



## Alopecia Areata after COVID-19: causal or casual relationship?

*Alopecia Areata pós-Covid-19: relação causal ou casual?*

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### ABSTRACT

A Covid-19, doença causadora de síndrome gripal e insuficiência respiratória aguda, vem demonstrando provocar danos a diversos outros órgãos e sistemas. Várias manifestações dermatológicas já foram descritas. Relatamos um quadro de alopecia areata (AA) desencadeada possivelmente pela Covid-19 em paciente que, apesar de ter seu RT-PCR para SARS-CoV-2 negativo, apresentou IgM reagente e sintomatologia clássica relacionada à doença. Acreditamos que a Covid-19 possa ter desencadeado resposta imunológica autoimune, com a consequente produção de interferons, que levou ao quadro de AA.

**Palavras-chave:** Alopecia em áreas; Autoimunidade; Coronavírus

### RESUMO

COVID-19, a disease that causes flu-like syndrome and acute respiratory failure, has been shown to cause damage to several other organs and systems. Several dermatological manifestations have been regular. We report a case of Alopecia Areata possibly triggered by COVID-19 in a patient who, despite his negative SARS-COV 2 RT- PCR, presented IgM reactor, in addition to classic symptoms related to the disease. We believe that a COVID-19 can trigger the autoimmune immune response with the consequent production of interferons that led to Alopecia areata.

**Keywords:** Alopecia areata; Autoimmunity; Coronavirus

## Case report

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## INTRODUCTION

Since its appearance, COVID-19, a disease that causes acute respiratory failure (SARS-CoV-2),<sup>1</sup> has been shown to damage several organs such as the nervous, cardiovascular, renal, and gastrointestinal systems. It also favors the onset of secondary infections.<sup>2</sup>

The literature already described several manifestations affecting the skin, such as skin rash, acro-ischemia, erythematous maculopapular rashes, livedo, cyanosis, purpura, petechiae, blisters, gangrene, urticaria, varicella-like exanthem, pernio-like lesions (COVID toes), and red half-moon nail sign.<sup>3-8</sup> We describe a picture of alopecia areata, probably triggered by COVID-19.

## CASE REPORT

A 31-year-old patient, physician, presented sudden onset of anosmia with a three-day evolution. The patient showed a drop in blood-oxygen saturation to 95% at rest and dyspnea on exertion in the following days. The nasopharyngeal swab was collected to perform RT-PCR for SARS-CoV-2 on Day 6 of symptoms, with undetected viral load. However, over the next three days, he developed myalgia, a fever of 38°C, night chills, and mild dyspnea. In the following week, the patient presented only anosmia, which lasted approximately 15 days. On the 16th day of symptoms, he collected serology for COVID, which was positive for IgM (2.5) and IgG (1.4).

Twenty-nine days after the onset of symptoms, the patient noticed a sudden loss of beard hair, forming circular areas of alopecia. These areas increased in size and converged into two large bilateral hairless regions on the chin. The patient used topical betamethasone with no improvement. The alopecia region is stable for a month but with no hair regrowth.

Alopecia areata (AA) is a chronic condition of hair follicles and nails. Its etiology is unknown, probably multifactorial. However, it has an evident association with other autoimmune diseases and may also be linked to genetic factors, cellular immunity, or even psychological trauma. The condition determines hair loss in a rounded or oval pattern with no evident inflammatory process in the skin due to follicular damage in the anagen phase, without destructing or atrophying the follicles, which is why it can be reversible.<sup>9</sup>

Studies show that patients with AA have a mean increase in interferon-gamma (IFN- $\gamma$ ) serum levels.<sup>10</sup> The AA pathogenesis involves the body's self-reactivity. The possibility of a significant rise in interferons (INF) production after inflammatory processes, stimulating the action of cells of the immune system, explains its relationship with viral infections.<sup>11</sup>

The increase in IFN- $\gamma$  levels is associated with the severity of COVID-19.<sup>12</sup> We can infer that a rise in IFN- $\gamma$  rates occurred due to the disease inflammatory process, which may be related to the AA's triggering factor (Figure 1 and 2).

Since the AA appeared after the COVID-19 symptom-



FIGURE 1: Alopecic area in right side beard




FIGURE 2: Alopecic area in left side beard

atic period, this relationship may be causal or just casual. Nevertheless, as this is a new disease, from which we obtain further information and scientific knowledge each day, we believe that the autoimmune immune response triggered by the disease led to the onset of AA. ●

## REFERENCES

1. Centers for Disease Control and Prevention. Severe outcomes among patients with Coronavirus Disease 2019 (COVID-19): United States, February 12- March 16, 2020. *Morbidity and Mortality Weekly Report*. 2020;69(12):343-6.
2. Guan W-J, Ni Z-Y, Hu Y, Liang W-H, Ou C-Q, He J-X, et al. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med*. 2020;382:1708-20.
3. Recalcati S. Cutaneous manifestations in COVID-19: a first perspective. *J Eur Acad Dermatol Venereol*. 2020;34(5):e212-e213.
4. Estébanez A, Pérez-Santiago L, Silva E, Guillen-Climent S, García-Vázquez S, García-Vázquez A, Ramón MD. Cutaneous manifestations in COVID-19: a new contribution. *J Eur Acad Dermatol Venereol*. 2020;34(6):e250-1.
5. Andina D, Noguera-Morel L, Bascuas-Arribas M, Gaitero-Tristán J, Alonso Cadenas JA, Escalada Pellitero S, et al. Chilblains in children in the setting of COVID-19 pandemic. *Pediatr Dermatol*. 2020; 37(3):406-11.
6. Galván Casas C, Català A, Carretero Hernández G, Rodríguez-Jiménez P, Fernández-Nieto D, Rodríguez-Villa Lario A, et al. Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus. *Br J Dermatol*. 2020;183(1):71-7.
7. Neri I, Guglielmo A, Viridi A, Gaspari V, Starace M, Piraccini BMI. The red half-moon nail sign: a novel manifestation of coronavirus infection. *J Eur Acad Dermatol Venereol*. 2020;34(11):e-663-5.
8. Mendez-Flores S, Zaladonis A, Valdes-Rodriguez R. COVID-19 and nail manifestation: be on the look out for the red half-moon nail sign. *Int J Dermatol*. 2020;59(11):1414.
9. Rivitti EA. Alopecia areata: revisão e atualização. *An Bras Dermatol*. 2005;80(1):57-68.
10. Ribeiro LMG. Fisiopatologia da Alopecia Areata. Dissertação (Mestrado em Medicina) - Instituto de Ciências Biomédicas Abel Salazar. Universidade do Porto . Porto; 2016. p. 23.
11. Arca E, Muşabak U, Akar A, Erbil AH, Taştan HB. Interferon-gamma in alopecia areata. *Eur J Dermatol*. 2004;14(1):33-6.
12. Gadotti AC, Deus MC, Telles JP, Wind R, Goes M, Ossoski RGC, et al. IFN- $\gamma$  is an independent risk factor associated with mortality in patients with moderate and severe COVID-19 infection. *Virus Res*. 2020;289:198171.

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