

FRONTAL FIBROSING ALOPECIA – CASE STUDY AND THERAPEUTIC APPROACHES

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Summary

Frontal Fibrosing Alopecia (FFA) is an inflammatory condition with a suspected autoimmune mechanism that leads to progressive scarring alopecia, predominantly affecting postmenopausal women [1, 2].

However, cases diagnosed in women of reproductive age raise new questions regarding pathogenic factors and therapeutic strategies. We present the case of a 51-year-old female patient with a history of vulvar lichen sclerosus, pathologically diagnosed with FFA. The patient's response to treatment and relapse following the discontinuation of topical therapy highlight the need for a sustained and individualized therapeutic protocol.

Keywords: *scarring alopecia, lichen planopilaris, autoimmunity, immunosuppressive therapy, alopecia progression.*

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Introduction

Frontal Fibrosing Alopecia (FFA), still considered a subtype of lichen planopilaris [3], was first described by Kossard in 1994. It is characterized by progressive scarring alopecia predominantly affecting the frontotemporal regions [4]. This condition is classified as a chronic inflammatory dermatosis in which autoimmune processes play a central role. It is marked by perifollicular inflammation, eyebrow alopecia (typically affecting the outer third), axillary and pubic hair loss, as well as facial involvement. Histopathologically, it presents with perifollicular lymphocytic infiltrate around the isthmus, along with a reduction in the

number of hair follicles, which are replaced by fibrotic areas [5].

Although its incidence is increasing, FFA occurs in 83–95% of cases among postmenopausal women (predominantly Caucasian and Asian) [3, 6, 7, 8, 9, 11], with an average onset between 56 and 63 years of age [3, 6, 10]. However, its etiopathogenesis remains incompletely understood, with hormonal, autoimmune, and genetic factors implicated [10]. While FFA predominantly affects postmenopausal women, with an average age of 66 years, cases have also been reported in younger women, men, and, rarely, children [11].

This article presents a case of FFA in a woman of reproductive age, highlighting its clinical and therapeutic particularities.

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Case Presentation

Medical History and Clinical Context

A 51-year-old Caucasian female presented to the Dermatology and Venereology Clinic of "Saint Apostle Andrew" Emergency Clinical County Hospital, Constanța, in October 2023, complaining of progressive hair loss in the frontal region and eyebrows.

The patient's medical history includes:

- Vulvar lichen sclerosus, histopathologically diagnosed at the age of 48 and treated surgically, with no recurrence.
- Family history: Father diagnosed with psoriasis vulgaris.
- Symptomatology: Alopecia onset at 48 years, initially affecting the eyebrows, followed by progressive hair loss in the frontal and frontotemporal regions.

Prior to presentation, the patient had undergone dermatocosmetic treatments and nutritional supplementation (vitamins, minerals), with no clinical improvement.

Clinical Examination and Investigations

Dermatological examination (Fig. 1 and Fig. 2):

- Well-demarcated frontotemporal scarring alopecia
- Frontal skin with solar elastosis, ephelides, and solar lentigines
- Near-total alopecia of the eyebrows



Figure 1 – Clinical aspect of frontal alopecia and eyebrow alopecia (October 2023)

Paraclinical Investigations:

- Dermoscopic examination (Fig. 3): Absence of hair follicles in affected areas, perifollicular erythema, and fine telangiectasias.
- Skin biopsy: Histopathological confirmation of FFA and lichen planopilaris (Fig. 4 and Fig. 5).
- Laboratory tests: Hematological and biochemical parameters within normal limits; negative results for anti-thyroglobulin antibodies, anti-TPO antibodies, anti-Ro antibodies, anti-La antibodies, and anti-dsDNA antibodies.
- Rheumatologic evaluation: No evidence of joint involvement.

Therapeutic Management and Disease Progression

Initial Therapeutic Protocol

In March 2023, the following treatment regimen was initiated:

Systemic treatment:

- Hydroxychloroquine (Plaquenil) 200 mg/day, with ophthalmologic and cardiologic evaluation prior to initiation and follow-up ophthalmologic assessment at six months.



Figure 2 – Clinical aspect of parieto-temporal alopecia, lateral right. (October 2023)

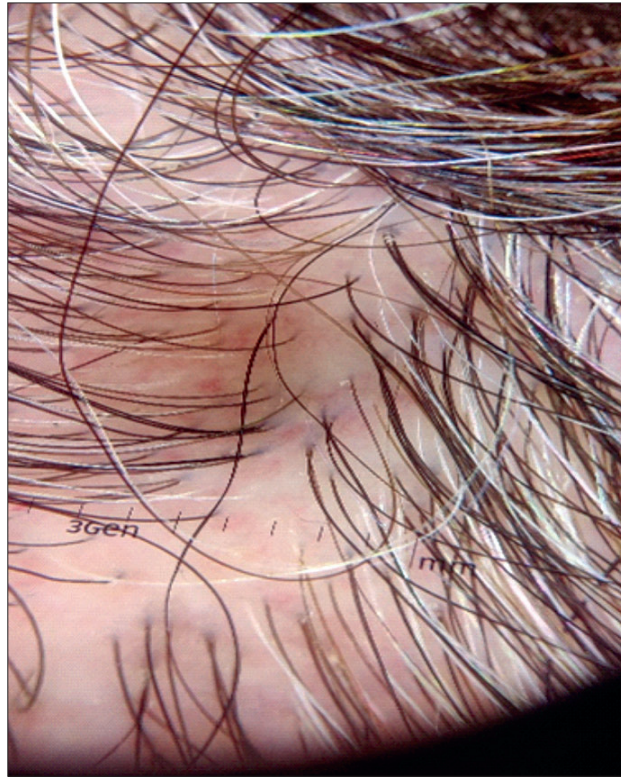


Figure 3 – Dermoscopic image under polarized light. Perifollicular erythema, perifollicular scaling, and fine telangiectasias.

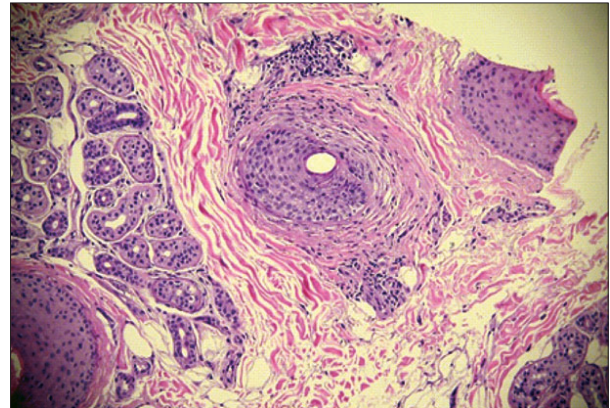
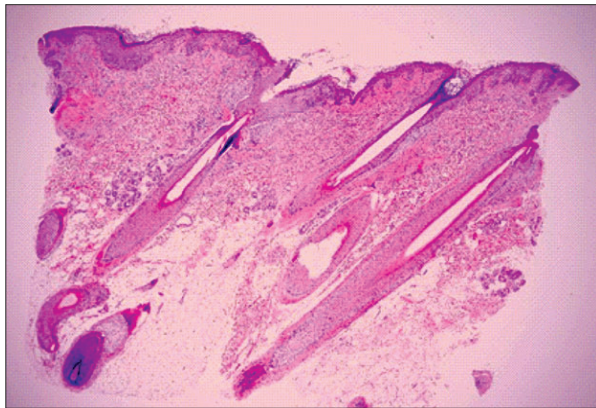


Figure 4 (col. HE, ob x5) and Figure 5 (HE staining, ob x20): Skin fragment with follicular scarring and perifollicular inflammatory infiltrate composed of lymphocytes and histiocytes, surrounding some of the remaining pilosebaceous units, predominantly at the infundibular level. Affected hair follicles exhibit concentric perifollicular fibrosis, vacuolar degeneration of basal epithelial cells, and necrotic epithelial cells. The histopathological changes are consistent with scarring alopecia, compatible with both frontal fibrosing alopecia and lichen planopilaris.

Topical treatment:

- Triamcinolone acetonide (Kenalog 40 mg/mL), intradermal injections, one session per month for four cycles.
- Minoxidil 5% spray, applied once daily in the evening. After five months of treatment, disease progression stabilized, with good tolerance to therapy and no significant adverse effects.

Reevaluation and Disease Progression

Between September 2023 and February 2025, the patient did not attend regular dermatological follow-ups but continued systemic treatment with Plaquenil and topical Minoxidil 5%. At the clinical reevaluation in February 2025, a 1 cm progression of alopecia was observed compared to the initial diagnosis (Fig. 6 and Fig. 7). This finding underscores the need for a more aggressive therapeutic regimen and continuous monitoring.

Discussions

Risk Factors and Pathogenetic Aspects

Although FFA primarily affects postmenopausal women, the present case raises questions

about the pathogenetic mechanisms in younger patients. The role of genetic predisposition is supported by the patient's family history of psoriasis, suggesting a possible autoimmune background. This hypothesis is also proposed in a 26-year clinical study conducted at the Mayo Clinic, USA, and published in 2018, which highlights the frequent association of FFA with other autoimmune diseases, such as autoimmune thyroiditis, positive serology for thyroid auto-antibodies, and antinuclear antibodies [12]. The same study also discusses the psychological and emotional impact of the disease, with up to one-third of patients experiencing depression.

The autoimmune involvement hypothesis is further supported by a review article published in 2021, which reports that 9.7% to 30% of FFA patients, mostly women, have associated auto-

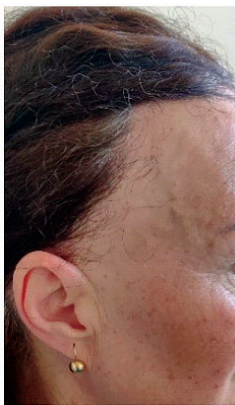


Figure 6 (October 2023) and Figure 7 (February 2025) – Anterior and right lateral view: Measurements indicate a 1 cm progression of alopecia over a period of one year and three months. Eyebrow alopecia is also evident.

immune conditions, including autoimmune thyroiditis, hypothyroidism, systemic lupus erythematosus, vitiligo, lichen planopilaris, psoriasis, Sjögren's syndrome, scleroderma, and rheumatoid arthritis [13].

Another important aspect to consider is the role of hormonal factors, as highlighted in the retrospective study of Ranasinghe G.C et al. which indicates an excess of androgens or DHEAS in lichen planopilaris, while FFA is associated with a deficiency of these hormones [17].

Therapeutic Considerations

- Efficacy of Immunosuppressive Therapies – In the presented case, synthetic anti-malarials and injectable corticosteroids led to a favorable response, halting disease progression [6]. However, relapses are frequently reported following the discontinuation of topical or injectable corticosteroids, despite their wide-spread use as a first-line treatment, albeit with inconsistent results [13].
- Post-Treatment Relapse – The progression of the disease after discontinuing injectable cortico-steroids suggests the need for maintenance therapy. This could involve the integration of additional therapeutic options, such as:
 - Bimatoprost 0.03%, a prostaglandin analog, for eyebrow treatment,
 - Systemic therapy with Prednisone (0.5–1 mg/kg/day) for 3 to 18 months,
 - Finasteride (2.5–5 mg/day), a 5-alpha reductase type II inhibitor, and Dutasteride (0.5 mg/week), both in combination with injectable Triamcinolone.

These therapeutic approaches have demonstrated promising results, with efficacy rates reaching up to 56% of cases [13, 14, 15, 16, 19].

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Conclusions

The presented case illustrates the complexity of Frontal Fibrosing Alopecia (FFA) in a patient of reproductive age and the associated therapeutic challenges. Disease progression following the discontinuation of local corticosteroid therapy highlights the need for a personalized, long-term treatment approach. Additionally, an integrated management strategy, including psychological support, is essential, as the patient reported a significant decline in quality of life over the past six months.

Future Directions:

- Continuation of therapy with injectable corticosteroids and potential introduction of Finasteride 0.1% in the topical Minoxidil 5% formulation. If the addition of a 5-alpha reductase inhibitor to topical therapy proves ineffective, systemic therapy with Finasteride 2.5 mg/day should be considered.
- Complications of Frontal Fibrosing Alopecia (FFA) extend beyond cosmetic concerns, encompassing psychosocial distress due to visible alopecia and the risk of irreversible scarring, which can lead to permanent hair loss. Additionally, FFA is associated with ocular and facial involvement, including eyebrow loss, periorbital erythema, and cicatricial ectropion. Diagnosis and monitoring often require a multidisciplinary approach, involving dermatologists, endocrinologists, and, occasionally, ophthalmologists, to comprehensively manage the condition and address its diverse manifestations [17, 18, 19, 20, 21].

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Conflict of interest
NONE DECLARED

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