Molecular testing identified a novel, not previously described, *KIT* mutation (c.2031T > A), supporting the diagnosis of piebaldism. Sun protection was recommended, and no further therapeutic intervention was pursued. During a 2-year follow-up, the lesions have remained stable.

The diagnosis of piebaldism can be made clinically in many cases. It is important to differentiate this genetic condition from the acquired disorder vitiligo, avoiding useless treatments. Molecular testing may be useful, especially when family history is negative.[1] In addition to cutaneous findings of piebaldism, the presence of ocular abnormalities (namely *dystopia canthorum* and *heterochromia iridium*), along with hearing loss should raise suspicion for Waardenburg syndrome, also ruled out in our case by genetic testing.[6]

Piebaldism is a benign, nonprogressive disorder but can be socially disabling. Unfortunately, lesions of leukoderma are generally unresponsive to medical or light therapy. However, cosmetic camouflage techniques and hair dying can improve patient satisfaction. Sun protection is highly recommended to reduce the risk of actinic complications, including skin cancer.

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SARS-CoV-2 & androgenic alopecia: exploring links!

Dear Editor,

The novel coronavirus presented with a spectrum of clinical presentations involving multiple organs and organ systems. These ranged from mild flu and cough to the more severe multi-organ failure, requiring intensive care monitoring. Among these clinical vignettes, cutaneous clinical manifestations, although not life-threatening, did appear as a surprise to the clinicians. In this letter, we discuss the pathophysiological mechanism of this presentation - both molecular and environmental - and discuss the impact antiandrogenetic alopecia medicines have on the treatment of SARS-CoV-2.

Androgenetic alopecia is the main form of scalp hair loss affecting 60–70% of the population. It is characterized by the miniaturization of large, thick, pigmented terminal hair with a diameter of >0.03 mm to thin, fine, nonpigmented vellus hair with a diameter of <0.03 mm. This is because of the early entrance of the hair follicle into the catagen phase and the lag in the transition from the telogen phase to the anagen phase, resulting in the reduction of the anagen phase.[1]

SARS-CoV-2 has shown a spectrum of clinical dermatological manifestations, in both hospitalized and nonhospitalized patients, androgenetic alopecia areata (AA) being a predominant presentation.[2] The viral disease is dependent on the binding of viral spike (S) protein to the angiotensin-converting enzyme 2 (ACE-2) and transmembrane protease serine 2 (TMPRSS2)-mediated cleavage of the S-protein resulting in viro-cellular membrane fusion, and entry of the virus into the host cell.[3] Moreover, TMPRSS2 activity has shown to cleave ACE-2, augmenting the viral entry of SARS-CoV-1. Studies have shown that *only* androgen receptor activity is required for the transcription and regulation of TMPRSS2 in nonprostatic tissues including the lung and scalp.[3]

With an underlying pathophysiological explanation, the observations of an increased incidence of AA globally linked to SARS-CoV-2 became evident. Kutlu and colleagues[4] reported that the density of AA patients in May 2020 was significantly higher than last year, i.e., May 2019. Similarly, Goren and colleagues[5] demonstrated a higher prevalence of androgenetic AA in hospitalized SARS-CoV-2 patients than would be expected from the same population. A brief literature review of available data is shown in Table 1.

Even though molecular biology explains the occurrence of androgenetic AA in SARS-CoV-2, scientists believe that a stress-prone SARS-CoV-2 period, including travel restrictions and social distancing, is partially responsible for hair fall. Kutlu and colleagues[4] explain the vicious cycle between psychiatric disorders and AA, whereby increased stress & depression (S&D)-driven emotional toll can increase the incidence of AA, and accelerated hair fall could consequently lead to S&D.

Multiple studies have used anti-AA medicines to both treat alopecia and decrease the severity of SARS-CoV-2. Spironolactone, for instance, has proven to be an excellent prophylactic candidate for the prevention of SARS-CoV-2. This drug

Table 1 Literature review of AA patients

Study authors	Number of cases reported	Mean age of patients (years)	Gender distribution (M/F)	Region of reporting	Notable findings
Andy Goren *et al.* [5]	41	58	♂: 41 ♀: 0	Spain	• Of the 41 patients admitted with SARS-CoV-2, 29 (71%) were diagnosed with clinically significant androgenetic AA (HNS > than 2) and 12 (29%) had clinically irrelevant relevant signs of androgenetic AA (HNS scale 1 or 2). • About 16 (39%) were classified as severe androgenetic AA (HNS 4-7).
Carlos Gustavo Wambier *et al.* [8]	175	♂: 62.5 ♀: 71	♂: 122 ♀: 53	Spain	• Overall, 67% of the SARS-CoV-2 patients presented with clinically relevant androgenetic AA. • The frequency of androgenetic AA in men was 79% and in women was 42%. • In age-matched women of a similar population, the highest androgenetic AA prevalence reported was 38% in patients aged > 69 years. However, in their SARS-CoV-2 females, >69 years, 57% were diagnosed with androgenetic AA.
Dursen Turkmen *et al.*[9]	563	33.4	♂: 316 ♀: 247	Turkey	• During the pandemic, TE was seen in 27.9% of the patients, SAA was seen in 2.8%, FAA was seen in 2.5%, and SD was seen on the scalp in 19.9%. • It was found that TE was statistically significantly higher in female patients when compared with male patients before and during the pandemic.

AA, Alopecia Areata; FAA, Facial Alopecia Areata; HNS, Hamilton-Norwood Scale; SAA, Scalp Alopecia Areata; SD, Seborrheic Dermatitis; TE,Telogen Effluvium.

increases the levels of circulating ACE-2, downregulates the TMPRSS2 gene, and mitigates the incidence of obesity-linked SARS-CoV-2 complications. In addition to the above-mentioned points, and spironolactone's inherent anti-inflammatory & antiviral nature, this agent could have a useful impact in avoiding the pulmonary impact of SARS-CoV-2.[6]

Similarly, given the androgen-mediated SARS-CoV-2 pathogenesis, nonsteroidal androgen receptor blockers, such as finasteride, have gained popularity to treat AA and the coronavirus infection, especially given the safe drug profile it carries.[2] Perhaps, what's been more attractive is the prospective use of Cepharanthine (CEP), a naturally occurring alkaloid and an essential component of AA treatment in traditional Japanese medicine. CEP suppresses all major components of viral replication and inflammation, including downregulation of nuclear factor-kappa B, and limiting the production of nitric oxide, and cytokines, thereby inhibiting SARS-CoV-2's entry and replication in the host cell.[7]

In the end, even though AA does not pose a threat to the physical wellbeing of an individual or accelerate the disease process, the mental and social impact of hair fall can downplay the health-related quality of life of an individual. General physicians and dermatologists should counsel their patients and raise awareness in order to decrease the mental burden in an already stress-prevalent time.

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Primary follicular mucinosis in childhood

Dear Editor,

A 12-year-old boy presented with an asymptomatic lesion on his right cheek for the past two months. On physical examination, a 35 × 25 mm oval, reddish, well-defined, and desquamative macula with follicular papules was observed (Fig. 1a). A fungus culture was negative. Histopathological examination revealed a normal epidermis with follicular keratosis (Fig. 1c), abundant mucin deposits within the hair follicles, a perifollicular lymphoid infiltrate with eosinophils, and intraepithelial T lymphocytes (Fig 1c,d). The mucin deposit in the follicles was enhanced with colloidal iron blue staining (Fig. 1e). Polymerase chain reaction analysis of the tissue demonstrated a T-cell receptor (TCR) γ gene monoclonal rearrangement. Laboratory tests, including immunophenotypic study and abdominal ultrasound, were normal. The diagnosis was primary follicular mucinosis (PFM). Fluticasone cream was applied daily for 2 months, with little improvement. A cream with salicylic and glycolic acids was initiated for 1 month, with a total resolution of the lesion (Fig. 1b). Complete clinical remission persists after 21 months of follow-up.

A healthy 5-year-old boy complained of pruriginous lesions on the forehead and the right nostril for the last month. Two erythematous scaly plaques were observed (Fig. 2a). Fungal culture was negative. A skin biopsy revealed a sparse mucin deposit within the hair follicle without significant inflammatory infiltrate (Fig. 2c,d). Laboratory tests and abdominal ultrasound were normal. A diagnosis of PFM was made. Fluticasone cream was applied daily for 1 month without improvement. Adapalene cream was started with a total resolution of the lesions in 2 months (Fig. 2b). During 21 months of follow-up, no subsequent local recurrences were observed.

Follicular mucinosis (FM) is an uncommon condition of unclear etiology defined by mucin deposition in the pilosebaceous unit.[1] Clinically it is characterized by the presence of erythematous or hypopigmented scaly plaques, focally distributed and slightly infiltrated, with occasional follicular prominence or alopecic patches. Acneiform, eczematous, cystic, or nodular forms are unusual variants.[2,3] Clinical suspicion in children must be investigated in the presence of asymptomatic, well-defined (desquamative or alopecic, and unique or scarce) plaques, with follicular papules located on the head and neck.[1-5]

Two main clinicopathological variants have been described: (i) A primary (PFM) or idiopathic form, a benign process affecting children and young adults that disappears spontaneously in most cases. (ii) A secondary form in older patients related to an underlying inflammatory or neoplastic condition, most frequently mycosis fungoides (MF).[2,4]

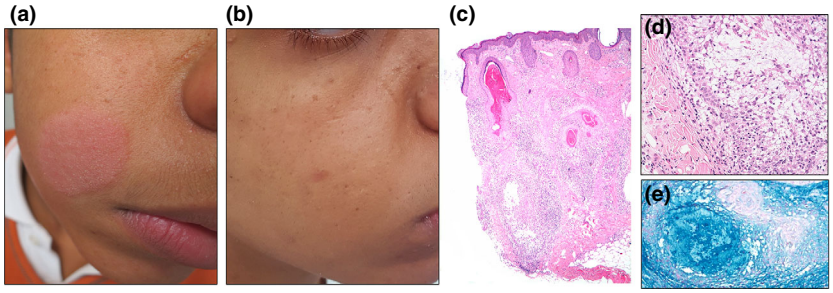

Figure 1 (a) An oval, reddish, well-defined, and desquamative macula with follicular papules was observed on the right cheek. (b) Total resolution of the lesion 1 month after the initiation of salicylic and glycolic acid cream. (c) Histopathological features showed preserved epidermis, follicular keratosis, and intra and perifollicular lymphoid infiltrate (Hematoxylin & eosin, ×4). (d) At high power, abundant deposits of mucin within the hair follicles, and lymphoid infiltrates with intraepithelial lymphocytes and eosinophils (Hematoxylin and eosin, ×40). (e) Mucin in the hair follicle was highlighted by colloidal iron staining (×40)