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Treatment Survival and Reasons for Discontinuation in Patients with Recalcitrant Folliculitis Decalvans

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Due to the risk of scarring and the psychological impact on affected patients, folliculitis decalvans (FD) requires prompt and focused care to control inflammation and prevent disease progression. This study aimed to provide a comprehensive long-term evaluation of treatment outcomes in difficult-to-treat cases of FD by analysing the effectiveness of various therapies and identifying reasons for treatment switches or discontinuation. The single-centre, retrospective cohort study collected information on patient characteristics and management strategies, focusing on different treatment groups and reasons for discontinuation or switching. Eighteen patients with biopsy-confirmed FD were included in the study because of their recalcitrant course (38.9% females, median age 33.0 years), with a median follow-up period of 1.5 years. During the study period, all patients received at least one prescription for topical therapies, primarily non-antibiotic disinfectants, topical corticosteroids, topical antibiotics, and topical dapsone. Systemic antibiotics were prescribed for 88.9% of patients, predominantly tetracyclines and a combination of rifampicin and clindamycin. Non-biological systemic therapies, excluding steroids, were used in 61.1% of patients, with isotretinoin being the most common (27.8%). Among immunomodulatory drugs, apremilast was prescribed to 11.1% of patients. Overall, the highest treatment discontinuation rates were observed with systemic antibiotics (risk ratio: 1.63; 95% confidence interval: 1.46–1.82), followed by systemic steroids. The treatment of patients with severe FD requires a personalized, multifaceted approach, typically involving a combination of local and systemic therapies. Antibiotics are often used as a first-line treatment, but they are associated with a high rate of discontinuation. This highlights the urgent need for effective immunomodulatory treatments, either as alternatives or as adjuncts to current options.

Key words: discontinuation; efficacy; folliculitis decalvans; treatment survival.

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SIGNIFICANCE

This study emphasizes the urgent need for prompt and personalized treatment of folliculitis decalvans (FD) due to its potential for scarring and its significant psychological impact. By analyzing long-term outcomes in difficult-to-treat cases of FD, the study reveals high discontinuation rates of systemic antibiotics, which are commonly used as a first-line therapy. These results emphasize the limitations of current treatments and the need for more effective immunomodulatory options. This research advances the understanding of FD management by emphasizing a multifaceted approach that combines local and systemic therapies to better control inflammation, prevent disease progression, and ultimately improve patient quality of life.

Folliculitis decalvans (FD) is a primary neutrophilic scarring alopecia that accounts for 6% and 1%, respectively, of alopecia patients in the public and private sectors (1). Its aetiology is not fully understood (2–4). A familial association has been reported, suggesting a genetic background (5). FD causes inflammation of the scalp resulting in scarring alopecia. It preferentially affects young and middle-aged males and is characterized by pustules, papules, scarring, haemorrhagic crusts, and erosions (6). FD hair follicles have a specific heterogeneous follicular bacterial microbiota signature. In addition, these patients appear to have an impaired immune response (7).

Because of the risk of scarring and the psychological consequences for affected patients, FD deserves full attention and immediate care to stop the inflammatory process and halt disease progression. However, its poorly understood pathogenesis often makes successful treatment very difficult and frustrating. It has been suggested that microbial "superantigens" or cytotoxins that bind to major histocompatibility complex class II molecules may stimulate T cells, leading to excessive inflammation, but "escape" detection by the host immune system, and play a role in the pathogenesis (8). Thus, dysregulated host–pathogen interactions are assumed to be the trigger for an excessive immune response. *Staphylococcus aureus* is often cultured from typical FD-affected hair follicles, and its eradication is one of the primary goals of first-line antibiotic treatment. Unfortunately, gram-negative bacteria can also be isolated and bacterial biofilms can develop, increasing treatment resistance, promoting relapse, and requiring different treatment strategies (7).

There is a notable paucity of data on the efficacy of treatments specifically targeting FD (9, 10). However, some evidence for a faulty immune response has emerged from case series of patients with refractory FD treated with adalimumab and/or ixekizumab after failure to respond to conventional therapies (11, 12). In addition, other case series have shown that Janus kinase (JAK) inhibitors, such as baricitinib, may be an effective treatment option for refractory FD (13).

Drug survival, defined as the interval between initiation and ending of a drug, is an indicator of therapeutic success in the case of continuous treatment (14, 15). A short drug survival may reflect either a lack of efficacy, tolerability, or safety or, conversely, treatment-free remission. The current study aimed to provide a comprehensive understanding of the treatment outcomes in patients with FD by examining various therapies and identifying the reasons for switching or discontinuing each treatment. This approach sought to offer clearer guidance on achieving safe and effective disease control.

MATERIALS AND METHODS

This was a single-centre retrospective cohort study that included the patients with difficult-to-treat FD seen at the University Hospital of Bern, Switzerland, between July 2016 and May 2024. Patients without complete documentation, regular follow-up information, and informed consent were not considered for the study. The study was approved by the local ethical committee.

Collected data

For patients meeting the inclusion and exclusion criteria, the following information was collected: demographics, coexisting comorbidities, age at first complaint and at first diagnosis, clinical findings, and prescribed treatments. In addition, changes in prescribed treatments and reasons for discontinuation were recorded at follow-up.

Statistical analysis

Data were presented as medians with interquartile ranges (IQR) or numbers with percentages for continuous and categorical variables respectively. A longitudinal analysis of the risk of therapy discontinuation at follow-up was performed by using generalized estimating equations (GEE) with Poisson distribution and exchangeable correlation structure. Effects were expressed in terms of risk ratios (RR) along with 95% confidence intervals (CI) and *p*-values. Increased RR were interpreted as follows: >1 and <1.5 = low risk; ≥ 1.5 and <2 = moderate risk; ≥ 2 high risk (16). Discontinuation rates were derived from GEE and expressed as number of cases per 100 patient-months with their 95% CIs.

The trajectories of switching between different classes of therapies were shown using a directed graph representation. Switches were weighted based on their absolute frequency multiplied by a factor that diminishes over time from the baseline. This factor was an exponential decay function of the median switching time. Using Edmonds' algorithm (17), we computed the maximum spanning tree that connects all classes based on the most relevant trajectories of switching. This tree accounted for both frequency and temporal sequence of switching and highlighted the most important network patterns and hubs.

All tests were considered statistically significant at *p*-values <0.05. Analyses were performed with SPSS v.26.0 (IBM Corp, Armonk, NY, USA) and MATLAB v.9.1 (The MathWorks Inc, Natick, MA, USA).

RESULTS

A total of 18 consecutive patients (38.9% female) diagnosed with recalcitrant biopsy-proven FD were included in the study. The median age at first complaint was 27.5 years (IQR: 24.0–36.0), while the age at first diagnosis was 33.0 years (IQR: 28.0–46.0). Among other known comorbidities, the most frequent was diabetes mellitus (11.1%) (**Table I**).

The main complaints at baseline were skin lesions (72.2%) and pruritus (61.1%), although scaling, hair loss, and pain were also frequent (38.9%). The main clinical findings were scarring (77.8%), erythema (72.2%), crusting (66.7%), tufting (50.0%), and scaling (38.9%).

At baseline, hair loss/lesions were predominantly located in the vertex (55.6%) or occipital (50.0%) areas, with a patchy pattern in 84.6% of patients.

Treatments prescribed

During a median of 1.5 years (IQR: 0.8–3.8), all patients had at least 1 prescription for topical therapies,

Table I. Demographics and comorbidities of patients included in the study (*n* = 18)

Sex, *n* (%)	
Male	11 (61.1)
Female	7 (38.9)
Age at first complaint, years, median (IQR)	27.5 (24.0–36.0)
Age at first diagnosis, years, median (IQR)	33.0 (28.0–46.0)
Other known concomitant diseases	
Metabolic syndrome	1 (5.6)
Hypertension	1 (5.6)
Diabetes mellitus	2 (11.1)
Liver disease	1 (5.6)
Gastrointestinal disease	1 (5.6)
Other	2 (11.1)
Complaints[a]	
Hair loss	7 (38.9)
Pain	7 (38.9)
Pruritus	11 (61.1)
Burning	1 (5.6)
Redness	2 (11.1)
Scaling	7 (38.9)
Skin lesions	13 (72.2)
Secretion	4 (22.2)

[a]Multiple complaints, clinical findings, and localizations were possible.
IQR: interquartile range.

particularly non-antibiotic disinfectants (88.9%), topical corticosteroids (88.9%), topical antibiotics (66.7%), and topical dapsone (55.6%) (**Table II**). Systemic antibiotics were prescribed to 88.9% of patients, mainly tetracyclines (77.8%) and rifampicin plus clindamycin (61.1%). Systemic steroids were used in 11.1% of patients, while other non-biological systemic therapies were used in 61.1% of patients, mainly isotretinoin (27.8%). Among immunomodulatory drugs, apremilast was used in 11.1% of patients. When considering combinations of therapies, topicals plus systemic antibiotics were used by 83.3% of patients, followed by topicals plus other systemic therapies (55.6%).

Treatment discontinuation

Overall, the observed discontinuation rate during the study period was 31.0 per 100 patient-months (95% CI: 25.9–37.1). A longitudinal analysis of the risk of therapy discontinuation at follow-up is presented in **Table III**. Topical antibiotics (RR: 1.15; 95% CI: 1.01–1.31), systemic steroids (RR: 1.41; 95% CI: 1.26–1.59), dapsone (RR: 1.29; 95% CI: 1.06–1.56), and mycophenolate mofetil (RR: 1.48; 95% CI: 1.17–1.88) showed a significant low increased risk of discontinuation. A moderate increased risk was observed for rifampicin plus clindamycin (RR: 1.61; 95% CI: 1.30–1.99), tetracyclines (RR: 1.54; 95% CI: 1.31–1.81), and other systemic therapies (RR: 1.59; 95% CI: 1.24–2.04). When considering the class of treatment prescribed, only systemic antibiotics and systemic steroids showed a significant increased risk of discontinuation, while immunomodulatory drugs (apremilast) had a barely significant reduced risk of discontinuation (RR: 0.86; 95% CI: 0.74–1.01).

Reasons for discontinuation are given in Table SI. Topical therapies, systemic antibiotics, systemic steroids, and other systemic therapies were mainly discontinued because of partial response (37.2%, 63.6%, 40.0%, and 42.3% respectively).

Trajectories of switching

The trajectories of switching between different classes of therapy are shown in **Fig. 1**. The most relevant primary switching pattern was from topicals plus systemic antibiotics to topicals alone (18.1% of the total switches), although a smaller proportion of patients also switched initially from no therapy to topicals plus systemic antibiotics (2.8%). The main relevant secondary trajectory was from topicals alone to topicals plus other systemic therapies (4.2%). Immunomodulatory drugs (e.g., apremilast) were mainly used in combination with other therapies as a third-line treatment. The main hubs of the network, from which most switching patterns originated, were topicals plus other systemic therapies and topicals alone.

Table II. Therapies prescribed at any visit during the study period

	n (%)
Topical therapies	
Topical antibiotics	12 (66.7)
Topical non-antibiotic disinfectants	16 (88.9)
Topical corticosteroids	16 (88.9)
Topical dapsone	10 (55.6)
Topical isotretinoin	2 (11.1)
Local injection of cortisone	1 (5.6)
Other	6 (33.3)
Any	18 (100.0)
Systemic antibiotics	
Rifampicin + clindamycin	11 (61.1)
Tetracyclines	14 (77.8)
Other	1 (5.6)
Any	16 (88.9)
Systemic steroids	
Prednisolone	1 (5.6)
Other	2 (11.1)
Any	2 (11.1)
Other systemic therapies	
Acitretin	2 (11.1)
Isotretinoin	5 (27.8)
Dapsone	3 (16.7)
Mycophenolate mofetil	1 (5.6)
Zinc salts	1 (5.6)
Vitamins/supplements	1 (5.6)
Other	6 (33.3)
Any	11 (61.1)
Immunomodulatory drugs	
Apremilast	2 (11.1)
Combinations of therapies	
Top + Sys Antib	15 (83.3)
Top + Sys Other	10 (55.6)
Top + Sys Ster	1 (5.6)
Top + Immuno	2 (11.1)
Sys Antib + Immuno	1 (5.6)
Sys Other + Immuno	2 (11.1)
Top + Sys Antib + Sys Ster	1 (5.6)
Top + Sys Antib + Sys Other	5 (27.8)
Top + Sys Antib + Immuno	1 (5.6)
Top + Sys Ster + Sys Other	1 (5.6)
Top + Sys Other + Immuno	2 (11.1)
Top + Sys Ster + Sys Other + Immuno	1 (5.6)

Antib: antibiotics, Immuno: immunomodulatory drugs, Sys: systemic, Ster: steroids, Top: topical therapies.

Table III. Longitudinal analysis of the risk of therapy discontinuation at follow-up, according to the specific treatment prescribed or the class of therapy

Item	RR (95% CI)	*p*-value*
Topical antibiotics	1.15 (1.01–1.31)	0.03
Topical disinfectants	1.25 (0.97–1.61)	0.09
Topical corticosteroids	1.09 (0.87–1.35)	0.46
Topical dapsone	1.10 (0.84–1.44)	0.50
Topical isotretinoin	1.15 (0.79–1.67)	0.48
Other topical therapies[a]	1.49 (1.25–1.78)	<0.001
Rifampicin + clindamycin	1.61 (1.30–1.99)	<0.001
Tetracyclines	1.54 (1.31–1.81)	<0.001
Systemic steroids	1.41 (1.26–1.59)	<0.001
Acitretin	0.97 (0.72–1.31)	0.84
Isotretinoin	0.93 (0.70–1.22)	0.59
Dapsone	1.29 (1.06–1.56)	0.01
Mycophenolate mofetil	1.48 (1.17–1.88)	0.001
Other systemic therapies[b]	1.59 (1.24–2.04)	<0.001
Apremilast	1.05 (0.79–1.40)	0.72
Topical therapies	1.24 (0.78–1.97)	0.36
Systemic antibiotics	1.63 (1.46–1.82)	<0.001
Systemic steroids	1.49 (1.28–1.73)	<0.001
Other systemic therapies	1.21 (0.95–1.53)	0.12
Immunomodulatory drugs (apremilast)	0.86 (0.74–1.01)	0.06

[a]Including minoxidil and local injection of cortisone. [b]Including other systemic antibiotics, zinc salts, and vitamins/supplements.
CI: confidence interval, RR: risk ratio. *Generalized estimating equations with Poisson distribution including therapies.

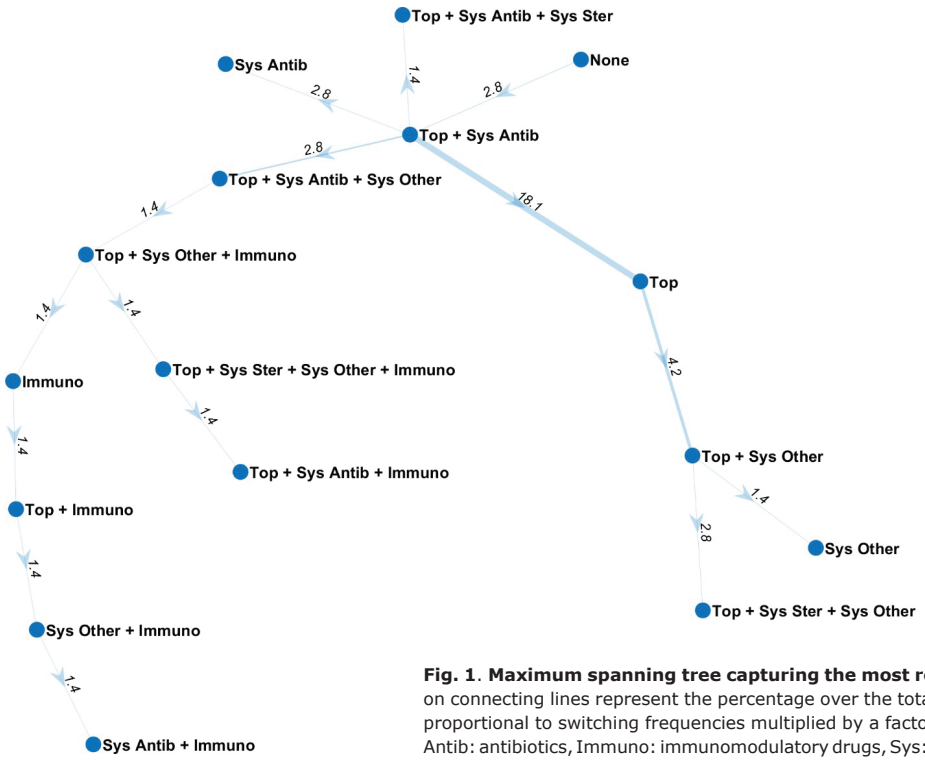

Fig. 1. Maximum spanning tree capturing the most relevant trajectories of switching. Numbers on connecting lines represent the percentage over the total number of switches ($n = 72$). Line widths are proportional to switching frequencies multiplied by a factor that diminishes over time from the baseline. Antib: antibiotics, Immuno: immunomodulatory drugs, Sys: systemic, Ster: steroids, Top: topical therapies.

DISCUSSION

FD often results in significant frustration and diminished quality of life for patients. The primary goal of treatment is early and effective intervention to halt the progression of scarring alopecia. However, all current treatments are off-label, and there is currently no long-term effective treatment for recalcitrant FD (18, 19). Treatment selection depends on disease severity as defined by size of affected area, lesion localization, inflammation level, symptom intensity, patients' comorbidities, as well as the cost and accessibility of treatment options. Conventional treatment approaches for FD typically involve a combination of topical and oral antibiotics, isotretinoin, and oral, topical, or intralesional corticosteroids (20). The approach to changing treatment has evolved in recent years with the availability of more effective and better tolerated drugs such as biologics. Therapies such as tumour necrosis factor (TNF) inhibitors have shown significant success in managing this sometimes difficult-to-treat disease (20).

In line with previous studies, most of our patients received combination therapy with both topical and systemic antibiotics, specifically rifampicin in combination with clindamycin, or tetracyclines. Oral antibiotics, particularly tetracyclines and the combination of clindamycin and rifampicin, have greater evidence of efficacy in reducing inflammation and alleviating clinical symptoms (18). Their efficacy in managing FD symptoms likely stems from the combined antibiotic and anti-inflammatory actions of these treatments (18).

In addition, some data have been published on the treatment of FD with isotretinoin or other retinoids in combination with antibiotics or with antibiotics and corticosteroids (21, 22). In our patients, both topical and systemic isotretinoin were also often used. In addition to inhibiting sebaceous lipid production and modification of sebaceous gland function, isotretinoin has a direct inhibitory effect on the immune system (21–24). It reduces the expression of several pro-matrix metalloproteinases and thus inhibits the migration of neutrophils into the skin (21, 25). It also reduces the expression of toll-like receptor 2, which mediates the immune response to gram-positive bacteria (21, 26). Therefore, this treatment can be considered as an interesting option for patients with FD (21).

In some cases, dapsone has also been given topically or systemically. Dapsone has immunoregulatory, antimicrobial, and anti-inflammatory properties; it inhibits myeloperoxidase, an enzyme essential to the oxidative burst produced by neutrophils and there is evidence that dapsone may alter neutrophil chemotaxis. Thus, it appears to be a suitable treatment for FD (21). Dapsone, especially topical dapsone, has shown good tolerability and high patient compliance. It may therefore be considered as a useful treatment regimen to reduce the frequency of outbreaks (27).

Based on recent case reports and small case series, systemic treatments such as small molecules or biologics could be used in refractory cases after standard therapies are exhausted or no longer effective (20), as summarized in **Table IV**. Currently, most clinical experience in the

Table IV. Summary of studies assessing the efficacy of small molecules or biologics

Author (year)	Study type	Treatment (dosing regimen)[a]	Duration[b]	Treatment response
TNF-alpha blockers				
Mihaljević et al. (2012) (30)	Case-report (45-year-old male patient)	Infliximab (5 mg/kg, intervals as in psoriasis patients)	12 months	After 3 infusions, lesions remitted rapidly and no recurrence was seen after 12 months
Kreutzer et al. (2014) (31)	Case series (3 female patients)[c]	Adalimumab (Humira®, 40 mg subcutaneously every 2 weeks)	2–3 months	Marked remission or stabilization was observed
Shireen et al. (2018) (28)	Case report (23-year-old male patient)	Adalimumab (biosimilar, 80 mg at week 0 and week 2 and then 40 mg at weeks 3, 4, 6, 8, 10, 12, 14, and 16, then 40 mg every 4 weeks)	6 months	Improved condition with hair regrowth; no recurrence of scalp lesions or pustules
Alhameedy et al (2019) (35)	Case report (54-year-old female patient)	Adalimumab (Humira®, 160 mg at week 0, 80 mg at week 2, then 40 mg every week)	3 months	Inflammation was repressed, and no new lesions appeared
Hoy et al. (2022) (9)	Case report (42-year-old male patient)	Certolizumab pegol (400 mg during the first 3 SC injections, then 200 mg every 2 weeks)	33 months	Patient-reported outcomes resolved strikingly, with markedly reduced scalp inflammation
Lobato-Berezo et al. (2022) (12)	Case series (3 male patients)	Adalimumab (biosimilar, 160 mg at week 0, 80 mg at week 2, then 40 mg every 2 weeks)	6–13 months	One worsened, 1 mildly improved, and 1 greatly improved
Iorizzo et al. (2022) (32)	Case series (6 female and 17 male patients)	Adalimumab (160 mg at week 0, 80 mg at week 2, and 80 mg every other week)	6–24 months	All patients showed clinical improvement from month 1, maintained throughout treatment
Dupont et al. (2023) (33)	Case series (6 female and 5 male patients)	Nine patients: infliximab (5 mg/kg, every 4–8 weeks); 2 patients: adalimumab (40 mg every 2 weeks); 1 patient: infliximab and then adalimumab 6 months later	12 months	At the end of follow-up, 5 patients were considered responders
Alsantali et al. (2023) (11)	Case report (40-year-old-male patient)	Adalimumab (Humira®, 80 at week 0, then 40 mg every other week)	10 months	No new areas of scarring alopecia or inflammation have appeared since starting adalimumab
Ramos et al (2024) (29)	Case report (39-year-old-male patient)	Adalimumab (160 mg at week 0, 80 mg at week 2, then 40 mg every week)	15 months	Asymptomatic patient with no active lesions
Andrade et al. (2025) (34)	Case report (33-year-old-male patient)	Adalimumab (dosage/interval as in hidradenitis suppurativa patients)	13 weeks	The patient showed marked improvement
JAK inhibitors				
Jerjen et al. (2020) (40)	Case series (1 female and 2 male patient)	Tofacitinib (2.5–5 mg/day)	10–16 months	Improvement observed in all patients
Moussa et al. (2022) (13)	Case series (2 female and 2 male patients)	Baricitinib (3.4 or 6.8 mg/day)	5–15 months	All patients showed symptom improvement and reduced inflammation
Other small molecules and biologics				
Ismail et al. (2020) (41)	Case report (30-year-old female patient)	Secukinumab (300 mg at weeks 0, 1, 2, 3, and 4, then 300 mg every 4 weeks)	7 months	Significant improvement in her condition with a reduction of inflammation
Fässler et al. (2020) (36)	Case report (28-year-old-male patient)	Apremilast (N/A)	25 weeks	Rapid improvement of lesions and pain, but flare-up occurred after 7-week discontinuation
Lobato-Berezo et al. (2022) (12)	Case report (26-year-old-male)	Ixekizumab (160 mg at week 0, 80 mg at weeks 2, 4, 6, 8, 10, 12, then 80 mg every 4 weeks from week 16)	12 weeks	Severe worsening
Dethier et al. (2024) (37)	Case report (56-year-old-male patient)	Apremilast (N/A)	44 months	Significant clinical improvement in was seen by month 2, with complete remission at month 7; after stopping apremilast at month 18, no recurrence occurred until 26 months later
de Viragh et al. (2024) (38)	Case series (9 patients)	Apremilast (various dosing regimen)	N/A	Treatment failure was observed in 3 patients; in another case, an initially positive response was reversed by relapse during treatment. Remission was only maintained in 3 patients with sustained therapy at the conventional dose of 30 mg twice daily, accompanied by other anti-inflammatory therapies. One patient could reduce the dose to 30 mg once daily every other day, but FD relapsed at 30 mg twice a week. Finally, 1 patient shows sustained remission

[a]The patients had undergone various systemic antibiotic and/or anti-inflammatory treatments prior to commencing small-molecule or biologic therapy. In some studies concurrent therapies were also noted. [b]Treatment duration and/or observed period. [c]Two cases of folliculitis decalvans and 1 case of therapy-refractory lichen planopilaris. FD: folliculitis decalvans; N/A: not available.

literature involves anti-TNFα agents, particularly adalimumab. Although nearly all studies report significant clinical improvement and symptoms such as pruritus and pain in a remarkable proportion of patients, the degree and rapidity of response are heterogeneous (9, 11, 12, 28–35). This variability may reflect differences in disease severity, clinical presentation, and dosing regimens, but it may also reflect heterogeneous molecular pathways of the disease, or only indirect or partial disease modulation by the therapeutic molecule, resulting in varying efficacy. Alternatively, these findings suggest that patients with FD might require higher doses of adalimumab, similar to those used in hidradenitis suppurativa (33). In addition, patients in studies often relapsed quickly, suggesting that sustained disease control requires prolonged treatment (31, 35). While discontinuation leads to recurrence, clinical improvement is observed upon re-initiation (32, 34). Apremilast (a phosphodiesterase 4 inhibitor) has also been reported as a possible alternative in previous reports (36–38). In the current study, apremilast was prescribed in 11.1% of cases. Inhibition of phosphodiesterase 4 alters the cytokine composition and produces an anti-inflammatory state, which is likely to lead to control of inflammation. As neutrophils are the predominant inflammatory cell in FD, the inhibitory effect of apremilast on neutrophil activity may explain its beneficial effect (36). Given the heterogeneity of FD, apremilast may not be successful for everyone. However, it has been confirmed as a valuable addition to the treatment options for difficult cases, both in our experience and in the experience of others (37, 38). Furthermore, JAK inhibitors may represent a promising new approach for treating scarring

alopecias refractory to standard therapies by targeting key inflammatory pathways (39) (Table IV). Jerjen et al. (40) and Moussa et al. (13) demonstrated the beneficial effects of tofacitinib and baricitinib, respectively, in the management of FD. Last but not least, the potential effect of IL-17 inhibitors has also been reported in some additional case studies (12, 41).

In our study, the primary switching pattern was from topicals plus systemic antibiotics to topicals alone, while the main secondary trajectory was from topicals alone to topicals plus other systemic therapies. Taking all treatments into account, the highest probability of discontinuation was observed in patients with systemic antibiotics – whether due to good response, partial response, no response, or adverse effects – observed in those using systemic antibiotics, particularly rifampicin and clindamycin (RR:1.61) and tetracyclines (RR: 1.54). Given the growing problem of antibiotic resistance, it is important to explore therapeutic alternatives that minimize the repeated use of systemic antibiotics and prolong periods of inflammation-free status (27). In contrast, inflammation-modulating treatments such as apremilast had a reduced risk of discontinuation (RR: 0.86), making it a more stable treatment option in patients requiring continuous therapy. Besides other treatments such as TNF-alpha inhibitors, apremilast appears to be one of the possible options given these data, suggesting its potential for long-term treatment at reasonable costs. However, in nearly all cases with good responses, apremilast was used alongside local and/or systemic anti-inflammatory treatments (37, 38).

In the study, the median time from the first complaint to the diagnosis of FD was over 5.5 years. Considering the significant impact this scarring form of alopecia can have on patients' quality of life, including emotional distress and irreversible hair loss, this delay highlights a critical window of opportunity that must not be overlooked. Early recognition and targeted treatment during the active inflammatory phase are critical to prevent irreversible scarring and optimize clinical outcomes. While clinical and histological evaluations remain essential, non-invasive diagnostic tools – such as trichoscopy and reflectance confocal microscopy (42) – have recently shown promise in folliculitis decalvans by improving diagnostic accuracy and facilitating earlier intervention. Incorporating these methods into routine practice could help reduce diagnostic delays and allow timely, tailored therapeutic strategies.

There are several limitations to this study. First, the small sample size limits the generalization of our results. The single-centre, retrospective design may also introduce selection bias and limit the applicability of the results to other settings. In addition, the length of follow-up varied considerably among patients, which may affect the consistency of the data. The study relied on medical records, which may not capture all relevant patient information or reasons for discontinuation. In addition, the lack of standardized treatment and assessment protocols may have influenced the choice and combination of therapies, adding another layer of variability.

This study highlights the need for tailored and holistic approaches to the treatment of recalcitrant cases of FD. The high dropout rates and frequent treatment changes highlight the challenges of managing this chronic disease. Future research should focus on larger, multicentre studies to validate these findings and explore new therapeutic options to improve treatment efficacy and patient outcomes. The results also suggest the potential benefit of developing standardized treatment guidelines to reduce variability in treatment choice and improv, and standardized questionnaires/documentation in future studies would allow for a more comprehensive understanding of the impact of primary cicatricial alopecia and its treatment on patients' lives. By addressing these limitations and building on current evidence, we can advance the management of primary cicatricial alopecia and ultimately improve outcomes for affected patients.

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