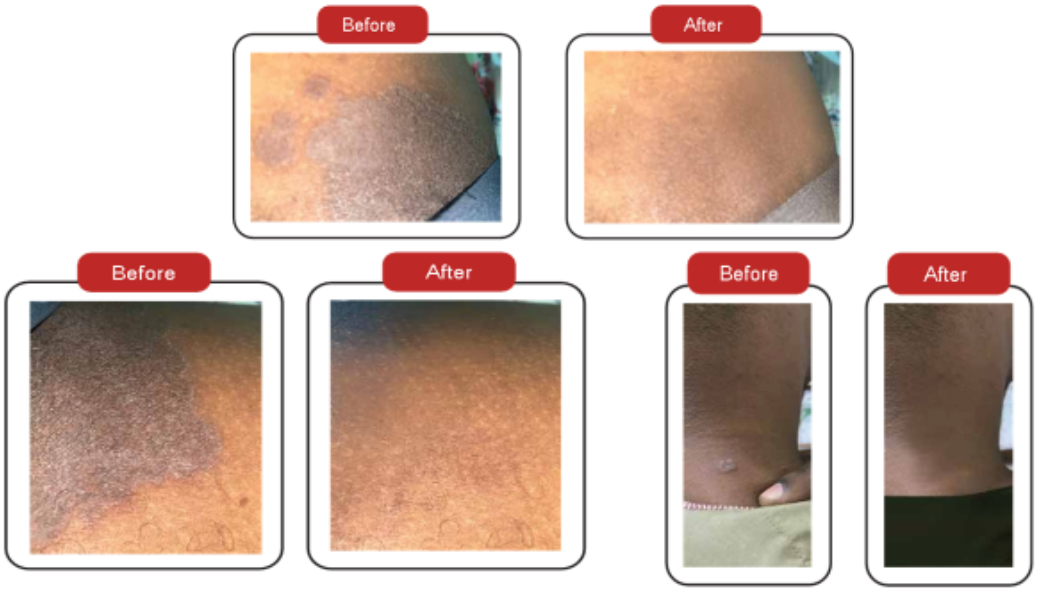

Figure 4. Treatment progress of patient with recalcitrant Tinea cruris.

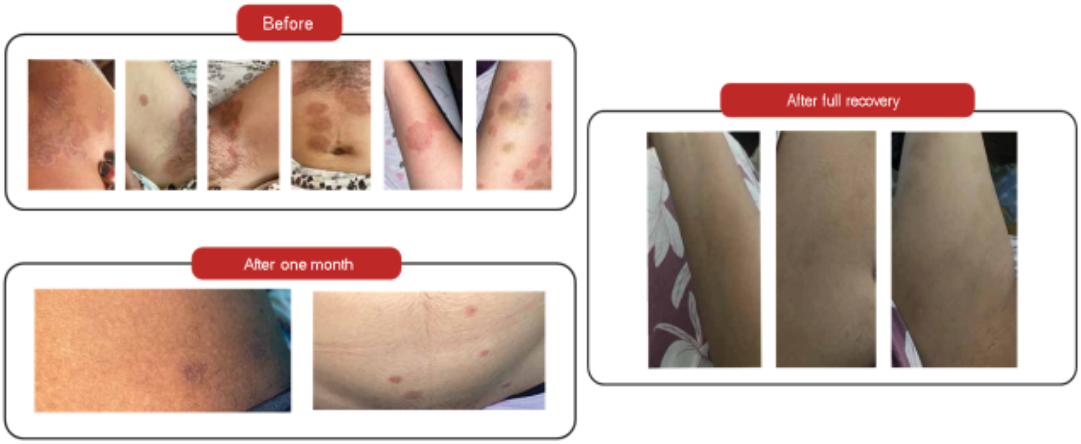

Figure 5. Treatment progress of patient with recalcitrant Tinea cruris.

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DISCUSSION

The cases presented show how well oral acyclovir and antifungal drugs work in combination therapy for treating recalcitrant dermatophytosis. Often, after unsuccessful prior treatments, all eight individuals saw great recovery. The patient group had a combination of Tinea and Candida infections, which usually affected the groin, genitalia, scalp, and even the entire body. Several cases involved tinea cruris, tinea corporis, and Candida vulvovaginitis, with one case of penile dermatophytosis, another of tinea capitis, and a few cases of HSV1 co-infection. Common symptoms were severe itching, erythematous scaly patches, scratch-induced lacerations, and, in some cases, well-defined pigmented lesions. These patients, despite receiving various treatment regimens (topical applications, steroids, and long-term antifungal drugs), experienced relapses soon after therapy finished. In these cases, higher doses and longer systemic antifungal treatment were more effective in eliminating fungal infections, in contrast to previous findings[23,24]. This intricacy is to be expected given the continued difficulties in treating dermatophytosis, which requires customized treatment regimens based on the particular traits, diagnosis, and other circumstances of each patient[25]. Since many patients either do not react to traditional antifungal drugs or have repeated infections, managing fungal infections has become more and more challenging. This global problem is most noticeable in cases of resistance, which can be caused by misuse of antifungals or longer therapy durations[26-29]. According to one study, it became harder to manage widespread somatic tinea when first- and second-line antifungal medications were taken continuously, highlighting the need for creative solutions[29]. Topical and systemic antifungal medications are still widely used; combination medicines provide greater efficacy and help to reduce resistance[30-32].

Our study contributes to this growing body of evidence by stressing the promising effect of antivirals when combined with antifungals. This technique has yet to be thoroughly investigated in the literature. A significant evolution in treatment occurred with the introduction of acyclovir, along with antifungals like terbinafine or itraconazole and antihistamines for symptom relief. This result is in line with experimental studies on the repurposing of antiviral drugs for fungal infections[33]. For example, one study found that combining Ribavirin with antifungal medicines like itraconazole improved results, especially in drug-resistant fungal species[34].

However, this is the first study to explore using acyclovir in combination with antifungal agents for recalcitrant dermatophytosis. This underscores our approach's novelty and potential significance in addressing dual infections, a growing challenge in the post-COVID-19 era.

Our case series included a combination of oral antifungals, acyclovir, topical steroids, antihistamines, and supportive measures like zinc oxide and ketoconazole soap. All of the patients had successful outcomes as a consequence of this overall-encompassing approach, which was essential in managing the chronicity and complexity of the disorders. After two to four weeks, the majority of patients experienced a full recovery by the end of the six to eight-week period. According to modern treatment guidelines, preventive therapy with acyclovir and antifungals was continued in a number of instances to prevent relapses[35]. By the time of the six-month follow-up, every patient had fully recovered.

Financial limitations impacted the ability of four patients to have diagnostic testing. With the right diagnosis and antiviral and antifungal therapy, all patients did, however, recover. These instances show how challenging it may be to treat persistent fungal infections, especially when they overlap with viral infections and other chronic illnesses. Fungal infections are more common in immunocompromised people, necessitating customized treatment approaches based on each patient's overall health and organ function[36]. A recent study investigated combination medicines, including immunotherapy, to boost immune responses to fungal antigens[37]. Misdiagnoses increase the risk of treatment resistance and mortality and can result in significant delays in recovery[38]. Further, our study found that a significant risk factor for dermatophytosis was having a family history of it, as seven patients out of eight have one or more of their relatives with the same condition, most probably because of sharing fomites, consistent with previous research[39-41].

Yet. In our study, substantial improvements are frequently observed within weeks once the appropriate treatment regimen is implemented. Clinicians should consider combination therapy as a possible approach for patients with persistent fungal infections.

Although the combination of antiviral and antifungal treatments produced encouraging outcomes, it is important to consider other factors that contribute to treatment success, such as improved patient adherence brought about by comprehensive care, regular follow-ups, and supportive therapies like zinc oxide and antihistamines. We can ensure a balanced interpretation of our findings by addressing these factors.

The retrospective nature of data collection introduces the potential for recall and selection biases. Furthermore, the limited sample size restricts the generalizability of our results. Financial constraints also precluded advanced diagnostic testing for some patients, which may have impacted the precision of diagnoses . We recommend in future research to consider randomized controlled trials to validate these findings explore the long term outcomes of the future therapy, and evaluate their wider implications. Further studies on the pharmacokinetics and pharmacodynamics of acyclovir when used alongside antifungals could help optimize treatment strategies.

CONCLUSION

Managing recalcitrant dermatophytosis remains a growing challenge, particularly in immunocompromised individuals. However, the encouraging results from this case series underscore the importance of developing novel, personalized treatment methods. The combination of oral acyclovir with antifungal therapies shows a significant effect on patient outcomes, warranting further exploration.

AUTHORS CONTRIBUTIONS

Narmin Hussain Fayed, Sami Fatehi Abdalla, Marafi Jammaa Ahmed, and Asim Ahmed Elnour: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Validation, Writing - original draft, and writing - review and editing; Nadia Al Mazrouei, Ahmad Mohammad Al Zamel, and Doha Sami Fatehi, Hiba A Babikir: conceptualization, validation, and writing - review and editing; Semira Abdi Beshir, Khalid Awad Al-Kubaisi: data curation, formal analysis, investigation, methodology, validation, writing- original draft, and writing-review and editing; Vineetha Menon, Ali Awadallah Ali Mohamed Saeed, Abdulla Al AMOODI, Elkhanssa Abdelhameed Ahmed Elhag, Abdelaty Shawky Mohamed: conceptualization, data curation, methodology, validation, and writing- review and editing.

CONFLICT OF INTERESTS

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

1. Jaishi VL, Parajuli R, Dahal P, Maharjan R. Prevalence and Risk Factors of Superficial Fungal Infection among Patients Attending a Tertiary Care Hospital in Central Nepal. Interdiscip Perspect Infect Dis. 2022;2022.
2. Ng'ang'a Z, Wambura M, Ogutu M, Namasaka M. Superficial mycoses among psychiatric patients in Mathari hospital, Nairobi, Kenya. East Afr Med J [Internet]. 2010 [cited 2024 Sep 18];87(9).
3. Del Boz-González J. Tinea Capitis: Trends in Spain. Actas Dermo-Sifiliográficas (English Edition). 2012 May 1;103(4):288–93.
4. Ameen M. Epidemiology of superficial fungal infections. Clin Dermatol. 2010 Mar 1;28(2):197–201.
5. Sahin I, Oksuz S, Kaya D, Sencan I, Çetinkaya R. Dermatophytes in the rural area of Duzce, Turkey. Mycoses [Internet]. 2004 Dec 1 [cited 2024 Sep 19];47(11–12):470–4.
6. Klevan J. Handbook of Nonprescription Drugs: An Interactive Approach to Self-Care, 17th Edition. American Journal of Health-System Pharmacy [Internet]. 2012 May 1 [cited 2024 Sep 19];69(9):806–806. Available from: https://dx.doi.org/10.1093/ajhp/69.9.806
7. Goldstein AO, Smith KM, Ives TJ, Goldstein B. Mycotic infections. Effective management of conditions involving the skin, hair, and nails. Geriatrics. 2000 May;55(5):40–2, 45–7, 51–2.
8. Robinson J. Fungal skin infections in children. Nursing Standard. 2012 Nov 14;27(11):52–8.
9. Hainer BL. Dermatophyte infections. Am Fam Physician. 2003 Jan 1;67(1):101–8.
10. Jagdish Chander. Dermatophytoses. In: Textbook of Medical Mycology. 3rd ed. New Delhi: Mehta publishers; 2009.
11. Fungal Infections Diagnosis and Treatment: 1/e 2017 - Kabir Sardana - بتك Google [Internet]. [cited 2024 Sep 19].
12. Dogra S, Uprety S. The menace of chronic and recurrent dermatophytosis in India: Is the problem deeper than we perceive? Indian Dermatol Online J [Internet]. 2016 [cited 2024 Sep 19];7(2):73. Available from: https://pubmed.ncbi.nlm.nih.gov/27057485/
13. Ebert A, Monod M, Salamin K, Burmester A, Uhrlaß S, Wiegand C, et al. Alarming India-wide phenomenon of antifungal resistance in dermatophytes: A multicentre study. Mycoses [Internet]. 2020 Jul 1 [cited 2024 Sep 19];63(7):717–28. Available from: https://pubmed.ncbi.nlm.nih.gov/32301159/
14. Jain A, Dhamale S, Sardesai V. Factors responsible for difficult to treat superficial fungal infections: A study from a tertiary healthcare centre in India. Mycoses [Internet]. 2021 Nov 1 [cited 2024 Sep 19];64(11):1442–7. Available from: https://pubmed.ncbi.nlm.nih.gov/33966290/
15. Wang Y, Pawar S, Dutta O, Wang K, Rivera A, Xue C. Macrophage Mediated Immunomodulation During Cryptococcus Pulmonary Infection. Front Cell Infect Microbiol [Internet]. 2022 Mar 24 [cited 2025 Jan 17];12:859049. Available from: www.frontiersin.org
16. Lionakis MS, Drummond RA, Hohl TM. Immune responses to human fungal pathogens and therapeutic prospects. Nature Reviews Immunology 2023 23:7 [Internet]. 2023 Jan 4 [cited 2025 Jan 17];23(7):433–52. Available from: https://www.nature.com/articles/s41577-022-00826-w
17. Fu YL, Harrison RE. Microbial Phagocytic Receptors and Their Potential Involvement in Cytokine Induction in Macrophages. Front Immunol [Internet]. 2021 Apr 29 [cited 2025 Jan 17];12:662063. Available from: www.frontiersin.org
18. Mukhopadhyay A, Indra S, Ghosh J, Biswas S, Palit P, Chattopadhyay D. Herpes simplex virus-mediated skin infections: cytokines and its interplay. Open Exploration 2019 4:3 [Internet]. 2024 Jun 30 [cited 2025 Jan 17];4(3):394–413. Available from: https://www.explorationpub.com/Journals/ei/Article/1003148?utm_source=chatgpt.com
19. Antony F, Pundkar C, Sandey M, Mishra A, Suryawanshi A. Role of IL-27 in HSV-1–Induced Herpetic Stromal Keratitis. The Journal of Immunology [Internet]. 2023 Aug 1 [cited 2025 Jan 17];211(3):474–85. Available from: https://dx.doi.org/10.4049/jimmunol.2200420
20. Cermelli C, Orsi CF, Ardizzoni A, Lugli E, Cenacchi V, Cossarizza A, et al. Herpes simplex virus type 1 dysregulates anti-fungal defenses preventing monocyte activation and downregulating toll-like receptor-2. Microbiol Immunol [Internet]. 2008 Dec 1 [cited 2025 Jan 17];52(12):575–84. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/j.1348-0421.2008.00074.x

21. Johnson KE, Chikoti L, Chandran B. Herpes Simplex Virus 1 Infection Induces Activation and Subsequent Inhibition of the IFI16 and NLRP3 Inflammasomes. J Virol [Internet]. 2013 May [cited 2025 Jan 17];87(9):5005. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC3624293/
22. Miettinen JJ, Matikainen S, Nyman TA. Global Secretome Characterization of Herpes Simplex Virus 1-Infected Human Primary Macrophages. J Virol [Internet]. 2012 Dec [cited 2025 Jan 17];86(23):12770. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC3497699/
23. Verma S, Madhu R. The Great Indian Epidemic of Superficial Dermatophytosis: An Appraisal. Indian J Dermatol [Internet]. 2017 May 1 [cited 2024 Oct 5];62(3):227. Available from: /pmc/articles/PMC5448256/
24. Rengasamy M, Chellam J, Ganapati S. Systemic therapy of dermatophytosis: Practical and systematic approach. Clinical Dermatology Review [Internet]. 2017 [cited 2024 Oct 5];1(3):19. Available from: https://journals.lww.com/cddr/fulltext/2017/01001/systemic_therapy_of_dermatophytosis__practical_and.4.aspx
25. Sahoo AK, Mahajan R. Management of tinea corporis, tinea cruris, and tinea pedis: A comprehensive review. Indian Dermatol Online J [Internet]. 2016 [cited 2024 Oct 5];7(2):77. Available from: /pmc/articles/PMC4804599/
26. Martinez-Rossi NM, Peres NTA, Bitencourt TA, Martins MP, Rossi A. State-of-the-Art Dermatophyte Infections: Epidemiology Aspects, Pathophysiology, and Resistance Mechanisms. Journal of Fungi [Internet]. 2021 Aug 1 [cited 2024 Oct 5];7(8). Available from: /pmc/articles/PMC8401872/
27. Ebert A, Monod M, Salamin K, Burmester A, Uhrlaß S, Wiegand C, et al. Alarming India-wide phenomenon of antifungal resistance in dermatophytes: A multicentre study. Mycoses [Internet]. 2020 Jul 1 [cited 2024 Oct 5];63(7):717–28. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/myc.13091
28. Verma SB, Panda S, Nenoff P, Singal A, Rudramurthy SM, Uhrlass S, et al. The unprecedented epidemic-like scenario of dermatophytosis in India: III. Antifungal resistance and treatment options. Indian J Dermatol Venereol Leprol [Internet]. 2021 Jun 30 [cited 2024 Oct 5];87(4):468–82. Available from: https://www.ijdvl.com/the-unprecedented-epidemic-like-scenario-of-dermatophytosis-in-india-iii-antifungal-resistance-and-treatment-options/
29. Gu D, Hatch M, Ghannoum M, Elewski BE. Treatment-resistant dermatophytosis: A representative case highlighting an emerging public health threat. JAAD Case Rep [Internet]. 2020 Nov 1 [cited 2024 Oct 5];6(11):1153. Available from: /pmc/articles/PMC7591325/
30. Jartarkar SR, Patil A, Goldust Y, Cockerell CJ, Schwartz RA, Grabbe S, et al. Pathogenesis, Immunology and Management of Dermatophytosis. Journal of Fungi [Internet]. 2022 Jan 1 [cited 2024 Oct 5];8(1). Available from: /pmc/articles/PMC8781719/
31. Shenoy M, Poojari S, Rengasamy M, Vedmurthy M, Barua S, Dhoot D, et al. Management of dermatophytosis: Real-world Indian perspective. Indian Dermatol Online J [Internet]. 2023 May 1 [cited 2024 Oct 5];14(3):347–56. Available from: https://journals.lww.com/idoj/fulltext/2023/14030/management_of_dermatophytosis__real_world_indian.5.aspx
32. Brescini L, Fioriti S, Morroni G, Barchiesi F. Antifungal Combinations in Dermatophytes. Journal of Fungi 2021, Vol 7, Page 727 [Internet]. 2021 Sep 5 [cited 2024 Oct 5];7(9):727. Available from: https://www.mdpi.com/2309-608X/7/9/727/htm
33. Capoci IRG, Faria DR, Sakita KM, Rodrigues-Vendramini FAV, Bonfim-Mendonça P de S, Becker TCA, et al. Repurposing approach identifies new treatment options for invasive fungal disease. Bioorg Chem. 2019 Mar 1;84:87–97.
34. Peyclit L, Yousfi H, Rolain JM, Bittar F. Drug Repurposing in Medical Mycology: Identification of Compounds as Potential Antifungals to Overcome the Emergence of Multidrug-Resistant Fungi. Pharmaceuticals [Internet]. 2021 May 1 [cited 2024 Oct 5];14(5). Available from: /pmc/articles/PMC8161392/
35. Mochizuki T, Tsuboi R, Iozumi K, Ishizaki S, Ushigami T, Ogawa Y, et al. Guidelines for the management of dermatomycosis (2019). J Dermatol [Internet]. 2020 Dec 1 [cited 2024 Oct 5];47(12):1343–73. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/1346-8138.15618
36. Malcolm TR, Chin-Hong P V. Endemic Mycoses in Immunocompromised Hosts. Curr Infect Dis Rep [Internet]. 2013 Dec [cited 2024 Oct 5];15(6):536. Available from: /pmc/articles/PMC4939090/
37. Kumar S, Kaur A, Kaur S. Autoimplantation Therapy in Extensive and Recalcitrant Dermatophytosis: A Case Series. J Clin Aesthet Dermatol [Internet]. 2021 Jan 1 [cited 2024 Oct 5];14(1):34. Available from: /pmc/articles/PMC7869813/
38. Azim A, Ahmed A. Diagnosis and management of invasive fungal diseases in non-neutropenic ICU patients, with focus on candidiasis and aspergillosis: a comprehensive review. Front Cell Infect Microbiol. 2024 Mar 5;14:1256158.
39. Shenoy MM, Rengasamy M, Dogra S, Kaur T, Asokan N, Sarveswari KN, et al. A multicentric clinical and epidemiological study of chronic and recurrent dermatophytosis in India. Mycoses. 2022 Jan 1;65(1):13–23.
40. Kavya C, Sara Thampi A, S MB, Thejaswi SR, Hosthota D, Hosthota A. CLINICO-MYCOLOGICAL STUDY OF DERMATOPHYTOSIS IN A TERTIARY CARE CENTRE. [cited 2024 Oct 5]; Available from: https://doi.org/10.48047/AFJBS.6.7.2024.4047-4053
41. Singh BhabaniSTP, Tripathy T, Kar B, Ray A. Clinicomycological study of dermatophytosis in a tertiary care hospital in eastern India: A cross-sectional study. Indian Dermatol Online J [Internet]. 2020 [cited 2024 Oct 5];11(1):46. Available from: https://journals.lww.com/idoj/fulltext/2020/11010/clinicomycological_study_of_dermatophytosis_in_a.8.aspx