



CORONA VIRUS INFECTION AND HAIR LOSS

Sura I. A. Jabuk

Department of Biology, College of Science, University of Babylon, Iraq

Zahraa M. Altaee

Department of Biology, College of Science, University of Babylon, Iraq

Rafla'a S.H. Hussien

Department of Biology, College of Science, University of Babylon, Iraq

Dalal Mohammed Ridha

Department of Biology, College of Science, University of Babylon, Iraq

Rasha Kadhim Mahdi

Department of Biology, College of Science, University of Babylon, Iraq

Abstract

Hair loss is a common condition in the normal area, around 50-100 hairs per day without having problems with appearance. Moderate hair loss can be controlled at home with the help of diet, exercise, yoga meditation, getting proper sleep. The hair loss with COVID-19 accrue as a result of Psychological stress, High medication doses, Vitamin B12 deficiency, Stress and, Androgens among males. Some of the treatment methods include Medications such as treatments based on minoxidil, Medical hair spray, shampoo, Reduce stress and, Vitamins.

Keyword : COVID-19, Hair Loss , Vitamin

Introduction

Hair loss is a common condition in the normal area, around 50-100 hairs per day without having problems with appearance. The condition is made worse when people start losing hair in patches in a shorter period of time without the signs of hair growth appear or decrease, causing a temporary appearance that is visible and affects their appearance and confidence(1,2).

People with pathological emergency hair loss do not have a prior history of this condition, and the condition is usually caused by factors such as chronic stress, unhealthy diet, radiation, heat, or diseases that weaken the immune system(3).





The condition of pathological hair loss means that the hair can return to growth on its own naturally or when receiving treatment for the main cause of this symptom, unlike what is common and known about hair loss that is mainly due to genetic factors, age or thyroid problems(4). A large number of people have reported severe hair loss after infection with the Corona virus, and a new study confirms that many patients who have gone through the full course of the Corona virus disease suffer from heavy hair loss once they recover(5).

when anyone suffers from a severe infection, hair loss is not an unusual result, because the body has been attacked and there are chemical changes in the system as the body tries to fight off the virus, this can lead to hair loss a few weeks after recovery from the Corona virus(6).

“Usually this corrects itself after a few months and hair growth patterns will return to normal, while physical stress from coronavirus is one of the factors that cause hair loss, mental stress can also contribute to it, after 1-3 months of illness. Hair that prematurely entered the telogen phase during disease tends to fall out to pave the way for new healthy hair growth(7,4).

This causes hair loss at a rate of more than 100-200 per day which can be distressing for the patient, this type of hair loss is usually temporary and tends to normalize in about 3-6 months, hair lost during the hair loss phase grows back with minimal loss of volume (8).

However, during this time it is important to identify factors responsible for hair loss other than coronavirus. Moderate hair loss can be controlled at home with the help of diet, exercise, yoga meditation, getting proper sleep, etc. After a few months of recovery, if you start to Noticing that baby hair grows along your hairline again, this is a sign that the body is rebalancing itself and back to normal(9).

While hair may grow on its own, we recommend treatments such as hair supplements and vitamins that help hair grow more quickly. Nutritional deficiencies should also be evaluated and treated appropriately. This review was aimed to study the possible effects of COVID-19 on the hair growth cycle(10) .

Causes of Hair Loss With COVID-19

• Psychological Stress

Another study reports that telegenic effluvium has been reported in patients who have recovered from severe COVID-19 and had previous hair loss problems. The situation worsened due to the pressures of closure and the multiple psychological pressures associated with the Corona pandemic in general(11,12) .





• **High Medication Doses**

A study of ten patients with specific telogenic effluvium associated with COVID-19 reported that 80% of these patients were treated with drugs such as hydroxychloroquine, antibiotics such as azithromycin and systemic corticosteroids, which can cause hair loss as a side effect in addition to the psychological and physiological stress surrounding the infection(13,14).

• **Vitamin B12 Deficiency**

A scientific report revealed cases of severe hair loss for some Covid-19 patients who were exposed to a deficiency of vitamin B12 and other micronutrients, as well as thyroid and autoimmune dysfunction(15). Patients experienced an oily scalp and a sore scalp sensation, followed by diffuse hair loss over the entire scalp. The diagnosis showed inflammation of the scalp, dandruff, and capillary neovascularization(16).

• **Stress**

A study showed that the Covid-19 pandemic exacerbated the psychological state at the level of individuals and increased psychosocial stress, which resulted in “stress-sensitive” hair and scalp diseases, including cases of tragic or pathological hair loss(17).

• **Androgens Among Males**

A study reports hair loss among male COVID-19 patients, questioning the role of androgens in triggering the condition. Androgen levels rise in males as a natural necessity for reproduction and sexual function. COVID-19 infection can disturb androgen levels and thus cause hair loss(18,19).

Methods of Treatment

Some of the Treatment Methods Include

• **Medications**

They include prescribed medications such as treatments based on minoxidil, which help open potassium channels and expand blood vessels, thus increasing the supply of hair follicles with oxygen, blood and elements (20).

• **Medical Hair Spray**

Some patients who suffer from severe telogen hair loss are treated with topical 5% minoxidil, mixed with halcinonide solution, and sprayed evenly on all areas of the hair where there is hair loss, once or twice a day(21,22).

Medicated shampoo

Wash with shampoo that contains selenium sulfide 2-3 times a week(23).



• **Reduce stress**

In many cases, stress is the main cause of hair loss. Therefore, by practicing some meditation or yoga exercises, stress can be reduced and the mind calmed amid the heightened stress of the pandemic(24,25).

• **Vitamins**

Regular intake of vital nutrients and micro-nutrients such as folic acid, vitamin A, fatty acids, vitamin D, zinc, selenium, niacin and amino acids that help in hair growth and maintenance (26).

References

1. Wiersinga WJ, Rhodes A, Cheng AC, Peacock SJ, Prescott HC. Pathophysiology, Transmission, Diagnosis, and Treatment of Coronavirus Disease 2019 (COVID-19): A Review. *JAMA*. 2020. Aug 25;324(8):782-793.
2. Seirafianpour F, Sodagar S, Pour Mohammad A, et al. Cutaneous manifestations and considerations in COVID-19 pandemic: A systematic review. *Dermatol Ther*. 2020 Jul 8:e13986.
3. Galván Casas C, Català A, Carretero Hernández G, et al. Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *Br J Dermatol*. 2020 Jul;183(1):71-77.
4. Goren A, Vaño-Galván S, Wambier CG, et al. A preliminary observation: Male pattern hair loss among hospitalized COVID-19 patients in Spain - A potential clue to the role of androgens in COVID-19 severity. *J Cosmet Dermatol* 2020; 19 (07):1545-47.
5. Wambier CG, Vaño-Galván S, McCoy J, et al. Androgenetic alopecia present in the majority of patients hospitalized with COVID-19: The "Gabrin sign". *J Am Acad Dermatol*. 2020A Aug;83(2):680-82.
6. Wambier CG, Vaño-Galván S, McCoy J, Pai S, Dhurat R, Goren A. Androgenetic alopecia in COVID-19: Compared to age-matched epidemiologic studies and hospital outcomes with or without the Gabrin sign. *J Am Acad Dermatol*. 2020B Jul 29:S0190-9622(20)32300-8.
7. Wambier CG. Reply to "Comment on androgenetic alopecia present in the majority of patients hospitalized with COVID-19". *J Am Acad Dermatol*. 2020C Aug 26:S0190-9622(20)32485-3.
8. Xiong Q, Xu M, Li J, et al. Clinical sequelae of COVID-19 survivors in Wuhan, China: a single centre longitudinal study. *Clin Microbiol Infect*. 2020 Sep 23:S1198-743X(20)30575-9.





9. Kato H, Kinoshita K, Saito N, Kanayama K, Mori M, Asahi N, Sunaga A, Yoshizato K, Itami S, Yoshimura K. The Effects of Ischemia and Hyperoxygenation on Hair Growth and Cycle. *Organogenesis*. 2020 Jul 2;16(3):83-94.
10. Kircik LH. A new look at pathogenesis of hair loss. *J Drug Derm*. 2017 Nov. 16(11):s133-s134.
11. Sadick NS, Callender VD, Kircik LH, Kogan S. New insight into the pathophysiology of hair loss trigger a paradigm shift in the treatment approach. *J Drug Derm*. 2017 Nov. 16(11):s135-s140.
12. Sharquie KE, Jabbar RI. COVID-19 infection is a major cause of acute telogen effluvium. *Ir J Med Sci*. 2021 Aug 31;1-5. doi: 10.1007/s11845-021-02754-5. Epub ahead of print. PMID: 34467470; PMCID: PMC8407603.
13. Malgouries S, Thibaut S, Bernard BA. Proteoglycan expression patterns in human hair follicle. *British Journal of Dermatology*. 2008 Feb;158(2):234-342.
14. Kishimoto J, Ehama R, Wu L, Jiang S, Jiang N, Burgeson RE. Selective activation of the versican promoter by epithelial-mesenchymal interactions during hair follicle development. *Proceedings of the National Academy of Sciences*. 1999 Jun 22;96(13):7336-41.
15. Botchkarev VA, Kishimoto J. Molecular control of epithelial-mesenchymal interactions during hair follicle cycling. In *Journal of Investigative Dermatology Symposium Proceedings 2003*. Jun;8(1):46-55.
16. Soma T, Tajima M, Kishimoto J. Hair cyclespecific expression of versican in human hair follicles. *J Dermatol Sci*. 2005;39(3):147-54.
17. Mendoza VMM. Interleukin-17: A potential therapeutic target in COVID-19. *J Infect*. 2020. Aug;81(2):e136-e138.
18. Daneshgaran G, Dubin DP, Gould DJ. Cutaneous manifestations of COVID-19: an evidence-based review. *Am J Clin Dermatol*. 2020 Oct;21(5):627-39.
19. Klingman A. Pathologic dynamics of human hair loss. I. Telogen effluvium. *Arch Dermatol*. 1961 Feb;83:175-98.
20. Rivetti N, Barruscotti S. Management of telogen effluvium during the COVID-19 emergency: psychological implications. *Dermatol Ther*. 2020 Jul;33(4):e13648.
21. Turkmen D, Altunisik N, Sener S, Colak C. Evaluation of the effects of COVID-19 pandemic on hair diseases through a web-based questionnaire. *Dermatol Ther*. 2020 Nov; 33(6):e13923.
22. Domínguez-Santás M, Haya-Martínez L, Fernández-Nieto D, Jiménez-Cauhé J, Suárez-Valle A, Díaz-Guimaraens B. Acute telogen effluvium associated with SARSCoV-2 infection. *Aust J Gen Pract*. 2020 Aug 26;49:49.



23. Ulrich H, Pillat MM, Tárnok A. Dengue fever, COVID-19 (SARS-CoV-2), and antibody-dependent enhancement (ADE): a perspective. *Cytometry A*. 2020 Jul;97(7):662–7.
24. Wei KC, Huang MS, Chang TH. Dengue virus infects primary human hair follicle dermal papilla cells. *Front Cell Infect Microbiol*. 2018 Aug;8:268.
25. Karthik K, Senthilkumar TMA, Udhayavel S, Raj GD. Role of antibody-dependent enhancement (ADE) in the virulence of SARSCoV-2 and its mitigation strategies for the development of vaccines and immunotherapies to counter COVID Hum Vaccin Immunother. 2020 Dec 1;16(12):1–6.
26. Trüeb RM, Dutra Rezende H, Gavazzoni Dias MFR. What can the hair tell us about COVID-19? *Exp Dermatol*. 2021 Feb;30(2):288– 90.

