

CASE REPORT

Androgenetic alopecia treated with topical minoxidil. A case report and review of treatment options

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ABSTRACT

Background: Androgenetic alopecia is a progressive hair loss and persistent in nature that affects the scalp region, and it is one of the most commonly encountered complaints in dermatology. Nearly 58% of males between 30s and 50s are affected with androgenic alopecia.

Case Presentation: A 28-year-old male medically free complaining of frontal and vertex progressive hair loss for the last 4 months. After obtaining a detailed history and physical examination, the diagnosis of androgenetic alopecia was established clinically. The patient was advised to start on minoxidil solution 5% two puffs daily for at least 2 months. The patient experienced improvement after 4 months of treatment.

Conclusion: Minoxidil is considered a good initial option for patients who show good compliance. Short-period results can be obtained using topical minoxidil in compliment patients.

Keywords: Androgenetic alopecia, minoxidil, baldness, hair loss.

Background

Androgenetic alopecia is a progressive hair loss and persistent in nature that affects the scalp region [1]. The pathogenesis of androgenic alopecia is not clear yet but two main factors have been shown to play an important role in the development of androgenetic alopecia those are androgens and polygenetic predisposition [2]. The androgenetic alopecia affects the vertex and temporal regions in the scalp while sparing the occipital region [3].

Androgenetic alopecia is one of the most commonly encountered complaints in dermatology. Nearly 58% of males between 30s and 50s are affected with androgenic alopecia [1].

Hair loss can affect an individual's quality of life, self-esteem, and quality of life were significantly affected in female patients with androgenetic alopecia [3]. Most males who suffer from androgenetic alopecia have moderate levels of psychological distress due to their appearance [3].

More than 60% of males and almost half of females will suffer from androgenetic alopecia at some point in their lives [4]. The most consistent risk factor for androgenetic alopecia that was found in studies is the hereditary cause

[5]. Pre-pubertal children with a strong family history of androgenetic alopecia, showed hair loss even though they did not have abnormal androgen levels [5].

Case Presentation

A 28-year-old Saudi male medically free presented to our dermatology clinic in King Salman Hospital in Riyadh city, Saudi Arabia, complaining of frontal and vertex progressive hair loss that started insidiously and has become prominent in the last 4 months. He did not report any stressful events. Family history was positive for male pattern baldness.

After obtaining a detailed history and physical examination, the diagnosis of androgenetic alopecia

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Received: 03 November 2023 | **Accepted:** 13 November 2023





Figure 1. Before minoxidil application.



Figure 3. After minoxidil application for 4 months.

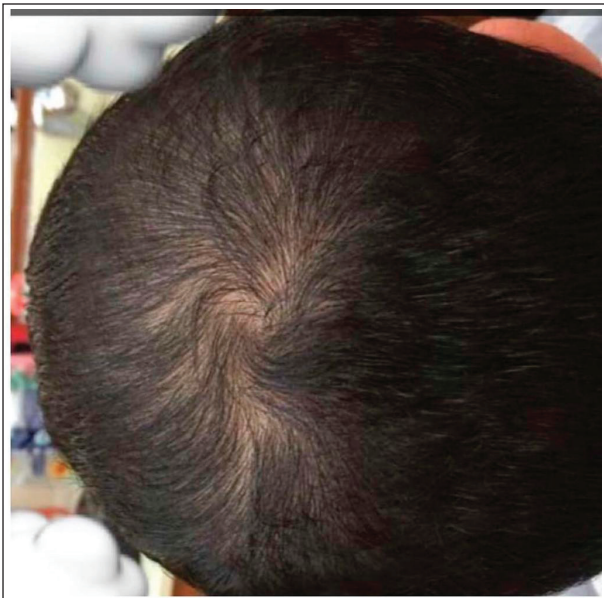


Figure 2. Before minoxidil application.



Figure 4. After minoxidil application for 4 months.

was established clinically (Figures 1 and 2), and the patient was advised to start on minoxidil solution 5% two puffs daily for at least 2 months. Possible potential side effects were discussed with the patient such as early self-resolved hair loss after initiating the treatment.

On a follow-up visit after 4 months, the patient reported good compliance with the medication and experienced improvement as shown in (Figures 3 and 4) with mild side effects such as itchiness and dandruff.

Treatment Options for Androgenic Alopecia

Plasma rich platelets (PRPs)

Injections of PRPs showed good outcomes in the treatment of androgenetic alopecia with a high satisfaction rate [6]. Gupta et al. [7] concluded good results of PRPs in the treatment of androgenic alopecia when it is taken over 3 months followed by 3-6 months of maintenance period. Mao et al. [8] conducted a systematic review and found that PRPs were associated

with reducing hair loss and increasing the diameter and density of hair. No serious side effects were detected during the treatment of androgenetic alopecia with PRPs [8].

Minoxidil

The exact mechanism of action of minoxidil in the treatment of androgenetic alopecia is not fully understood but it is thought due to its vasodilatory effects [9]. Topical minoxidil and oral finasteride are the only Food and Drug Administration-approved medications for the treatment of androgenetic alopecia. A randomized controlled trial conducted in 2020, found that minoxidil had better results in terms of hair count and hair density when used in the treatment of androgenetic alopecia compared to PRPs; however, patients showed a good level of satisfaction after the use of PRPs [9]. Topical minoxidil is available in two forms, the 2% and the 5%, the 5% form was superior to the 2% form in terms of effectiveness and earlier response [10]. Patients with shorter duration of androgenetic alopecia and those who many non-vellus hair showed better response to the medication compared to others. Results of topical minoxidil when applied twice daily, take an average of 4-8 months to appear, hence patience and compliance are required when using topical minoxidil [11]. Commonly reported side effects were skin irritation and skin pruritus, those side effects were mostly reported from the 5% topical solution more than the 2% solution form; however, the foam 5% minoxidil did not show these side effects because it is free of propylene glycol [12].

5-alpha reductase inhibitors

Combining 5-alpha reductase inhibitors like finasteride and minoxidil is a common dermatologist-recommended approach for male pattern baldness, showing potential synergistic effects to promote hair growth [13, 14]. In addition, when 5-alpha reductase inhibitors are combined with PRP injections, it offers a dual approach to hair loss treatment, addressing both hormonal and regenerative aspects for potentially improved results [15]. However, it is important to be aware of the potential side effects of 5-alpha reductase inhibitors, which can include sexual dysfunction, reduced libido, and gynecomastia in men [15].

Conclusion

Topical minoxidil is considered to be a good initial option for patients who show good compliance. There are a variety of options for treating androgenetic alopecia which include different routes, duration, and potency. Treatment can be influenced by the patient's compliance, preference, and the availability of the treatment. As a practitioner, all factors should be considered in treating androgenic alopecia to get the best outcomes possible for each patient.

List of Abbreviations

PRP Plasma rich platelets

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this case report.

Funding

The authors declare that there is no funding of any form received for this article.

Consent for publication

Consent for publication was obtained from the patient after the removal of all identifiers. The authors declare that there is no information related to the patient and it will be published anonymously.

Ethical approval

Ethical approval is not required at our institution to publish an anonymous case report.

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