Mask-associated acquired trichorrhexis nodosa of the beard

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INTRODUCTION

The ongoing COVID-19 pandemic has necessitated mask wearing in public settings. Ubiquitous mask wearing has been associated with an increase in the incidences of multiple dermatologic conditions, such as frictional or irritant dermatitis, contact dermatitis, and "maskne."[1] In addition to these associated pathologies, mask wearing may produce significant mechanical or frictional stress on facial hair shafts. Physical trauma to the hair shaft is associated with trichorrhexis nodosa (TN)—a condition characterized by focal hair splaying and breakage at weakened points in the hair shaft. The following case report describes acquired TN of the beard associated with mask wearing.

Abbreviation used:

TN: trichorrhexis nodosa

CASE REPORT

A 31-year-old man with longstanding type 1 diabetes presented in March 2021 with concerns about his facial hair. He described an 8-month history of breakage and uneven hair length, along with "white dots" limited to the hairs of his beard. He did not report hair changes elsewhere on the body or a family history of hair disorders. At the onset, he was diagnosed with seborrheic dermatitis and treated with triamcinolone 0.025% lotion daily without improvement. On clinical examination at follow-up, white nodes were observed on hair shafts throughout the beard with relative sparing of the mustache area (Fig 1). The hair density of the beard was normal, as were scalp and eyebrow hair density and length. The surrounding skin was normal without erythema, scale, or other signs of dermatitis. The differential diagnosis included white piedra, hair casts, pediculosis, TN, trichorrhexis invaginata, or seborrheic dermatitis. Trichoscopy revealed a "thrust paint brush" appearance of the hair shaft typical of TN (Fig 2). No lice, nits, peripilar scale, or casts were identified on trichoscopy. A bacterial swab grew normal skin flora, and hair-pull fungal culture was negative. Thyroid-stimulating hormone, triiodothyronine, thyroxine, and hemoglobin levels were within the normal range.

Fig 1. Subtle white dots on the distal part of the hair shafts, more prominent on the lower portion of the beard.

The patient was employed as a barber, and due to the COVID-19 pandemic, had been wearing a facial covering to work starting approximately 9 months prior to his presentation. He denied excessive brushing or grooming of his beard, habitual pulling or rubbing of hair, excessive heat exposure, or use of chemical treatments. However, during the visit, the patient was noted to frequently grasp at the beard area while adjusting his mask. Based on the negative microbiologic cultures, absence of associated endocrinopathies, and lack of dermatitis or signs of perifollicular inflammation, the diagnosis of TN

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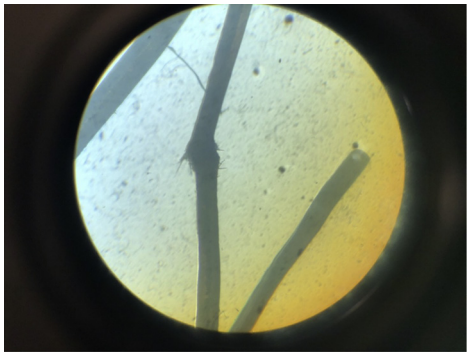

Fig 2. Trichoscopy with a widened node in the hair shaft and splayed, frayed hair shaft with "thrust paint brush" appearance.

was made. Given the localization to the beard area, temporal association to the pandemic, and sparing of the area of the mustache relatively protected by the nose, the etiology was believed to be trauma/friction from prolonged mask wearing with frequent manual readjustment of the mask. The patient was counseled to trim his beard short, switch to a silk mask, and minimize touching his mask while wearing it.

DISCUSSION

TN is most often an acquired hair shaft disorder but rarely may be congenital and occur alone or in association with syndromes such as Menkes disease, argininosuccinic aciduria, and trichothiodystrophy. The acquired form of TN is most often due to physical or chemical trauma to the hair shaft during styling practices such as perms or heat styling or in the setting of excessive combing, scratching, or rubbing of the scalp.[2,3] Less often, acquired TN may be a manifestation of malnutrition or an endocrinopathy. Acquired TN occurs more frequently in patients of African origin and skin of color, likely due to the structural properties of the hair shaft.[4,5] TN most commonly presents in the hair of the scalp. Reports of TN of the facial hair, related to physical manipulation, have uncommonly been reported as well.[6,7]

TN typically presents with brittle or breaking hair, uneven hair length, or inability to grow hair to a normal length.[8,9] On gross examination, TN may also present with small white flecks, representing areas of hair breakage. Trichoscopy can be used to aid in diagnosis and will show expanded nodes in the hair shafts with focal breakage and splaying of the hair shaft resembling paint brushes thrust together.[9,10] Fungal or bacterial infection of the hair should be excluded with hair cultures.[9] The peripilar area, surrounding skin, and hair elsewhere on the body should be examined to exclude inflammatory hair or skin disorders contributing to hair breakage. Studies on thyroid-stimulating hormone, hemoglobin, and iron are indicated to evaluate for hypothyroidism or iron deficiency anemia as underlying causes of TN. Treatment of acquired TN due to physical or chemical trauma to the hair involves cessation of the presumed physical or chemical trauma and conditioning treatments to strengthen the hair shaft.[2] Patients should be counseled on hair care habits to reduce friction, heat exposure, chemical exposure, or other trauma to the hair shaft.

The COVID-19 pandemic marks the advent of widespread mask usage to limit the spread of infection. The presented case suggests that trauma and friction from frequent mask wearing and manipulation may be a risk factor for the development of TN localized to facial hair. The diagnosis should be considered in any patient who complains of facial hair fragility or "white dots" in the beard area during the COVID-19 pandemic following appropriate evaluation outlined in the abovementioned sections to exclude any other causes of similar symptoms. To alleviate the risk of TN associated with mask wearing, physicians may recommend the use of hair conditioners or protectants, wearing properly fitted masks made of gentle material such as silk, and limiting the manipulation of masks.

Conflicts of interest

None disclosed.

REFERENCES

1. Teo WL. Diagnostic and management considerations for "maskne" in the era of COVID-19. *J Am Acad Dermatol*. 2021; 84(2):520-521. https://doi.org/10.1016/j.jaad.2020.09.063
2. Phillips TG, Slomiany WP, Allison R. Hair loss: common causes and treatment. *Am Fam Physician*. 2017;96(6):371-378.
3. Martin AM, Sugathan P. Localised acquired trichorrhexis nodosa of the scalp hair induced by a specific comb and combing habit—a report of three cases. *Int J Trichology*. 2011; 3(1):34-37. https://doi.org/10.4103/0974-7753.82138
4. Lindsey SF, Tosti A. Ethnic hair disorders. *Curr Probl Dermatol*. 2015;47:139-149. https://doi.org/10.1159/000369414
5. Taylor SC, Barbosa V, Burgess C, et al. Hair and scalp disorders in adult and pediatric patients with skin of color. *Cutis*. 2017; 100(1):31-35.
6. Ghorpade A. Moustache twirler's trichorrhexis nodosa. *J Eur Acad Dermatol Venereol*. 2002;16(3):296-297. https://doi.org/10.1046/j.1468-3083.2002.00487_9.x
7. Mishra D, Pandey SS, Singh G. Trichorrhexis nodosa of moustache. *Indian J Dermatol Venereol Leprol*. 1989;55(6):386-387.
8. Sisto T, Bussoletti C, D'Amore A, Favoriti N, Fania L, Celleno L. Inability to grow long hair: a presentation of trichorrhexis nodosa. *Cutis*. 2015;95(3):E15-E16.
9. Turra N, Navarrete J, Magliano J, Bazzano C. Acquired trichorrhexis nodosa: how to diagnose it? *Dermatol Online J*. 2018;24(11):13030/qt3zw9c8zt.
10. Hwang ST, Park BC. Trichorrhexis nodosa after hair transplantation: dermoscopic, pathologic and electron microscopy analyses. *Dermatol Surg*. 2013;39(11):1721-1724. https://doi.org/10.1111/dsu.12325