INTRODUCTION

Alopecia areata (AA) is a type of nonscarring alopecia that presents as well-circumscribed patches of hair loss involving the scalp with normal-appearing alopecic skin. Frontal fibrosing alopecia (FFA) is a type of scarring alopecia that presents as a symmetric, frontotemporal recession of the hairline and may involve the eyebrows and eyelashes with atrophic and hypopigmented alopecic skin.

We present two patients with a history of AA, who eventually developed FFA [Table 1]. This sequence of pathology provides an opportunity to discuss the etiology that may be contributing to these cases. According to the biopsy reports, our two patients had lymphocyte-mediated scarring alopecia with mild perivascular and perifollicular lymphocytic infiltrates concentrated around the hair bulge area, characteristic of FFA [Figure 1b and d]. Patient 1 had patchy-patterned AA, affecting 50% of the scalp that responded to intralesional Kenalog and topical steroid treatment before FFA developed [Figure 1a]. Patient 2 presented with ophiasis, loss of follicles, mild erythema, scaling, with partial loss of eyebrows, and eyelashes. Patient 2 suffered from an ophiasis-patterned AA that never regrew, and afterward, developed FFA [Figure 1c].

The hair follicle (HF) is thought to have immune privilege (IP) through downregulation of major histocompatibility complex class 1 and β2-microglobulin, which ultimately serves as protection against autoimmune attack. Tziotzio et al. hypothesize that the pathogenesis of AA and FFA is similar as both diseases undergo a loss of IP in the HF, which leads to subsequent T-cell-mediated inflammation. The major difference between these two diseases is that the CD8+ T-cell-mediated inflammation in FFA occurs at the bulge, which contains the crucial stem cells, as opposed to the bulb in AA.

While the exact biochemical and genetic insults which cause this loss of IP are not fully understood, it is possible that patients with AA, who have lost IP at the bulb, are again

Key words: Alopecia areata, frontal fibrosing alopecia, hair follicle, nonscarring alopecia, scarring alopecia
prone to IP loss at the bulge later in life through the same mechanism. We propose some possible explanations to this peculiar pair of events.

Many AA patients develop the disease before age 21, while FFA is most commonly seen in postmenopausal women.\[2\] Both diseases manifest during times of changing hormone levels that may cause dysregulation of the immune system, with AA correlating with puberty and FFA correlating with menopause. Understanding the mechanism that causes CD8+ activation against HF cells has yet to be described.

Another link between the FFA and AA is their association with stress and neuropeptides. Increased levels of neuropeptides have been implicated as the possible causes of both diseases. One possible explanation is that neuropeptides induce IP collapse, leading to HF vulnerability to CD8+ attacks.\[4,5\]

One additional relation between FFA and AA pathogenesis is related to melanocytes. Histological analysis showed lower melanocyte counts in FFA patients were associated with clinical observations of skin hypopigmentation.\[6\] Destruction of melanocytes might release melanocyte-derived peptides that prime the CD8+ cells. Melanocyte-derived autoantigens may play a role in the activation of CD8+ T-cells that cause FFA and AA.

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**Conflicts of interest**

There are no conflicts of interest.

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| Patient | Diagnosis of AA relative to FFA | Physical examination | Biopsy results | Comorbidities/ pertinent medical history | Hormone laboratories | Pre-/post-menopausal |
|---------|---------------------------------|---------------------|----------------|----------------------------------------|---------------------|---------------------|
| 1 (58/female Hispanic) | >5 years prior | Frontal hair loss with hypopigmentation, scarring, mild erythema, and perifollicular scale. Partial loss of eye brows, without involvement of the eye lashes | Lymphocyte-mediated scarring alopecia with a mild perivascular and perifollicular lymphocytic infiltrate concentrated around the hair bulge area | Osteopenia | TSH within normal limits | Postmenopausal |
| 2 (67/female Caucasian) | >7 years prior | Ophiasis pattern hair loss, with loss of follicles, mild erythema, and scale. Partial loss of eyebrows and eyelashes | Lymphocyte-mediated scarring alopecia with a mild perivascular and perifollicular lymphocytic infiltrate concentrated around the hair bulge area | Seborrheic dermatitis | TSH within normal limits, low testosterone | Postmenopausal |

AA – Alopecia areata; FFA – Frontal fibrosing alopecia; TPO – Thyroid peroxidase; TSH – Thyroid-stimulating hormone

![Figure 1](image-url)