

CLINICAL VIGNETTE

Scalp Hair Loss in the Menopausal Female

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A post-menopausal female presented with thinning scalp hair. She is greatly distressed and tearful, stating that this is a source of great anxiety for her. She has seen some elderly women who are balding or wear wigs and is concerned that this will be her fate. It negatively affects her appearance and self-confidence, making her feel insecure, old and unattractive. While male pattern hair loss (MPHL) occurs in 50-80% of all men, the negative psychological and social impact on women is considerably greater, causing double the reported measures of social anxiety, anxiety and depression.^{1,2} Scarring alopecia is a less common form of hair loss overall and has a far worse prognosis and is associated with even worse psychosocial outcomes in women.³ Not only is body image and confidence adversely affected, but presumably female pattern hair loss (FPHL) results in increased monetary costs as well.

The patient had no significant medical history and took only over the counter antihistamines as needed. She had recently been diagnosed by her gynecologist as being “early menopausal”. Her last menses was a year ago and except for occasional hot flashes had no other complaints. Minimal hair loss may have been notable years earlier, but the quantity of the loss is increasing. There is copious hair in her brush, on her pillow in the morning, and in her shower. In response, she stopped blow drying her hair and reduced hair washing to once a month. She has tried and failed multiple hair products both over the counter and through her stylist, including topical minoxidil which she still uses. She has been on high dose biotin for at least 6 months and thinks it might have helped “a little”. She does not use hair dyes, curlers or permanent waves and she rarely uses traction methods of hair styling. Traction alopecia has been associated with chronic, repetitive styling such as braids, cornrows, tight buns and ponytails and with using hair extensions and weaves. This disproportionately affects one-third of African American women.

The role of genetics and androgen has been identified in MPHL but is less clear in FPHL.⁴ In FPHL, other factors or triggers may be involved, such as partum status, weight changes, nutritional status, stress, and medications. Her parents have some thinning of their scalp hair but no balding. Her mother had breast cancer and she attributed her mother’s hair thinning to chemotherapy. She has no siblings and two teenage children. She denied any changes in health or weight in the last 6 months, though she has gained 10 pounds above her ideal weight over the past year and a half. Her last physical exam was a year ago with normal labs. She has no unusual stressors and has not significantly changed her diet or exercise. She has developed

some acne on her chin, along with slightly thicker facial hairs, which are new. Adult onset acne along with male pattern hair changes strongly suggests the role of androgens in this case.

On examination, her scalp demonstrates normal skin with thinning hair at the apex, thicker hair in the back. The scalp was easily visible through her hair. The hair strands did not break easily when pulled. The absence of thin atrophied skin, completely free of hair or pores, excluded a scarring alopecia. She had visible mixed open and inflammatory comedones on her chin, as well as some fading acne scars.

Labs were performed to rule out alternate and reversible causes of hair loss. Because of her androgenic symptoms, total testosterone and free testosterone returned normal. To gauge nutritional status, iron, TIBC, ferritin, a comprehensive metabolic panel, Vitamin D and B12 levels were also sent. If she had had an underlying absorptive or suspected eating disorder, additional labs such as vitamin C, zinc, Vitamin B6, and a lipid panel could be included. Common endocrine problems prompted TSH and prolactin levels which also returned normal. If she had demonstrated an increased risk for autoimmune conditions, then an ANA and RA, as well as inflammatory factors could have been added.

Androgenic alopecia is a non-scarring alopecia that results in thinning diameter of the hair follicle as well as more rapid turnover. Male pattern and female pattern hair loss both manifest as progressive scalp hair loss associated with senescence but only male pattern hair loss is consistently associated with androgens. While FPHL is commonly seen in hyperandrogen states in women, the opposite is not true. Elevated androgen blood levels do not correlate with most cases of FPHL, though there may be increased androgen levels identified at the hair root.⁵ FDA approved products to prevent and treat hair loss in men include over the counter topical (minoxidil) and prescription oral (finasteride) medication. Only minoxidil topical solutions are currently approved for women, but studies have shown the effectiveness of finasteride (2.5-5 mg daily) and spironolactone (100-200mg daily) in improving or maintaining hair thickness in women—even when measured serum androgens are normal. Interestingly, low dose finasteride 1 mg was not effective in women after 1 year of use.^{6,7}

Had this patient been pre-menopausal with irregular menses, an additional diagnosis of polycystic ovarian syndrome could be entertained, and oral contraceptives, particularly those containing drospirenone (a spironolactone analog), could be consid-

ered. Finasteride might also be used but in conjunction with appropriate contraception. Finasteride is Category X for pregnancy, and women who might be pregnant are encouraged not to touch or handle this medication. The development of a topical finasteride may better target the follicles at risk in the future without systemic complications,⁸ currently oral finasteride is an easily available generic drug—although for FPHL would be an off-label use. This patient had no need for contraception and was not a risk for pregnancy, so this was a viable option for her. Even estrogen has been associated with hair preservation, but because this patient had a family history of breast cancer, she had refused hormone replacement.

Because she also complained about her acne and facial hair, for which spironolactone is approved, and was eager to treat her FPHL, for which it is not approved. She started spironolactone 25 mg daily with plans to gradually increase up to 100 mg over the next 3 months. If she had been pre-menopausal, spironolactone could still have been used as an option though with greater caution. Spironolactone is Category D and patients are encouraged to stop if pregnancy is suspected or to use with an oral contraceptive. She was instructed to return for lab monitoring in 1 month. Side effects including lightheadedness, urinary frequency, nausea, and bowel changes were discussed. The patient was also counseled on the natural growth history of hair and that it would take at least 3-6 months to see any appreciable change in hair quality. She was also counseled that she could resume routine hair washing and dyes, but to continue to avoid traction trauma.

The patient was encouraged to take vitamins as well, as studies have indicated the role of anti-inflammatory supplements like omega-3 and omega-6 fatty acids and anti-oxidants like vitamin C, E and lycopenes in reducing hair loss and increasing hair diameter.⁹ She was advised to stop the biotin. Evidence supporting the use of biotin is scant, except in the case of brittle nails. In high-risk individuals, including those with: inflammatory bowel disease; extended use of retinoids or anti-epileptics, or malnutrition, biotin may benefit hair growth. Biotin deficiency is associated with additional symptoms including a seborrheic-like dermatitis or extreme hair loss like telogen effluvium. Only 38% of FPHL is associated with an actual biotin deficiency and biotin, in low risk patients, did no better than placebo.¹⁰

The patient returned for follow-up four months later, with recent normal chemistries. She was on spironolactone 50 mg, minoxidil foam daily, and fish oil supplements. She reported that her hair loss had slowed dramatically and that she had developed new hair along the apex of her scalp. Furthermore, she was happy to report that her adult-onset acne was greatly improved.

REFERENCES

1. **Montgomery K, White C, Thompson A.** A mixed methods survey of social anxiety, anxiety, depression and wig use in alopecia. *BMJ Open.* 2017 May 4;7(4):e015468. doi: 10.1136/bmjopen-2016-015468. PubMed PMID: 28473521; PubMed Central PMCID:PMC5566602.
2. **Cash TF, Price VH, Savin RC.** Psychological effects of androgenetic alopecia on women: comparisons with balding men and with female control subjects. *J Am Acad Dermatol.* 1993 Oct;29(4):568-75. PubMed PMID: 8408792.
3. **Katoulis AC, Christodoulou C, Liakou AI, Kouris A, Korkoliakou P, Kaloudi E, Kanelleas A, Papageorgiou C, Rigopoulos D.** Quality of life and psychosocial impact of scarring and non-scarring alopecia in women. *J Dtsch Dermatol Ges.* 2015 Feb;13(2):137-42. doi: 10.1111/ddg.12548. Epub 2015 Jan 16. English, German. PubMed PMID: 25597233.
4. **Hagenaars SP, Hill WD, Harris SE, Ritchie SJ, Davies G, Liewald DC, Gale CR, Porteous DJ, Deary IJ, Marioni RE.** Genetic prediction of male pattern baldness. *PLoS Genet.* 2017 Feb 14;13(2):e1006594. doi: 10.1371/journal.pgen.1006594. eCollection 2017 Feb. PubMed PMID: 28196072; PubMed Central PMCID: PMC 5308812.
5. **Harfmann KL, Bechtel MA.** Hair loss in women. *Clin Obstet Gynecol.* 2015 Mar;58(1):185-99. doi: 10.1097/GRF.0000000000000081. Review. PubMed PMID: 25517757.
6. **Brough KR, Torgerson RR.** Hormonal therapy in female pattern hair loss. *Int J Womens Dermatol.* 2017 Feb 24;3(1):53-57. doi: 10.1016/j.ijwd.2017.01.001. eCollection 2017 Mar. Review. PubMed PMID: 28492055; Pub Med Central PMCID: PMC5419033.
7. **Price VH, Roberts JL, Hordinsky M, Olsen EA, Savin R, Bergfeld W, Fiedler V, Lucky A, Whiting DA, Pappas F, Culbertson J, Kotey P, Meehan A, Waldstreicher J.** Lack of efficacy of finasteride in postmenopausal women with androgenetic alopecia. *J Am Acad Dermatol.* 2000 Nov;43(5 Pt 1):768-76. PubMed PMID: 11050579.
8. **Alsantali A, Shapiro J.** Androgens and hair loss. *Curr Opin Endocrinol Diabetes Obes.* 2009 Jun;16(3):246-53. Review. PubMed PMID: 19396986.
9. **Le Floc'h C, Cheniti A, Connétable S, Piccardi N, Vincenzi C, Tosti A.** Effect of a nutritional supplement on hair loss in women. *J Cosmet Dermatol.* 2015 Mar;14(1):76-82. doi: 10.1111/jocd.12127. Epub 2015 Jan 8. PubMed PMID: 25573272.
10. **Trüeb RM.** Serum Biotin Levels in Women Complaining of Hair Loss. *Int J Trichology.* 2016 Apr-Jun;8(2):73-7. doi: 10.4103/0974-7753.188040. PubMed PMID: 27601860; PubMed Central PMCID: PMC4989391.

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