

MASTER CASE PRESENTATION

Excellent response to mesotherapy as adjunctive treatment in male androgenetic alopecia

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Abstract

Androgenetic alopecia (AGA) is the most common type of alopecia. Currently, only topical minoxidil and oral finasteride, for men, are approved for its treatment. We report a case of a patient with male pattern AGA treated with topical minoxidil and oral finasteride for 2 years, with partial improvement. At this point, we added mesotherapy to the previous treatment. The patient had 20 sessions of sterile mesotherapy blend, containing minoxidil, finasteride, biotin, and D-panthenol. We did the injections every two weeks and made the response assessment with global clinical photographs at the 10th and the 20th sessions when we noted a significant visible improvement in hair density and thickness. Mesotherapy or intradermotherapy is defined as a technique that involves the use of multiple intradermal injections of a mixture of compounds in low doses, at many points, near/over the affected sites. In our case, the patient had an excellent response to intradermotherapy as an adjunctive treatment, with no side effects. Although we still need additional clinical trials to standardize the therapy and treatment guidelines, mesotherapy seems to be a therapeutic option in the treatment of AGA, especially if the procedure happens in a medical facility, with correct indication and adequate execution of this promising technique.

KEYWORDS

alopecia, androgenetic, hair loss, intradermal injection, mesotherapy

1 | INTRODUCTION

Androgenetic alopecia (AGA) is the most common type of alopecia, affecting up to 80% of males and 50% of females.¹ It is a chronic, progressive, noncicatricial, androgen-dependent condition that affects genetically predisposed individuals, leading to progressive follicular miniaturization. Currently, only topical minoxidil and oral finasteride are approved for its treatment.²

2 | CASE REPORT

A 47-year-old healthy white male patient came to our clinic with a complaint of hair loss. On examination, the patient had diffuse

thinning on his scalp hair and recession of the frontal and temporal hairline (Hamilton-Norwood Scale IV) without evidence of inflammation or scarring (Figure 1A). He had a positive family history of hair loss, and extensive laboratory analyses were unremarkable. We made the diagnosis of male pattern AGA, and we started the gold-standard treatment with minoxidil 5% topical solution twice daily and finasteride 1mg daily for 2 years, with improvement during this period. However, after that, the patient's clinical response stabilized and he requested hair transplantation. After a discussion of all treatment options, we added mesotherapy, a minimally invasive technique, to his previous treatment, postponing the need for an invasive procedure. The patient received 10 sessions of sterile injectable blend containing 1ml minoxidil 0,5%, 1ml finasteride 0,05%, 2ml biotin 5mg/ml, and 2ml D-panthenol 50mg/ml (Pineda®



FIGURE 1 Before treatment with mesotherapy, at the 10th (five months after the start of mesotherapy sessions) and 20th session (10 months after first session), respectively

Compounding Pharmacy, São Paulo, Brazil) with a total volume of 6ml per session, fortnightly. After disinfection with alcoholic chlorhexidine, we performed intradermal injections in androgen-dependent areas with 0.1ml solution at a 1- to 2-cm interval, at a depth of 2-4mm using a 4-mm-long 30-gauge needle in two 3cc syringes. At the 10th session, we noted a significant improvement in hair density, less hair fall, and an increase in hair thickness (Figure 1B). We decided to maintain the injections for more 10 sessions due to a good clinical response. The patient reported remarkable hair regrowth, and the photographic assessment showed excellent improvement after the 20th session (Figure 1C). The treatment was well-tolerated, with no evidence of adverse events (Figure 2).

3 | DISCUSSION

Mesotherapy or intradermotherapy is a technique defined as multiple intradermal injections of pharmaceutically active substances in low doses, at numerous points, near/over the affected sites, at longer time intervals than conventional routes. Once the drug is administered, it achieves a longer lasting effect and a great local bioavailability.³ The injectable blend for mesotherapy may contain several drugs. In the present case report, we used finasteride, minoxidil, dexpanthenol, and biotin. Finasteride is a selective inhibitor of type II 5 alpha-reductase located mainly in hair follicles and prostate.¹ Dihydrotestosterone (DHT) is the hormone that promotes hair miniaturization, an important phenomenon in the pathophysiology of androgenetic alopecia.¹ Finasteride decreases the levels of DHT and therefore its action.¹ Minoxidil has a vasodilator effect, promotes hair growth through up-regulation of vascular endothelial growth factor (VEGF), and prolongs the anagen phase by its antiapoptotic action, promoting thickening of hair shaft and increase in hair density.¹ Azam and Morsi evaluated the efficacy of mesotherapy using minoxidil compared to 2% topical minoxidil in 70 women with AGA and concluded that mesotherapy was more effective.⁴ Another study evaluated the efficacy and safety of mesotherapy in 126 patients with female AGA using a mixed preparation of dutasteride, biotin, pyridoxine, and D-panthenol and observed improvement in 62.8% of patients compared to 17.5% of the control group with no significant side effects reported.⁵ Dexpanthenol (provitamin B5) promotes the formation of strong hair as it increases the



FIGURE 2 Sterile blend contents: minoxidil, finasteride, biotin, and D-panthenol. A 4-mm-long 30-gauge needle is used

expression of keratin-associated protein 4 (KAP4) that is involved in the terminal keratinization of the hair cortex.⁶ Biotin (vitamin B7 or H) acts as an essential cofactor for carboxylase enzymes in multiple metabolic pathways.⁷ The role of biotin in protein synthesis, and in the production of keratin, explains its contribution to the healthy growth of hair.⁸ During mesotherapy, the trauma of the injection has mild effects; however, the psychological impact of this therapy is significant and strongly influences patients' satisfaction.⁹ Some complications as mycobacterial infection, urticaria, cutaneous necrosis, panniculitis, acromia, and others have been reported, but the authors believe that these side effects are more related depending on indications, injection techniques, drugs, and doses used rather than mesotherapy itself. The recommendation is that only physicians should start mesotherapy, in a medical environment, after proper diagnosis, using sterile single-use syringes and needles, according to the accepted standard hygiene precautions. It requires clinical and pharmacological expertise.¹⁰

4 | CONCLUSION

In the presented case, there was an excellent response to 20th sessions for AGA without any side effects reported. Obviously,

the correct diagnosis is fundamental, and the dermatologist is the specialist qualified for that. The procedure of this promising technique must be done with rigorous asepsis, use of safe components, correct indication, and adequate execution. And although additional clinical trials are still required to standardize the therapy, to document the reproducibility of results, to compare to other techniques as platelet-rich plasma (PRP), to study complications, and to establish guidelines, mesotherapy seems to be a good and safe adjuvant therapeutic option in the treatment of AGA.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

STATEMENT OF ETHICS

The patient's consent has been obtained.

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