RESEARCH PAPER

# Minoxidil Misuse Leading to Generalized Hypertrichosis – A Case Report

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**ABSTRACT**

Minoxidil is a topical medication used in the treatment of various types of hair loss. It is an FDA-approved drug which has been used in the treatment of androgenetic alopecia for many years. Its common side effects include itching, local irritation, and redness. Generalized hypertrichosis is a condition where excessive hair growth over body parts is seen, and it is one of the rare side effects of minoxidil use.

Herein, we report a case of a 4-year-old child who was prescribed 5% minoxidil with 1% finasteride topical medication for the treatment of alopecia areata by a paediatrician. After the medication was prescribed, the parents were unaware of proper application and applied it liberally over the scalp, following which the child developed hair growth over the forehead, neck, upper limbs, and back, which gradually increased over a period of 1 month.

The case highlights the adverse effects of improper use of minoxidil and the detrimental effect of non-dermatologists prescribing dermatological drugs. Patients should be advised about the proper application of topical medications, educated about the common side effects, and kept on regular follow-ups. There is a dire need to understand the sequelae of topical minoxidil solution and the avoidance of prescription of dermatological drugs by non-dermatologists.

**Keywords:** Topical minoxidil, medication misuse, alopecia areata, adverse effects, generalized hypertrichosis

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## INTRODUCTION

Minoxidil was initially made available as an oral medicine for the management of severe and resistant hypertension in the 1970s.1 It is a potassium channel opener. It is an oral direct-acting peripheral vasodilator, that acts by lowering high blood pressure.2 Doctors accidentally discovered hair growth and generalized hypertrichosis in balding patients. This is when a topical minoxidil was formulated to treat androgenetic alopecia (AGA). Although it is primarily indicated in AGA, it is also used in the treatment of alopecia areta.3, 4

One of the adverse effects of topical minoxidil treatment, more frequently observed in females, is hypertrichosis. With topical therapy, there is a 2% systemic absorption of the medication. It typically affects the head and neck, though it can infrequently affect other body parts as well. Case reports of hypertrichosis involving large body surface is rare.5 We report a case of generalized hypertrichosis in a child who was treated inappropriately for alopecia areata with a solution containing minoxidil 5% and finasteride.

## CASE REPORT

A 2-year-old male child was bought to Dermatology OPD with increased hair growth over forehead, nape of neck, upper limbs and back. On taking history, the parents revealed that, the child was treated by a pediatrician with topical solution of minoxidil 5% and Finasteride 0.1% for alopecia areata patch over the occipital area. Parents applied the solution twice a day for one month. Standard method of minoxidil application was not followed and the solution was being applied liberally (60 ml in 1 month). No other topical or systemic medications (like corticosteroids) were used during this period. Child developed hair growth gradually over forehead, neck, upper limbs and back over a period of 1 month. General physical examination was within normal limits. On cutaneous examination, there was generalized hypertrichosis involving forehead, cheeks, neck, upper limbs and back (Figure 1). No other cutaneous or systemic side effects were noted. Patient was referred to endocrinologist, who ruled out endocrine abnormalities like hyperandrogenism and thyroid dysfunction. Based on the history and clinical examination, a diagnosis of generalized hypertrichosis secondary to topical minoxidil and finasteride was made. Parents were counselled regarding the cause for increased hair growth and were advised to stop minoxidil and finasteride solution. The child was treated with Eflornithine cream to be applied twice a day. On follow up after 2 weeks, there was noticeable reduction in the density of hairs over the forehead, cheeks, and neck. The child is on regular follow up.

## DISCUSSION

Hypertrichosis is a condition of excessive hair growth anywhere on the body in either gender. They are classified into localized and generalized (based on the distribution), congenital and acquired (based on the age of onset) and vellus and terminal (based on the type of hair). Hypertrichosis in prepubertal children is most frequently an adverse drug reaction and is not related to an underlying endocrine disease usually.6

Some of the common causes of hypertrichosis in pediatric population include Congenital hypertrichosis lanuginose, Congenital generalized hypertrichosis, Gingival fibromatosis with hypertrichosis, Osteochondrodysplasia with hypertrichosis, Thyroid disorders, Porphyria, Malnutrition, Systemic medications (Minoxidil, Dilantin, Cyclosporine, Glucocorticoids), topical medications (Minoxidil, Tacrolimus, Glucocorticoids, Crisabarole).7,8

There have been multiple reports of systemic minoxidil absorption, either by oral administration to the mother during pregnancy or by oral consumption by the child, which resulted in diffuse hypertrichosis in the newborn and young child.5

Minoxidil solution, commonly used for alopecia, may lead to hypertrichosis as pharmacological adverse effect. Minoxidil functions by opening arteriolar potassium channels, leading to vasodilation, which is effective in treating hypertension. It also induces biochemical changes in hair follicles, increasing levels of VEGF, HIF-1α, and prostaglandin E2, which prolong the anagen phase and shorten the telogen phase, promoting hair growth. Sulfotransferase converts minoxidil to its active form within hair follicles, and variations in this enzyme can affect treatment responses.2,13

Topical minoxidil can produce hypertrichosis due to several causes, including increased application volume or concentration, excessive systemic absorption, and high follicular apparatus sensitivity to minoxidil. Our patient's low body weight (greater body surface area in relation to weight), age, and high dose and unsupervised application (both in terms of concentration and daily quantity) all contributed to the development of hypertrichosis.5

Topical minoxidil is being used for the treatment of Hair loss (alopecia) over scalp, which refers to loss of hair at the place of normal hair growth. It is caused due to poor circulation, hereditary and hormonal influences, nutritional imbalance, side effects of drugs, free radical damage, stress.11,12

Topical minoxidil is an FDA-approved therapy for male and female AGA. Beyond these licensed indications, it is widely used off-label for several other hair disorders. These include alopecia areata, enhancement of beard and eyebrow hair, central centrifugal cicatricial alopecia, frontal fibrosing alopecia, monilethrix, and loose anagen hair syndrome. Minoxidil is also used in chemotherapy-induced alopecia, in which cytotoxic anticancer agents damage the follicular epithelium and lead to hair loss, and in telogen effluvium, which is the most frequent cause of diffuse shedding, typically characterized by loss of more than 200 scalp hairs per day.1, 13, 14,15

Topical minoxidil has been considered relatively safe; however, some patients may experience local side effects after application. The most common side effect of minoxidil is irritant contact dermatitis with the typical symptoms of itching and scaling. Other side effects include, local irritation and erythema. Hypertrichosis is another common side effect of topical minoxidil. The severity of hypertrichosis depends on minoxidil concentration, with the highest incidence of unwanted hair growth experienced by those treated with 5% minoxidil.1,16

Due to its easy availability and widespread use, several cases of hypertrichosis have been reported off late, especially in the pediatric age group. Following shows some of the recently reported cases of hypertrichosis among children due to the use of minoxidil.

Recently reported cases of minoxidil induced Hypertrichosis:

Herskovitz I et al (2013), USA: 2-year-old male developed generalized hypertrichosis after months of treatment with 5% minoxidil foam. Growth of long pigmented hairs on his face, trunk and limbs.

Guerouaz N et al (2014), Morocco: 5-year-old girl developed patchy alopecia areata of the scalp. She was treated by minoxidil lotion 2% 10 times a day she developed extensive hypertrichosis covering the face and the back.

Verma SB (2014), Gujarat, India: 4-year-old girl developed hypertrichosis on forehead and sides of face after 5 weeks of treatment with 5% minoxidil lotion. Long pigmented hairs on forehead, sides of face.

Rai AK (2016), Uttar Pradesh, India: 3-year-old developed hypertrichosis of forehead, cheek and neck. Long pigmented hairs on face, cheek and neck.

Rampon G et al (2016), Brazil: 5-year-old with hypertrichosis of forehead, back and elongated eyelashes. Long pigmented hairs on forehead, back and elongated eyelashes.

Oral Finasteride is another drug, used for treatment of AGA in males, also known as male pattern hair loss (MPHL) and also in benign prostatic hypertrophy (BPH). Topical formulations are now available for treatment of AGA. Finasteride acts by reducing dihydrotestosterone (DHT) levels through inhibiting type II 5α-reductase, that prevents hair follicle miniaturization and promotes the anagen phase of hair growth.9,10

Our patient was prescribed a minoxidil 5% and finasteride 0.1% solution for alopecia areata by a pediatrician. This pattern of non-Dermatologists like pediatricians and general practitioners prescribing Dermatological drugs, leading to complications have been documented in several studies.21

## CONCLUSION

This case highlights the fact that unsupervised application of minoxidil and finasteride can lead to adverse effects such as hypertrichosis. Caution should be exercised while prescribing it in children in terms of indications and quantity of the drug administered. Pediatricians and other

non-Dermatologists should refrain from prescribing Dermatological drugs. Additionally, studies on topical finasteride and its side effects are inadequate, emphasizing the need for more research to establish its safety and efficacy, particularly in pediatric patients. This is most likely the first documented case of hypertrichosis due to topical minoxidil and finasteride combination.

**REFERENCES**


Suchonwanit P, Thammarucha S, Leerunyakul K. Minoxidil and its use in hair disorders: a review. Drug Des Devel Ther. 2019;13:2777-2786. doi:10.2147/DDDT.S214907.

Sethi AK, Alam F, Mishra SR. A Comprehensive Review on Medicinal Plants for the Remedy of Hair Loss. Res J Pharm Technol. 2023;16(11):5497-1. doi:10.52711/0974-360X.2023.00889.

Mathrusri Annapurna M, Navya PV, Narendra A. New spectrophotometric methods for the determination of Minoxidil. Res J Pharm Technol. 2024;17(5):2372–8. doi:10.52711/0974-360X.2024.00371.

Rani D, Sharma V, Manchanda R, Chaurasia H. Formulation, design and optimization of glycerosomes for topical delivery of minoxidil. Res J Pharm Technol. 2021;14(5):2367-74. doi:10.52711/0974-360X.2021.00418.

Rai AK. Minoxidil-induced hypertrichosis in a child with alopecia areata. Indian Dermatol Online J. 2017;8(2):147–148. doi:10.4103/2229-5178.202269.

Vashi RA, Mancini AJ, Paller AS. Primary generalized and localized hypertrichosis in children. Arch Dermatol. 2001;137(7):877–884. doi:10.1001/archderm.137.7.877.

Kang S. Fitzpatrick's dermatology. New York: McGraw-Hill Education; 2019.

Chen M, Ali K, Shan J, Xie T, Wu L. Crisaborole-induced acquired localized hypertrichosis in a 3-year-old male patient with atopic dermatitis. Int J Dermatol. 2023 Mar;62(3):e158-e159. doi:10.1111/ijd.16468.

Sánchez-Díaz M, López-Delgado D, Montero-Vílchez T, Salvador-Rodríguez L, Molina-Leyva A, Tercedor-Sánchez J, Arias-Santiago S. Systemic minoxidil accidental exposure in a paediatric population: a case series study of cutaneous and systemic side effects. J Clin Med. 2021;10(18):4257. doi:10.3390/jcm10184257.

Obaid FN, Jaffat HS. Physiological and Histological Study of the Effect of Finasteride Drug (Prostacare) on the Fertility of Albino Male Rats. Res J Pharm Technol. 2018;11(6):2323-2325. doi:10.5958/0974-360X.2018.00431.6.

Andi Nafisah Tendri Adjeng A, Sarry EP, Muhammad Ali NF, Suryani. Hair Growth-Promoting Activity of Hair Tonic containing Delipidated Ethanol Extract of Capsicum frutescens L. Leaves on Male Rabbit (Oryctolagus cuniculus). Res J Pharm Technol. 2023;16(7):3305-10. doi:10.52711/0974-360X.2023.00545.

Park SY, Kim KB, Ahn SH, Kim HH. The effects of SM-215 on androgeneticalopecia. Res J Pharm Technol. 2018;11(5):1745–51. doi:10.5958/0974-360X.2018.00324.4.

Suresh PK, Ramkar S. Androgenic Alopecia: Recent Understanding of the Androgenetic Receptor-Mediated Molecular Mechanisms and Current Pharmacotherapy. Res J Pharm Technol. 2024;17(12):6137-5. doi:10.52711/0974-360X.2024.00931.

Pandya JK, Senghani MK, Sukhramani PS, Chaudhari BG. In-vivo studies to determine Hair Growth Potential of Poly Herbal Medicated Hair Oil in Female Swiss Albino Mice. Res J Pharm Technol. 2023;16(3):1409-14. doi:10.52711/0974-360X.2023.00232.

Bhargavi MN, Himanshu MT, Pandya DJ. Estimation of Ursolic acid and Diosgenin in Herbal hair oil formulations used for Hair loss and Grey hair activity by using RP-HPLC Method. Res J Pharm Technol. 2024;17(12):5851-4. doi:10.52711/0974-360X.2024.00888.

Gozali D, Mustarichie R. Hair Tonic Formulation of Anti-alopecia of Angiopteris evecta Extract. Res J Pharm Technol. 2019;12(3):1079-85. doi:10.5958/0974-360X.2019.00177.X.

Griffiths CEM, Finkel LJ, Tobin DJ, Barker J, Griffiths T. The global state of alopecia areata: a comprehensive review of epidemiology, disease burden, and therapeutic advances. Dermatol Clin. 2014 Jul;32(3):43-53. doi:10.1016/j.det.2014.03.003.

Guerouaz N, Ait Ourhroui M. Minoxidil induced hypertrichosis in children. Pan Afr Med J. 2014;18:8. doi:10.11604/pamj.2014.18.8.3637.

Verma SB. Minoxidil-induced hypertrichosis in a 4-year-old child. Indian J Dermatol Venereol Leprol. 2016;82(3):304-305. doi:10.4103/0378-6323.174406.

Rampon G, Henkin C, Souza PRM, Almeida HL Jr. Infantile generalized hypertrichosis caused by topical minoxidil. An Bras Dermatol. 2016;91(1):87-88. doi:10.1590/abd1806-4841.20164010.

Devaraj Y, Mittamedi NR, Kalra TK, Yadav PY, Nag N, Sundaram PM. Implications of Emulating a Dermatologist: A Study of Topical medication usage for dermatoses prescribed by Non-Dermatologists in a rural area. Res J Pharm Technol. 2024;17(4):1491–7. doi:10.52711/0974-360X.2024.00236.