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Efficacy of oral spironolactone in the treatment of androgenetic alopecia in female patients: A case series of 11 patients

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ABSTRACT

Androgenetic alopecia (AGA) affects nearly half of all women and is characterized by progressive hair thinning due to follicular miniaturization driven by dihydrotestosterone. Current FDA-approved treatments, such as topical minoxidil and off-label oral finasteride, offer limited efficacy, prompting interest in alternative therapies. Spironolactone, an aldosterone antagonist with anti-androgenic properties, has shown potential in reducing androgen-mediated follicular damage. This prospective case series evaluates the efficacy and safety of oral spironolactone in 11 female patients with AGA. Patients received spironolactone at daily doses ranging from 25 mg to 100 mg, alongside combination treatments including topical minoxidil, platelet-rich plasma, low-level laser therapy, and nutritional supplementation. Over a treatment duration of 6 to 36 months, ten patients demonstrated a one-grade improvement on the Sinclair scale, while one patient with severe AGA showed no response, potentially due to poor adherence. Treatment was generally well tolerated, with mild side effects such as mastodynia, menstrual irregularities, and dizziness reported in a minority of patients. The findings suggest that spironolactone is a safe and effective option for managing female AGA, although its efficacy may be limited in advanced cases. Further large-scale randomized controlled trials are warranted to establish optimal dosing strategies and long-term safety profiles.

KEYWORDS

Androgenetic alopecia, Spironolactone, Trichoscopy

MAIN ARTICLE

Introduction

Androgenetic alopecia (AGA) is a common condition affecting nearly 50% of women, marked by gradual hair thinning resulting from follicular miniaturization (1). This results in decreased hair density, impacting self-esteem and quality of life. Currently, the only FDA-approved treatments are topical minoxidil and oral finasteride. Given the limited options, spironolactone, an aldosterone antagonist with anti-androgenic properties, is gaining attention as a potential treatment (2). This study assesses its effectiveness and safety in women with AGA.

Methods

This retrospective analysis included 11 female patients diagnosed with AGA, receiving spironolactone in combination with other treatments. The study spanned three years (2021–2024), with patient data collected from electronic medical records during routine dermatology consultations. Women included had a confirmed diagnosis based on clinical examination and trichoscopy and received spironolactone for at least six months. Patients with other hair loss types were excluded.

Spironolactone was administered at different doses: eight patients started at 50 mg daily before increasing to 100 mg, two began directly at 100 mg, and one initiated at 25 mg daily. Combination therapies included topical minoxidil, low-level laser therapy, iron and vitamin D supplementation, and platelet-rich plasma therapy. Data were collected at baseline and follow-ups every six months, assessing medical history, lifestyle factors, family history, prior treatments, and hyperandrogenic signs. The extent of hair loss was assessed using the Sinclair scale, trichoscopy, and high-resolution scalp photographs. Primary outcomes included Sinclair scale changes and trichoscopic findings. Secondary outcomes included side effects.

Results

The study included 11 patients with a mean age of 29 years. Eight had a family history of AGA. The average disease duration was 5.72 years, and the mean treatment duration was 18 months (range: 6–36 months). Seven patients reported high stress, and six had nutritional imbalances. None had a personal history of breast cancer, though one had a sister who underwent surgery for it. Trichodynia was a prevalent symptom (eight patients), followed by hirsutism and hyperseborrhea (five patients), acne (one patient), and menstrual cycle disorders (three patients). At baseline, Sinclair scale scores ranged from 1 to 5.

After treatment, nine patients showed improvement, with a one-point decrease of Sinclair scale in all cases (Figs. 1 and 2). Visible hair regrowth and reduced anisotrichia were observed in nine patients. Trichoscopic improvement was noted in eight, with increased follicular density and a negative hair pull test. Two patients showed no improvement: one with severe hair loss (Sinclair 5) after three years and another after six months.

Treatment was well tolerated, with six patients experiencing no side effects. The most frequently reported adverse effects were mastodynia (three patients), weight gain, menstrual irregularities, dizziness, and hypotension (two patients each), along with pollakiuria and diarrhea (one patient each).

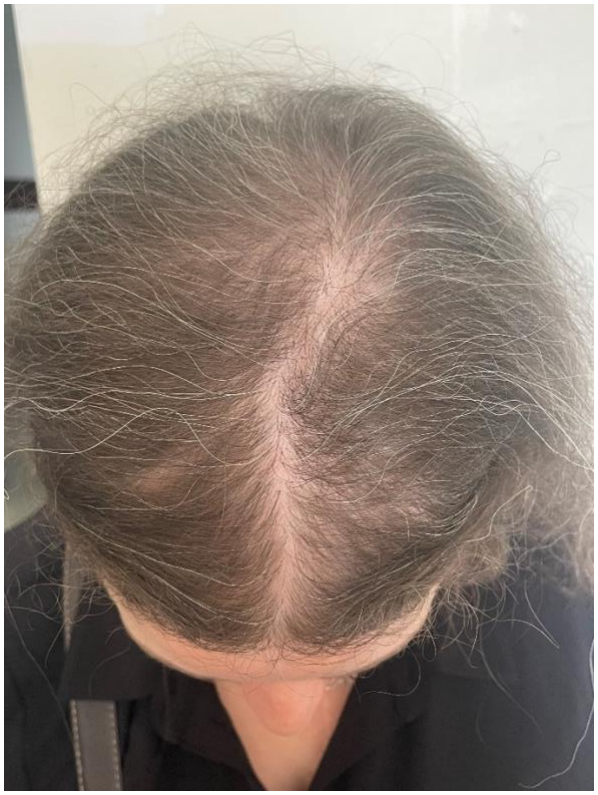

Figure 1: Female pattern hair loss. Patient receiving spironolactone at baseline

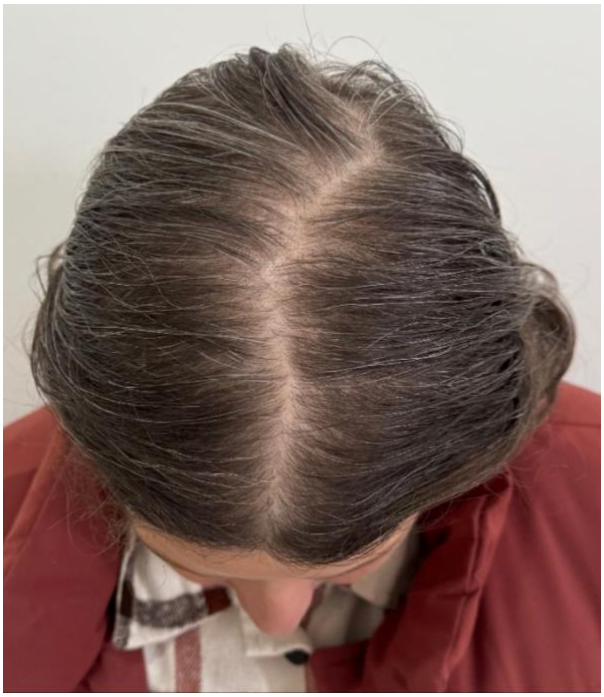

Figure 2: 12 months after treating with 50 mg twice daily

Discussion

These findings align with previous studies. A retrospective study of 79 patients receiving an average dose of 100 mg daily showed that a significant proportion achieved a full integer improvement in the Sinclair scale after at least one year of treatment (3). Similarly, a retrospective survey of 39 patients reported disease stabilization or improvement in 74.3% of cases (4).

Our findings support the role of spironolactone in improving both clinical and dermoscopic outcomes. The observed increase in follicular density and hair shaft diversity, as well as a decrease in perifollicular hyperkeratosis in some patients, align with prior studies indicating that spironolactone positively affects scalp health and follicular function (4). In our study, most patients who demonstrated improvement also had a negative hair pull test over time. However, spironolactone's efficacy remains variable depending on patient characteristics, disease severity, and adherence. In our cohort, one patient with severe AGA did not experience any improvement after three years of treatment, mirroring a previous case report where a patient using spironolactone with minoxidil for five years saw no changes (4). This highlights the potential limitations of spironolactone in advanced cases or in patients with poor adherence. Conversely, research has demonstrated that higher doses of spironolactone (e.g., 200 mg daily) can lead to substantial subjective improvement, with up to 86% of

patients reporting favorable outcomes (5). These variations emphasize the need to consider individualized dosing strategies and longer treatment durations to optimize efficacy. Regarding adverse effects, our study found that the majority of patients tolerated the treatment well, with only mild adverse events. These findings are consistent with prior research. A study evaluating 100 patients receiving spironolactone and minoxidil reported lightheadedness (16%), menstrual irregularities (3%), and nausea (3%) (5). Another study observed that 25% of patients experienced irregular periods, while 50% reported acne (3). The discrepancy in reported side effects may be due to differences in patient populations, treatment regimens, or reporting biases.

Conclusion

In conclusion, our study reinforces the growing body of evidence supporting spironolactone as an effective and well-tolerated treatment for female AAG. While most patients experienced clinical and dermoscopic improvement, treatment response varied based on disease severity and adherence. Larger-scale randomized controlled trials are needed in the future to validate optimal dosing regimens, evaluate long-term safety, and identify the best combination strategies to improve treatment outcomes.

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