Frontal fibrosing alopecia: A multicenter review of 355 patients

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Background: To our knowledge, there are no large multicenter studies concerning frontal fibrosing alopecia (FFA) that could give clues about its pathogenesis and best treatment.

Objective: We sought to describe the epidemiology, comorbidities, clinical presentation, diagnostic findings, and therapeutic choices in a large series of patients with FFA.

Methods: This retrospective multicenter study included patients given the diagnosis of FFA. Clinical severity was classified based on the recession of the frontotemporal hairline.

Results: In all, 355 patients (343 women [49 premenopausal] and 12 men) with a mean age of 61 years (range 23-86) were included. Early menopause was detected in 49 patients (14%), whereas 46 (13%) had undergone hysterectomy. Severe FFA was observed in 131 patients (37%). Independent factors associated with severe FFA after multivariate analysis were: eyelash loss, facial papules, and body hair involvement. Eyebrow loss as the initial clinical presentation was associated with mild forms. Antiandrogens such as finasteride and dutasteride were used in 111 patients (31%), with improvement in 52 (47%) and stabilization in 59 (53%).

Limitations: The retrospective design is a limitation.

Conclusions: Eyelash loss, facial papules, and body hair involvement were associated with severe FFA. Antiandrogens were the most useful treatment. (J Am Acad Dermatol 2014;70:670-8.)

Key words: alopecia; dutasteride; finasteride; frontal fibrosing alopecia; hair; hair loss; lichen planopilaris; scarring; trichology.

Frontal fibrosing alopecia (FFA) is a primary lymphocytic scarring alopecia with a distinctive clinical pattern of progressive frontotemporal hairline recession and eyebrow loss that mainly affects postmenopausal women. It was described by Kossard in 1994,[1] who in 1997 grouped 16 cases.[2] The first 6 cases of FFA in

Abbreviations used:

5aRi:	5-alpha-reductase inhibitors
AGA:	androgenetic alopecia
CI:	confidence interval
FFA:	frontal fibrosing alopecia
LPP:	lichen planopilaris
OR:	odds ratio

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Spanish postmenopausal women were published in 1999.[3]

FFA is considered a variant of lichen planopilaris (LPP)[2,4,5] with an unknown incidence. The number of patients with this condition has markedly increased in the past years[6-8] and most dermatologists nowadays have to face patients with this challenging entity. The pathogenesis of FFA is poorly understood. Although an autoimmune reaction[9] and hormonal factors[7,10] seem to play a role, the exact mechanism of development of scarring alopecia in the typical pattern of FFA is unknown. The natural history of this condition is variable, although slow progression with spontaneous remission is the most frequently reported outcome.[2,8,10-13] Treatment is usually disappointing, although several authors have reported improvement or stabilization with topical and intralesional corticosteroids, antibiotics, hydroxychloroquine, topical and oral immunomodulators, tacrolimus, and 5-alpha-reductase inhibitors (5aRi).[1,7,8,10-12,14-17]

CAPSULE SUMMARY

- Frontal fibrosing alopecia mainly affects postmenopausal women, although it can also occur in premenopausal women or men.
- A high rate of women presented early menopause or underwent hysterectomy, emphasizing a hormonal pathogenesis of frontal fibrosing alopecia.
- Antiandrogen drugs finasteride and dutasteride may be useful to avoid progression of hair loss in patients with frontal fibrosing alopecia.

The general uncertainties about this entity start with the unknown origin and pathogenesis and continue with the difficulty of finding an effective treatment. Despite some case series of patients with FFA,[7,8,12,16] to our knowledge there are no large multicenter studies that accurately reflect the profile, clinical presentation, and treatment response of these patients. The objective of this study was to describe the epidemiology, comorbidities, clinical presentation, diagnostic findings, therapeutic options, and their effectiveness in a large series of patients given the diagnosis of FFA.

METHODS

This multicenter study included 12 Spanish centers applying the methodology as described below at all centers. A retrospective observational and analytic review was designed including patients given the diagnosis of FFA from 1994 to 2013. Diagnosis was made histologically or based on the typical clinical presentation (irregular recession of the frontotemporal and preauricular hairline with eyebrow loss) and characteristic dermoscopic findings. All doubtful cases including men and premenopausal women underwent histologic confirmation of FFA, showing a scarring alopecia with a lymphocytic infiltrate.

Data regarding epidemiology (gender, age, family history, smoking habit, age of menopause, onset of FFA), comorbidities, clinical presentation (clinical severity, lonely hairs, facial papules, occipital involvement, eyebrow and eyelash involvement, affectation of body hair, association with androgenetic alopecia [AGA]), symptoms (pruritus, trichodynia), dermoscopy (perifollicular erythema and follicular hyperkeratosis), laboratory studies (blood cell count, biochemistry, autoimmune panel, thyroid evaluation), treatment (therapies used, response to treatment, adverse effects), and outcome were analyzed. All patients who referred to having a family history of FFA were asked to bring their affected relatives so we could confirm a clinical or histologic diagnosis of FFA. The finding referred to as facial papules consisted of the involvement of facial vellus hairs.[18] The clinical and dermoscopic findings were retrospectively evaluated, examining digital photographs of all patients.

The clinical severity of FFA was classified based on a clinical scale, measuring the area of cicatricial skin produced by the recession of the frontal and temporal hairline (Fig 1). This classification included 5 grades **[F1-4/C]** of severity: I (<1 cm), II (1-2.99 cm), III (3-4.99 cm), IV (5-6.99 cm), and V (≥7 cm, also called "clown alopecia"), which were grouped for statistical purposes as mild FFA (grades I and II) and severe FFA (grades III, IV, and V). In each patient, the largest measure (frontal or temporal) was used to define the grade of severity (Fig 1). We defined the normal frontal implantation hairline using the measurements recently published by Ceballos et al.[19] The degree of AGA was determined by application of the Ludwig scale (I-III) for women and the Hamilton scale (I-VII) for men.

The response to therapy was assessed clinically on a 3-point scale corresponding to: worsening (progression of hairline recession), stabilization (arrest of hairline recession), or improvement (any regrowth of hair in the hairline). This scale was based on clinical notes and global photographic assessment at each visit. The effectiveness of the treatment was evaluated by comparison of photographs taken at least 1 year apart. Subjective

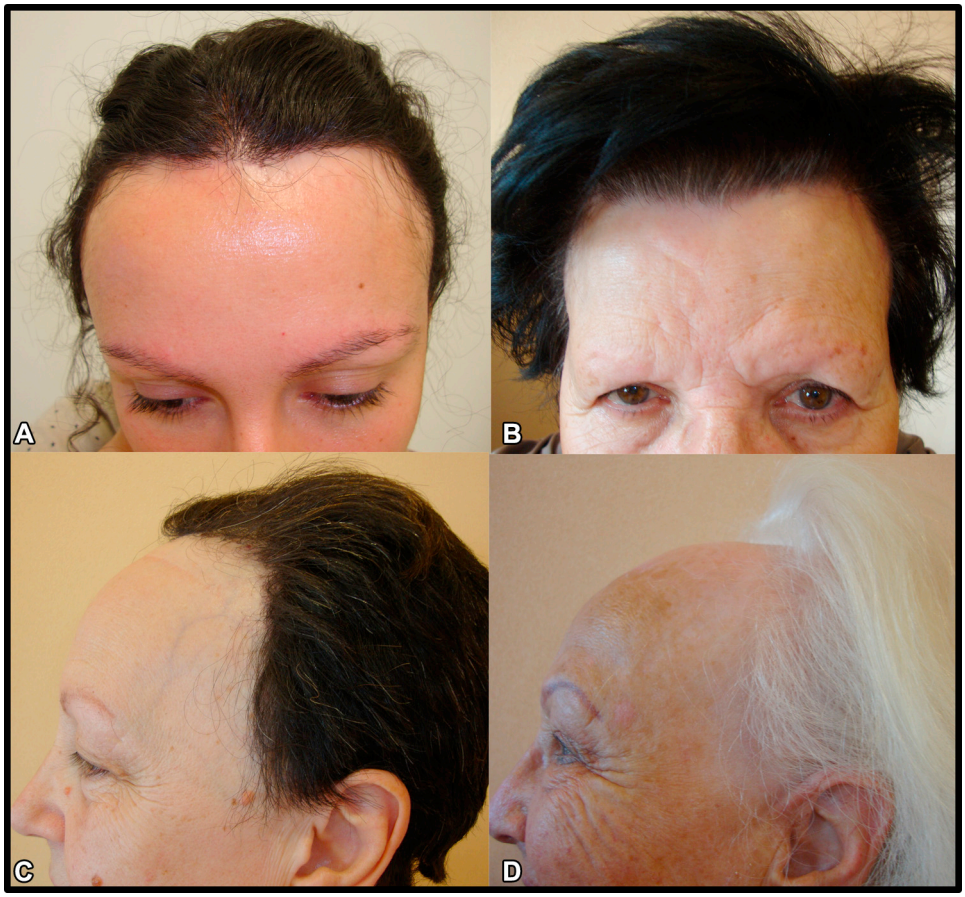

Fig 1. Women given the diagnosis of frontal fibrosing alopecia (FFA) with different severity grades. **A**, FFA grade I/V in a premenopausal 30-year-old woman, with a less than 1-cm wide area of cicatricial skin produced by the recession of the frontal and temporal hairline. **B**, FFA grade II/V in a postmenopausal 63-year-old woman, with a 2-cm wide area of cicatricial skin produced by the recession of the frontal hairline, associated with total eyebrow loss. **C**, FFA grade III/V in a postmenopausal 61-year-old woman, with a 4-cm wide area of cicatricial skin produced by the recession of the frontal and temporal hairline, associated with partial eyebrow loss. **D**, FFA V/V ("clown alopecia") in a postmenopausal 77-year-old woman, with a more than 7-cm wide area of cicatricial skin produced by the recession of the frontal and temporal hairline.

symptoms such as pruritus or trichodynia were considered separately.

For all continuous variables, median and range were calculated but for categorical variables, frequencies were reported. The Mann-Whitney and χ^2 tests were used to assess the statistical significance of differences observed between groups for continuous and categorical variables, respectively. To identify the best combination of independent factors associated with severe forms of FFA, multivariate (ie, logistic regression) analysis was performed. Independent factors were expressed as: odds ratio (OR); 95% confidence interval (CI); *P* value. For multivariate analyses, only those variables that showed statistically significant differences in the univariate study were included in the model. *P* less than .05 was considered statistically significant. For all statistical analyses, a software package was used (SPSS 15.0, IBM Corp, Armonk, NY).

RESULTS

A total of 355 patients (343 women [49 premenopausal] and 12 men) with a mean age of 61 years (range 23-86) were included in the study. All were Caucasian except for 3 black-skinned women (0.9%) and 2 gypsy women (0.5%). The mean age of menopause was 49 years (range 23-60). Early menopause ($\leq$ 45 years) was detected in 49 patients (14%), with a surgical cause in 31 of them (9%). A total of 46 patients (13%) underwent hysterectomy (31 premenopausal and 15 postmenopausal). The mean age of onset of FFA was 56 years (range 21-81) and the mean time after onset of clinical presentation of FFA in our series was 5.3 years (range 0-41).

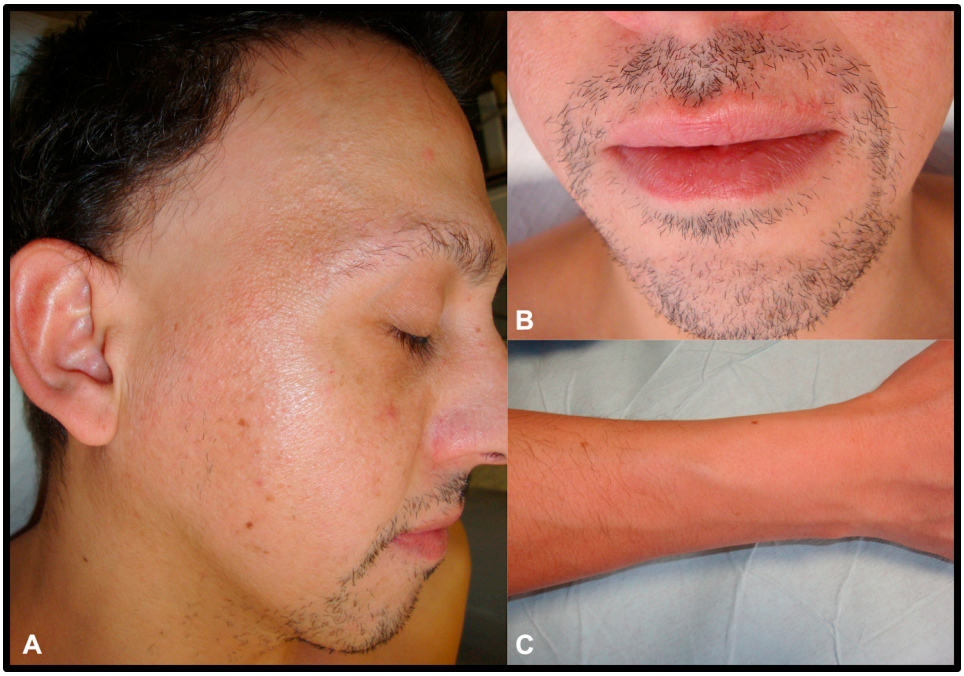

Fig 2. **A**, Frontal fibrosing alopecia grade II/V in a 35-year-old man with beard involvement, partial eyebrow loss, and presence of facial papules. **B**, Beard involvement in the left supralabial area in the same patient. **C**, Involvement of body hair in the same patient. Clinical image showing a well-defined alopecic patch on the right arm of the patient.

A family history of FFA was present in 30 patients (8%). Smoking habit was recorded in 274 patients: 237 had never smoked (87%), 26 were former smokers (9%), and 11 (4%) were active smokers. The most frequent comorbidities were: dyslipidemia in 89 patients (25%), hypothyroidism in 52 patients (15%), arterial hypertension in 32 patients (9%), and osteoporosis in 31 patients (9%). Previous cutaneous or mucosal lichen planus was rare (23 and 12 patients, respectively). Findings of classic LPP in the rest of the scalp or personal antecedents of alopecia areata were present in 3 and 2 patients, respectively. Vitiligo was detected in 2 patients and lichen sclerosus et atrophicus in 1 patient.

AGA was present in 136 (40%) of the 343 women and in 8 (67%) of the 12 men. Symptoms included pruritus (124 patients, 35%) and trichodynia (71 patients, 20%). Lonely hairs were present in 176 **[F2-4/C]** patients (49.6%). Facial papules (Fig 2) were present in 49 patients (14%) and occipital involvement in 52 patients (15%). Hair loss began as eyebrow loss in 137 patients (39%). Eyebrows were affected in 283 patients (80%)—partially in 197 patients (56%) and totally in 86 patients (24%)—and eyelashes in 50 patients (14%). Body hair was affected in 86 patients (24%), whereas axillary and pubic hair were affected in 75 patients (21%) and in 63 patients (18%), respectively. The beard was affected in 6 (50%) of the 12 men (Fig 2). The demographics and different clinical presentations of FFA in premenopausal women, postmenopausal women, and men are represented in Table I.

The majority of patients presented mild FFA (grades I and II), with a recession of less than 3 cm of the frontotemporal hairline (Table II). The severity of FFA correlated with the time since onset of FFA (Table II). The patients with severe FFA (grades III, IV and V) presented with more years since onset of disease than patients with mild FFA (6.8 vs 4.4 years, respectively; $P < .001$). Nevertheless, of the 46 patients (13%) with 10 or more years since onset, only 18 (39%) presented severe FFA. Independent factors associated with severe FFA after multivariate analysis were: eyelash loss (OR 3.87; 95% CI 1.74-8.59; $P = .001$), the presence of facial papules (OR 2.96; 95% CI 1.31-6.70; $P = .009$), and body hair involvement (OR 2.26; 95% CI 1.17-4.38; $P = .015$). Eyebrow loss as the initial clinical presentation was associated with mild forms of FFA (OR 0.45; 95% CI 0.26-0.78; $P = .005$).

A skin biopsy was performed in 91 patients (25%). Dermoscopy was recorded in 249 patients (70%). The most frequent findings were follicular hyperkeratosis (224 patients) and perifollicular erythema (182 patients). Laboratory abnormalities included positive antithyroid antibodies in 34 patients (10%) and positive antinuclear antibodies

Table I. Demographic and clinical differences in presentation of frontal fibrosing alopecia in premenopausal women, postmenopausal women, and men

		Postmenopausal women 294 patients (83%)			
	Premenopausal women 49 patients (14%)	Normal 245 patients (83%)	Early menopause 49 patients (17%)	Men 12 patients (3%)	Total 355 patients (100%)
Mean age of onset, y	41.6	59.6	57.1	47.3	56.3
Median grade of severity	II	II	II	II	II
Androgenetic alopecia	21 (43%)	101 (41%)	14 (29%)	8 (67%)	144 (40%)
Pruritus	20 (59%)	81 (33%)	19 (39%)	4 (33%)	124 (35%)
Trichodynia	12 (35%)	47 (19%)	9 (18%)	3 (25%)	71 (20%)
Facial papules	6 (12%)	34 (14%)	5 (10%)	4 (33%)	49 (14%)
Occipital involvement	8 (16%)	34 (14%)	6 (12%)	4 (33%)	52 (15%)
Eyebrow loss	38 (78%)	195 (80%)	43 (88%)	7 (58%)	283 (80%)
Eyebrow loss as first sign of FFA	21 (48%)	95 (39%)	16 (33%)	5 (50%)	137 (36%)
Eyelash loss	8 (16%)	34 (14%)	7 (14%)	1 (8%)	50 (14%)
Body hair involvement	12 (37%)	52 (21%)	17 (35%)	5 (42%)	86 (24%)
Hypothyroidism	4 (9%)	37 (15%)	11 (22%)	0 (0%)	52 (15%)
Nonsmoker	32 (91%)	159 (65%)	38 (78%)	8 (67%)	237 (67%)

There was no statistical significance between groups ($P > .05$).
FFA, Frontal fibrosing alopecia.

Table II. Scale of severity of frontal fibrosing alopecia related to sex, menopause, age of onset, and years since onset of disease

Grade of severity	Premenopausal women	Postmenopausal women	Men	Total no. of patients	Mean age of onset, y	Years since onset of FFA
I (<1 cm)	15 (27%)	68 (24%)	3 (25%)	86 (24%)	54.6	3.6
II (1-2.99 cm)	22 (45%)	113 (38%)	3 (25%)	138 (39%)	55.7	4.9
III (3-4.99 cm)	7 (14%)	61 (21%)	3 (25%)	71 (20%)	56.2	5.5
IV (5-6.99 cm)	3 (6%)	40 (14%)	2 (17%)	45 (13%)	60.5	8.0
V (>7 cm)	2 (4%)	12 (4%)	1 (8%)	15 (4%)	59.3	8.7
Total	49 patients (100%)	294 patients (100%)	12 patients (100%)	355 patients (100%)	56.3	5.3

FFA, Frontal fibrosing alopecia.

in 23 patients (7%). In addition, 89 patients (25%) presented hypercholesterolemia (>240 mg/dL) or were taking cholesterol-lowering drugs.

Patients were followed up for a mean time of 2.1 years (range 0.4-19 years). Regarding therapy, an expectant attitude was performed in 79 patients (22%), with worsening in 74 (94%) and stabilization in 5 patients (6%). Of those who worsened, sequential measurements were available for 29 patients, with a mean follow-up time of 3.3 years (range 1-8), allowing the calculation of hair loss per year by the distance of recession of the hairline, which ranged from 0.2 to 2.1 cm (mean 1.05 cm). Topical steroids and topical minoxidil were the most frequently used treatments (276 patients, 78%) with variable results depending on the associated systemic therapy. Intralesional steroids were used in 130 patients (frequency of 1 infiltration every 3-6 months and a mean number of infiltrations of 8 per patient), with improvement in 44 (34%), stabilization in 64 (49%), and worsening in 6 (5%) patients (data on effectiveness not available for 16 patients). Oral hydroxychloroquine was used in 54 patients (dosage 200-400 mg/d), with improvement in 8 (15%), stabilization in 32 (59%), and worsening in 12 (22%) patients (data on effectiveness not available for 2 patients). Finasteride was used in 102 patients (dosage 2.5-5 mg/d), with improvement in 48 (47%) and stabilization in 54 (53%) patients. Dutasteride was used in 18 patients (dosage 0.5 mg/wk), with improvement in 8 (44%) and stabilization in 10 (56%) patients. In total, 5aRi were used in 111 patients (31%), with improvement in 52 (47%) and stabilization in 59 (53%) patients. Pioglitazone was recently used in 23 patients (dosage 15 mg/d), but data on effectiveness are still not available.

DISCUSSION

FFA is a primary scarring alopecia and is considered to be a variant of LPP with a characteristic

Table III. Main case series of patients with frontal fibrosing alopecia reported in the literature

Reference	Current study	Dlova et al,[31] 2013	Ladizinski et al,[7] 2013	MacDonald et al,[8] 2012	Samrao et al,[16] 2010	Tan and Messenger,[12] 2009	Tosti et al,[10] 2005	Moreno-Ramirez and Camacho Martinez,[11] 2005
Patients	355	20	19	60	36	18	14	16
Male	12 (3%)	1 (5%)	0	0	1 (3%)	0	0	0
Premenopausal women	49 (14%)	14 (73%)	2 (11%)	3 (5%)	6 (17%)	3 (17%)	0	3 (19%)
Mean age of onset, y	59	42	56	60	60	56	58	59
Family history	30 (8%)	1 (5%)						
Androgenetic alopecia	144 (40%)		2 (11%)	1 (2%)			0	7 (44%)
Thyroid disease	52 (15%)	1 (5%)		14 (23%)		2 (11%)		
Pruritus	124 (35%)	6 (30%)			24 (67%)		1 (7%)	
Trichodynia	71 (20%)	1 (5%)			6 (17%)		0	
Facial papules	49 (14%)	0	7 (37%)			1 (6%)		
Eyebrow loss	283 (80%)	8 (40%)	18 (95%)	44 (73%)	27 (75%)	15 (83%)	9 (64%)	8 (50%)
Eyelash loss	50 (14%)	0	5 (26%)	2 (3%)	3 (8%)	0		
Body hair involvement	86 (24%)	2 (10%)	5 (26%)	15 (25%)	7 (19%)	4 (22%)	2 (14%)	6 (38%)
Lonely hairs	176 (49%)	14 (70%)	10 (53%)					
Hysterectomy	46 (13%)		4 (21%)			2 (11%)		
Occipital involvement	52 (15%)			4 (7%)		0		

clinical pattern of progressive frontotemporal hairline recession and eyebrow loss. It occurs mainly in postmenopausal women,[1,20] although premenopausal women[2,11,12,17,21,22] and men[23-25] may also be affected. The mean age of onset in our study is similar to previous reports (Table III).[8,11,16] The youngest patient of our study was a 23-year-old man, which is, to our knowledge, the youngest patient with FFA described in the literature.

Interestingly, we found a high incidence rate of early menopause (14%) among the female patients with FFA, compared with the incidence of 6% in the general population.[26] In addition, we observed that a considerable number of women had undergone hysterectomy, a finding also described by other authors.[7,12] It is well known that surgical menopause is accompanied with a sudden decrease in serum sex steroid levels.[27] Estrogens play a role in the regulation of the hair cycle, producing a decrease in the hair shaft growth and favoring the catagen to telogen step.[28] The decrease of estrogens associated with menopause could alter the control of the hair cycle and in some matter predispose to the development of FFA. Although further research is required regarding a hormonal pathogenesis, we hypothesize that the above-mentioned hormonal imbalance could be the trigger that originates the inflammatory scarring reaction of FFA in predisposed patients.[11,20] This would also explain the reported effectiveness of the antiandrogenic drugs dutasteride and finasteride in improving or stabilizing the disease.[7,10]

The number of men with FFA reported is very low (Table III). We grouped a total of 12 men given the diagnosis of FFA, all with histologic confirmation. They presented more AGA, facial papules, and occipital involvement than women (Table I) without reaching statistical significance. Regarding race, FFA affects predominantly Caucasian patients, although it also may affect Asian[29] and black-skinned[30,31] patients.

Although a genetic component has not been demonstrated, FFA has been reported in several families.[32-34] In a recent report of 20 patients,[31] only 5% of patients with FFA had a positive family history of the disease, very similar to the 8% of patients observed in the current study. Nevertheless, our result may be biased as patients could not differentiate FFA accurately. MacDonald et al[8] described a significant preponderance of nonsmoking patients in 71% of their cases of FFA, a number that increased to 87% in our study. However, this percentage is very similar to the nonsmoking percentage of Spanish women aged 55 to 64 years (84.5%),[35] so our results do not support the protective effect of tobacco against FFA suggested by MacDonald et al.[8]

Several autoimmune diseases such as thyroid dysfunction[8] or vitiligo[34] have been associated with FFA, suggesting an autoimmune mechanism in the pathogenesis of FFA. Some authors postulate that LPP represents a hair-specific autoimmune disorder characterized by a cell-mediated immune reaction against follicular keratinocytes.[36] In concordance with previous reports,[8] we found a significant prevalence of hypothyroidism in patients with FFA (15%), compared with the general prevalence of hypothyroidism in Spain (4.2%).[37] Therefore, we

strongly suggest including thyroid hormone laboratory studies in the initial workup of patients with FFA. The incidence of coexistent cutaneous or mucosal lichen planus was low. Interestingly, the association of FFA with LPP at other scalp locations was very rare in our series. Therefore, we hypothesize that FFA, although presenting identical histopathology,[2,4] is not a simple variant of LPP but a distinct entity with several differences.

In contrast with some previous reports,[7,8,10] we found a considerable coexistence of AGA in patients with FFA. Moreno-Ramirez and Camacho Martinez[11] also found a high incidence of AGA in their Spanish series of patients with FFA. These differences could be explained by geographic variations in the global incidence of AGA or different sensitivity in the diagnostic accuracy of AGA among the different authors.

Clinically, studies show that one third of patients with FFA may present pruritus[31] and less frequently trichodynia[16] (Table III), which is in concordance with our study results. One of the most frequent findings in FFA is eyebrow loss, present in more than 75% of patients in the majority of reports,[7,12,16] including our series. Eyebrow loss may be the initial sign of presentation of FFA. Eyelashes can also be affected,[7,8,16] although less frequently. Although the frontal area is most commonly affected, FFA may appear on other sites such as the occipital area[7] and may also affect body hair,[7] emphasizing the systemic character of this entity. Interestingly, occipital involvement may be one of the causes of the ineffectiveness of hair transplantation in patients with FFA.[38] Involvement of facial vellus hairs presenting as facial noninflammatory papules[18] has also been described in 6% to 37% of patients,[7,12] in concordance with our results (14%). We found no differences in regards to the clinical presentation neither by sex nor by menopausal state (Table I).

For staging purposes, we created a clinical severity scale based on the objective measurement of the hairline recession. The severity of FFA correlated with the time since onset of disease (Table II). Interestingly, of the 46 patients (13%) with 10 years or more since onset of disease, only 18 (40%) presented a severe FFA (data not shown), suggesting that several patients undergo eventual spontaneous remission. We found that the presence of eyelash loss, body hair involvement, and facial papules was associated with severe forms of FFA. These clinical findings could be useful to predict the prognosis of the patients at an initial evaluation and to select patients requiring systemic treatment.

Dermoscopy is a very useful tool in the diagnosis of FFA.[29,39,40] We found similar dermoscopic features as those previously reported.[29,39,40] The characteristic clinical presentation together with the typical dermoscopic features could avoid unnecessary biopsies in patients with typical FFA.

There is currently no established therapy for FFA, but several treatments have been reported in the literature. Most frequently, corticosteroids (topical or intralesional),[1,10-12] hydroxychloroquine,[16,17] or oral 5aRi[14,15] are used, but no randomized controlled trials have been performed to date. In a recently published systematic review, 114 patients with FFA were described.[20] Oral finasteride or dutasteride were provided most often, with good response in about 45% of patients. Oral antimalarials were used in 33 of the 114 patients, with a good response in 30%. Intralesional corticosteroids resulted in a partial clinical response in almost 60%, whereas topical corticosteroids were ineffective. However, this systematic review analyzed the effectiveness of therapies based on different outcome measures as defined by the authors of the primary articles. Therefore, these percentages could vary considerably depending on the outcome of effectiveness chosen. The LPP Activity Index was introduced in 2010 to allow statistical comparison of pretreatment and posttreatment response in LPP.[17] It evaluates objective signs (redness, scaling, and hair loss) but also subjective symptoms (itch and burning). The results of studies using this index are remarkably different from those that used only objective measures such as hair loss.[20] We agree with Racz et al[20] that the progression of hair loss should be the main outcome measure for FFA. Despite the limitations of a retrospective design, we tried to summarize the response to different treatments in our study based on a 3-point clinical scale evaluating the progression of hair loss. In cases of improvement, it is important to state that the regrowth of hair was minimal, and always located at the hairline. The most effective therapies in our series were oral 5aRi, followed by intralesional corticosteroids. Finasteride and dutasteride improved 47% and 44% of the treated patients, respectively. Remarkably, all patients treated with 5aRi at least experienced stabilization of the FFA. As stated by other authors,[7] we agree that 5aRi may be a useful maintenance treatment to stabilize or even improve FFA. In our experience, this therapy should be accompanied with intralesional corticosteroids when signs of activity such as perifollicular erythema or follicular hyperkeratosis are present. Regarding the measurements of patients who did not undergo any treatment, we found a mean recession of 1.05 cm

per year, which is very similar to other published data (0.95-1.08 cm per year).[8,13]

This study has some limitations: firstly, the retrospective design; secondly, the probable recall bias in some epidemiologic data; and thirdly, the potential bias in the evaluation of the effectiveness of the different therapies (some of the patients were treated concomitantly with both oral and topical drugs). Given the multicenter approach, we found varying local traditions in how drugs were administered (eg, dosages of 2.5 vs 5 mg of finasteride daily or varying frequency of intralesional corticosteroid infiltrations). However, the objective of our study was not to evaluate the exact effectiveness of therapies for FFA, but to describe the results obtained with different treatments used in a large series of patients. Our results could be useful to design future prospective randomized trials to establish the most effective therapy for FFA.

In conclusion, to our knowledge, this is the largest series of patients given the diagnosis of FFA that has been reported in the literature to date. Although it usually appears in postmenopausal women, premenopausal women or even men can be affected. Interestingly, we found a high rate of women with FFA presenting early menopause or having undergone hysterectomy, supporting a hormonal role in the pathogenesis of FFA. This hypothesis, which may be of interest for future research, was also supported by a good therapeutic response with oral 5aRi. The involvement of body hair or eyelashes and the presence of facial papules were associated with severe forms of FFA.

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