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Persistent Alopecic Patches Following Dutasteride Mesotherapy for Female Androgenetic Alopecia: A Case Series

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ABSTRACT

Background: Androgenetic alopecia (AGA) is the most common cause of hair loss. To minimize systemic adverse effects of 5-alpha-reductase inhibitors, dutasteride mesotherapy has gained popularity. Although generally considered safe, alopecia at injection sites has been increasingly reported. We describe three cases of persistent alopecia following dutasteride mesotherapy in women with AGA.

Case Reports: Three female patients with AGA underwent mesotherapy with dutasteride (0.025–0.05%). Case 1: A 44-year-old woman developed multiple alopecic patches 1 month after a single session, with trichoscopic and histologic features of scarring alopecia. Only partial improvement occurred, and surgical correction was later required. Case 2: A 30-year-old woman developed 4 alopecic patches after 2 sessions. Trichoscopy revealed mixed features of cicatricial alopecia and follicular miniaturization, with limited regrowth despite optimized medical therapy. Case 3: A 48-year-old woman developed numerous alopecic patches 3 months after a single session. Follicular openings were preserved, and miniaturized hairs predominated. Alopecia persisted long-term despite corticosteroids and adjunctive treatments.

Discussion: Reported cases of alopecia after mesotherapy include both scarring and non-scarring patterns, suggesting diverse mechanisms, such as mechanical injury, cytotoxicity from solvents, inflammation, or infection. In this series, none of the patients experienced full regrowth, highlighting the potential for lasting aesthetic sequelae. Published cases show similar variability but often lack detailed trichoscopic or procedural information, limiting interpretation. These findings underscore the importance of proper counseling, careful technique, and close follow-up when using dutasteride mesotherapy. This complication may be underrecognized, and clinicians should maintain vigilance for early detection and management.

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INTRODUCTION

Androgenetic alopecia (AGA) is the most prevalent form of hair loss worldwide, affecting both men and women, with an estimated prevalence of up to 80% in males and approximately 40% in females, at some point of their lives.[1] Its multifactorial etiology involves genetic predisposition and androgenic hormonal influences, primarily dihydrotestosterone (DHT), which acts on susceptible hair follicles. The central pathological mechanism is follicular miniaturization, with progressive hair shaft thinning and eventual hair loss.[2]

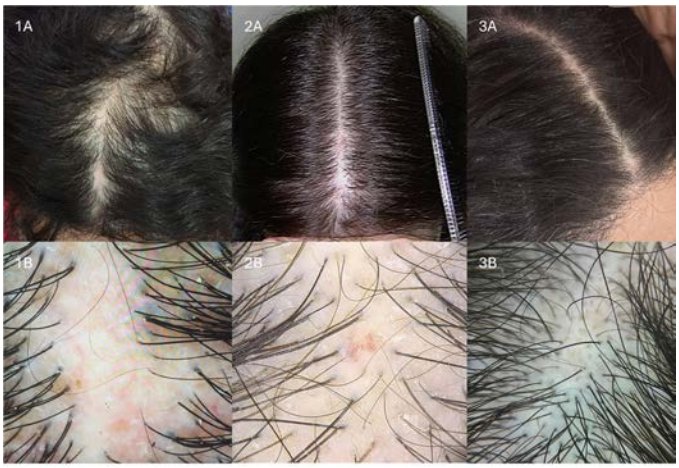
Recently, an expanding armamentarium of therapeutic options has become available, including systemic and topical pharmacological agents as well as procedural interventions such as mesotherapy, platelet-rich plasma (PRP), and hair transplantation. Among pharmacological treatments, 5-alpha-reductase inhibitors, such as finasteride/dutasteride, have demonstrated efficacy by reducing DHT levels. However, systemic administration is often limited by potential adverse effects, including decreased libido and gynecomastia, and contraindications, such as pregnancy/lactation.[3] To mitigate these effects, alternative administration routes, such as localized scalp injections (mesotherapy), have gained popularity. Mesotherapy with dutasteride is increasingly performed, with treatment frequency ranging from once per week to once every 3 months, typically using concentrations from 0.005% to 0.05%.[4] However, this technique is not devoid of complications. We report 3 cases of female patients with AGA who developed persistent alopecia following mesotherapy with dutasteride.

Clinical Cases

Case 1

The first case is a 44-year-old female with AGA and no relevant medical history, under oral finasteride 5 mg/day plus topical minoxidil 5%, and with a history of previous hair transplantation. The patient received a single session of mesotherapy with dutasteride (final concentration of 0.025%), mixed with an anesthetic solution (lidocaine, bupivacaine, adrenaline, and sodium bicarbonate). Treatment was administered using 4 mm, 30G needles, with 0.05–0.1 mL per site of injection and 1 cm spacing between injection sites, for a maximum total of 2 mL. The administration technique was similar in the cases described below.

FIGURE 1. Clinical (A, upper panels) and trichoscopic (B, lower panels) findings of cases 1, 2, and 3. Clinically, all patients showcased small patches of alopecia at some of the injection sites. Note the cicatricial nature of lesions on case 1 (1A). On trichoscopy, the lack of follicular openings and skin atrophy is prominent on the 1B, while on 3B, the follicular ostia are preserved, and follicular miniaturization is the predominant feature. The second case (2B) displays mixed findings, with central areas without follicular openings and also evident miniaturization.



One month after the procedure, the patient developed 8 small alopecic patches (0.3–0.5 cm in diameter) at injection sites (Figure 1, 1A). Clinical examination revealed areas of cicatricial alopecia, without erythema or scaling. Trichoscopy confirmed these findings, showcasing areas with smooth, porcelain-white skin and complete loss of follicular ostia; sparse telangiectasias were observed, and no signs of active inflammation were present, with absence of erythema or pustules, and only minimal perifollicular hyperkeratosis (Figure1, 1B). Treatment with clobetasol solution resulted in partial improvement, yet 4 alopecic patches persisted after 5 months. A skin punch biopsy showed mild epidermal acanthosis, reduction of adnexal structures in the dermis, and vertical fibrosis involving the previous pilosebaceous units, with a lymphocytic infiltrate around the isthmic region. A second hair transplantation was performed 1 year later to address these areas.

Case 2

A 30-year-old healthy female with AGA, under oral minoxidil 0.5 mg/day, spironolactone 100 mg/day, and topical minoxidil 5%, underwent 2 sessions of mesotherapy with 0.05% dutasteride (without anesthetic admixture), 8 weeks apart. One month after the second session, 4 alopecic patches appeared at injection sites (Figure 1, 2A). Trichoscopy showed both areas of cicatricial alopecia and follicular miniaturization (Figure 1, 2B). Treatment included clobetasol solution and optimization of systemic therapy, later adding finasteride 5 mg/day. Only partial regrowth was achieved. Two years later, the patient underwent hair transplantation for correction.

Case 3

Our last case is a 48-year-old female with AGA and seborrheic dermatitis, under topical minoxidil 0.5%. The patient preferred to avoid systemic therapies, and mesotherapy with dutasteride was proposed. She underwent a single session, with a final dutasteride concentration of 0.025% (mixed with an anesthetic solution, as described in case 1). Three months post-procedure, 18 alopecic patches were identified by the medical team in the treated areas. The patient was unaware of the lesions. Trichoscopy revealed preserved follicular openings, but with miniaturized or absent hairs. She received 2 sessions of intralesional corticosteroid injections, with limited improvement. Despite adjunctive therapies, including oral/topical minoxidil and PRP, the alopecic patches persisted after 4 years of follow-up (Figure 1, 3A), with no evidence of regrowth and with overlapping trichoscopic findings (Figure 1, 3B).

DISCUSSION

Previous descriptions of alopecia induced by cosmetic injectable procedures encompass both non-scarring and scarring alopecia. While mesotherapy is generally considered safe, at least 9 other cases of alopecia following this procedure have been reported, as summarized in Table 1.[5-9] Only 4 of these refer to solutions including dutasteride, as in our series. The interval between the last mesotherapy session and symptom onset varied, from a few days to several weeks, as did the clinical/trichoscopic findings, suggesting multiple possible pathogenic mechanisms.

Duque-Estrada et al (2009) documented 2 cases of paradoxical alopecia after mesotherapy with non-dutasteride agents, including one case with permanent cicatricial alopecia and the other with non-scarring alopecia and complete hair-regrowth during follow-up.[5] El-Komy et al (2017) described 3 patients who also developed alopecia at mesotherapy injection sites, each of whom displayed areas with absence of follicular ostia on trichoscopy, and only 2 of whom experienced partial hair regrowth over time.[6] Cura et al (2022) reported 2 additional cases of alopecia following mesotherapy with dutasteride.[7] One patient presented with cutaneous atrophy at injection sites and showed no short-term improvement, while the other patient was lost to follow-up. Even though the authors categorized their findings as non-scarring, trichoscopic findings at presentation of the second case included white dots and a reduced number of follicular openings, suggesting at least partial evidence of fibrosis and possible scarring disease.

In our series, the first case developed cicatricial alopecia at sites of injection, while our third case displayed preserved follicular ostia and follicular miniaturization. The second patient presented with mixed clinical/trichoscopic findings of cicatricial alopecia and follicular miniaturization; Interestingly, none of the 3 cases experienced complete regrowth over time, even with optimized medical therapy and when there were preserved follicular ostia.

TABLE 1.

Post-Mesotherapy Alopecia Reported Cases (Literature Review)

Authors	Sex	Age (years)	Procedure	Scalp Topography	Hair Loss Onset	Clinical Features at Diagnosis	Treatment	Outcome
Duque-Estrada et al	Female	32	Mesotherapy with mesoglycan	Right parietal	Few days	Single alopetic patch with edema and erythema, associated with trichodynia and paresthesias. Trichoscopy showed loss of follicular ostia.	Not specified	Permanent cicatricial alopecia
Duque-Estrada et al	Female	22	Mesotherapy with lilium compositum, solanum compositum, *Thuja* and *Tanacetum*	Parietal and vertex	Not specified	Three patches of alopecia with mild erythema. Trichoscopy showed preserved follicular ostia.	Not specified	Complete hair regrowth at 7 months of follow-up
El-Komy et al	Female	30	Mesotherapy with dutasteride and Insulin-like Growth Factor-1 (IGF-1), basic Fibroblast Growth Factor (bfGf), Vascular Endothelial Growth Factor (VEGF), Copper Tripeptide-1, Multi-vitamins, Amino acids and Minerals (Mesologica MRS Hair)	Frontal	1 week	Multiple slightly erythematous alopetic patches. Trichoscopy showed loss of follicular ostia and peri/interfollicular mild scaling.	Topical minoxidil (5%)	Partial hair regrowth at 5 months of follow-up; Areas of permanent cicatricial alopecia
El-Komy et al	Female	29	Mesotherapy with dutasteride and Insulin-like Growth Factor-1 (IGF-1), basic Fibroblast Growth Factor (bfGf), Vascular Endothelial Growth Factor (VEGF), Copper Tripeptide-1, Multi-vitamins, Amino acids and Minerals (Mesologica MRS Hair)	Frontal	Not specified	Single tender, erythematous and crusted alopetic plaque. Trichoscopy showed loss of follicular ostia and peri/interfollicular mild scaling, as well as several vellus hairs.	None	Permanent cicatricial alopecia at 8 months of follow-up
El-Komy et al	Female	34	Unspecified mesotherapy	Frontal midscalp	Not specified	Two linear erythematous depressed atrophic scars. Trichoscopy showed loss of follicular ostia, peri/interfollicular mild scaling and several vellus hairs.	Intralesional saline injection and topical melatonin	Partial hair regrowth at 3 months of follow up. Areas of permanent cicatricial alopecia
Cura et al	Female	42	Mesotherapy with dutasteride	Parietal and vertex	1 month	Focal patchy alopecia at mesotherapy injection site without atrophy, erythema, scaling, or local discomfort. Trichoscopy showed multiple white dots, decreased follicular openings and vellus hairs.	None	Loss of follow-up
Cura et al	Male	58	Mesotherapy with dutasteride	Frontal and parietal	Not specified	Bald atrophic patches at mesotherapy injection sites. Trichoscopy findings not described.	Topical minoxidil (5%)	Permanent alopecia at 3 months follow-up (likely cicatricial alopecia)
Al-Khalaf et al	Female	25	Mesotherapy with buflomedil, hydrochloride, pyridoxine hydrochloride, pantothenic acid, niacinamide, thiamine hydrochloride and acetylcysteine	Frontal and parietal	2.5 weeks	Scalp pain and diffuse hair loss. Trichoscopy showed findings of alopecia areata (Yellow dots, thinning of hair, coudability hairs, irregular diameters and exclamations mark hairs).	Oral, intralesional, and topical corticosteroids	Partial hair regrowth at 6 months follow-up
Kadry et al	Female	26	Mesotherapy with flavonoids, vitamins (B1, B3, B5, B6, B8 and C), procaine and saline	Right and left parietal	2 weeks	Scalp pain erythema and diffuse draining abscesses with overlying alopecia. Isolation of *Pseudomonas aeruginosa and Acinobacter*. No trichoscopy description.	Piperacillin/tazobactam + ciprofloxacin and surgical drainage	Permanent cicatricial alopecia
Case n°1	Female	44	Mesotherapy with dutasteride	Frontal and parietal	1 month	Multiple small cicatricial alopecic patches at injection sites without inflammatory signs Trichoscopy showed loss of follicular openings.	Topical corticosteroids; hair transplantation	Partial hair regrowth; areas of permanent cicatricial alopecia (before hair transplantation)

TABLE 1. (CONTINUED)

Post-Mesotherapy Alopecia Reported Cases (Literature Review)								
Authors	Sex	Age (years)	Procedure	Scalp Topography	Hair Loss Onset	Clinical Features at Diagnosis	Treatment	Outcome
Case nº2	Female	30	Mesotherapy with dutasteride	Frontal and parietal	1 month	Multiple small cicatricial alopecic patches at injection sites without inflammatory signs. Trichoscopy showed loss of follicular ostia and also follicular miniaturization.	Topical corticosteroids; oral finasteride; hair transplantation	Partial hair regrowth; areas of permanent cicatricial alopecia (before hair transplantation)
Case nº3	Female	48	Mesotherapy with dutasteride	Frontal and parietal	3 months	Multiple small alopecic patches at injection sites without inflammatory signs. Trichoscopy showed preserved follicular ostia and follicular miniaturization.	Intralesional corticosteroids, oral and topical minoxidil, platelet-rich plasma injections	Partial hair regrowth, with areas of permanent non-cicatricial alopecia

As mentioned before, the heterogeneity in clinical presentations—ranging from scarring to non-scarring alopecia—suggests the involvement of multiple pathogenic mechanisms. A pressure-induced mechanism, directly related to the infusion of mesotherapy solutions, has been proposed.[10] In cases of non-scarring alopecia, another plausible hypothesis involves direct cytotoxicity to hair follicle keratinocytes, potentially exacerbated by solvents like ethanol, used in the preparation. Ethanol has been implicated in follicular damage, potentially leading to hair loss without scarring due to suppression of metabolic activity and subsequent follicular miniaturization.[6] Ethanol is a common excipient in most mesotherapy solutions containing dutasteride. Conversely, scarring alopecia may result from a more intense inflammatory response, possibly due to hypersensitivity reactions or contamination, culminating in permanent follicular destruction and fibrosis. The variation in individual immune responses, injection techniques, and solvent compositions could further modulate these outcomes. These different mechanisms may coexist in the same patient and give rise to a continuous spectrum of changes between non-scarring and scarring forms, as exemplified by our second case. This variability also seems present in the remaining published cases, although limitations in those reports hinder the characterization of the underlying pathological process, such as the lack of information regarding the composition of mesotherapy solutions, absence of follow-up, and lack of trichoscopic descriptions and/or images in some of these cases.

It is also noteworthy that our cases occurred within a relatively narrow time frame. This temporal clustering suggests a shared extrinsic factor, such as an issue related to the specific lot used. Although no formal stability or contamination analysis of the preparation was conducted, this hypothesis cannot be excluded and may explain the unusual frequency and severity of the adverse events observed. Future cases should consider the importance of batch traceability and pharmacovigilance reporting when adverse outcomes arise in procedural dermatology.

Interestingly, distinct mechanisms may be involved in the development of paradoxical alopecia after mesotherapy. Al-Khalaf et al (2023) reported a female patient who developed pain and diffuse hair loss following mesotherapy, with trichoscopic findings consistent with alopecia areata.[8] The patient was treated with oral, intralesional, and topical corticosteroids, with partial improvement. Although it is difficult to establish a causal relationship, the authors discuss the possibility of mesotherapy-induced alopecia areata. Kadry et al (2008) also described a distinct case of scarring alopecia after mesotherapy in a young female patient who presented with scalp pain and draining abscesses, later yielding *Pseudomonas aeruginosa* and *Acinetobacter* on culture, and requiring intravenous antibiotic therapy and surgical drainage.[9] This case underscores the importance of strict aseptic technique to prevent post-procedural infection and subsequent secondary cicatricial alopecia.

This case series highlights the variability of clinical and trichoscopic findings in post-mesotherapy alopecia, ranging from permanent scarring to non-scarring alopecia, albeit with possible persistent miniaturization. Despite optimized medical management, aesthetic sequelae remained in all patients, some of whom ended up undergoing hair transplantation. Although there are few published cases to date, the authors note that similar occurrences remain unpublished, suggesting this may be an underrecognized phenomenon. These cases underscore the need for careful counseling regarding the potential risks of mesotherapy with dutasteride and for adequate follow-up after the procedure to detect complications early and prevent permanent sequelae.

DISCLOSURES

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REFERENCES

1. Vañó S, Jaén P, eds. *Manual Práctico de Tricología #TricoHRC*. 2nd ed. Autor-Editor; 2023.
2. Ntshingila S, Oputu O, Arowolo AT, Khumalo NP. Androgenetic alopecia: an update. *JAAD Int*. 2023;13:150-158. doi:10.1016/j.jdin.2023.07.005.
3. Estill MC, Ford A, Omeira R, Rodman M. Finasteride and dutasteride for the treatment of male androgenetic alopecia: a review of efficacy and reproductive adverse effects. *Georgetown Med Rev*. 2023;7(1). doi:10.52504/001c.88531.
4. Sandre M. Dutasteride mesotherapy for androgenetic alopecia. *Can Dermatol Today*. 2024;5(2):279-285.
5. Duque-Estrada B, Vincenzi C, Misciali C, Tosti A. Alopecia secondary to mesotherapy. *J Am Acad Dermatol*. 2009;61(4):707-709. doi:10.1016/j.jaad.2008.11.896.
6. El-Komy M, Hassan A, Tawdy A, et al. Hair loss at injection sites of mesotherapy for alopecia. *J Cosmet Dermatol*. 2017;16(4):e28-e30. doi:10.1111/jocd.12320.
7. Reguero del Cura L, De Quintana Sancho A, Rubio Lombraña M, et al. Two cases of paradoxical nonscarring alopecia after mesotherapy with dutasteride. *Skin Appendage Disord*. 2022;8(1):46-48. doi:10.1159/000518043.
8. Al-Khalaf H, Reygagne P, Baqays A, et al. One case of paradoxical hair loss induced by mesotherapy. *Hair Ther Transplant*. 2023;13:222.
9. Kadry R, Hamadah I, Al-Issa A, et al. Multifocal scalp abscess with subcutaneous fat necrosis and scarring alopecia as a complication of scalp mesotherapy. *J Drugs Dermatol*. 2008;7(1):72-73.
10. Corona Rodarte E, Cano Aguilar LE, Baldassarri Ortego LF, et al. Pressure-induced alopecias: a review. *J Am Acad Dermatol*. 2024;90(4):e133-e134. doi:10.1016/j.jaad.2023.07.009.

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