https://doi.org/10.5021/ad.2017.29.2.254

Pili Annulati with Multiple Fragile Hairs

Chan Hee Nam, Minkee Park, Mi Soo Choi, Seung Phil Hong, Myung Hwa Kim, Byung Cheol Park

Department of Dermatology, College of Medicine, Dankook University, Cheonan, Korea

Dear Editor:

A 25-year-old man visited Department of Dermatology, Dankook University Hospital with a complaint of whitish dots on his scalp hair that was coarse and broken easily. He noticed the changes for the first time about 6 years ago. He had used a hairdryer almost every day since he graduated high school. No family history except his father had androgenic alopecia. A physical examination revealed that the hair shafts were black mixed with alternating light brown color and multiple small white-gray spots were evi-

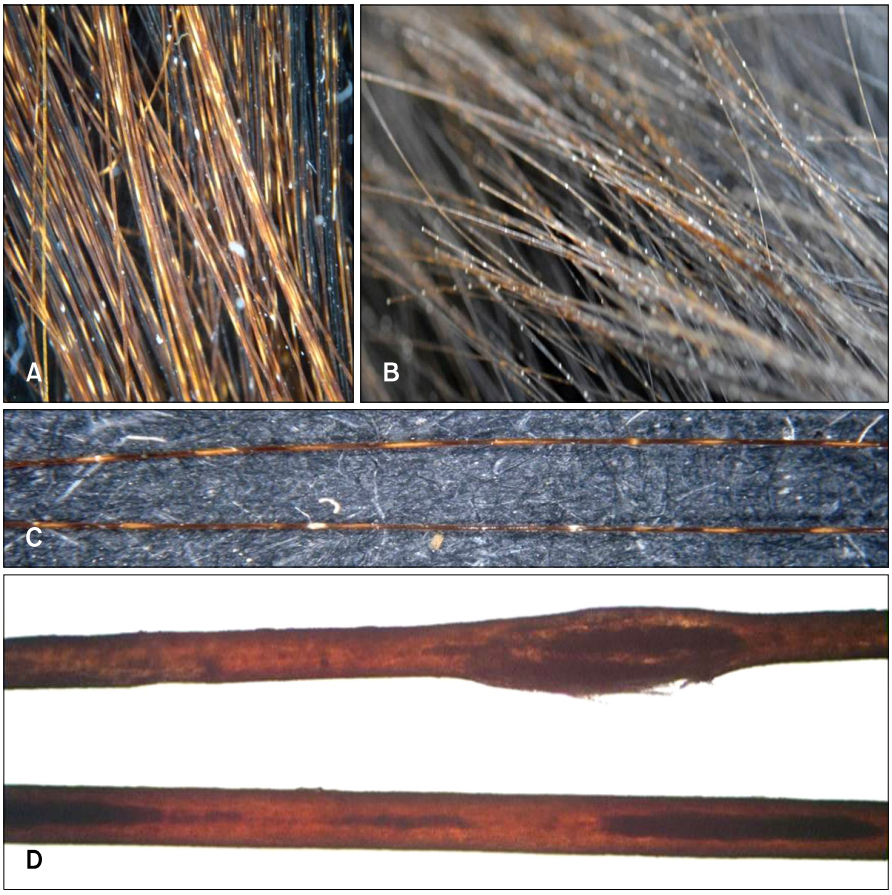

Fig. 1. (A) Regular alternating bright bands on hair shafts. (B) Multiple white-gray spots appearing like grains of sand exist on the hair shaft. (C) Alternating dark and bright bands with intermittent whit spots on the hair shaft appeared on the dermoscopic examination. (D) The air-filled dark spaces occupied 40%～80% of the hair shaft on inverted microscopy.

Received February 13, 2016, Revised May 3, 2016, Accepted for publication May 4, 2016

Corresponding author: Byung Cheol Park, Department of Dermatology, College of Medicine, Dankook University, 119 Dandae-ro, Dongnam-gu, Cheonan 31116, Korea. Tel: 82-41-550-6485, Fax: 82-41-552-7541, E-mail: shinam73@hotmail.com

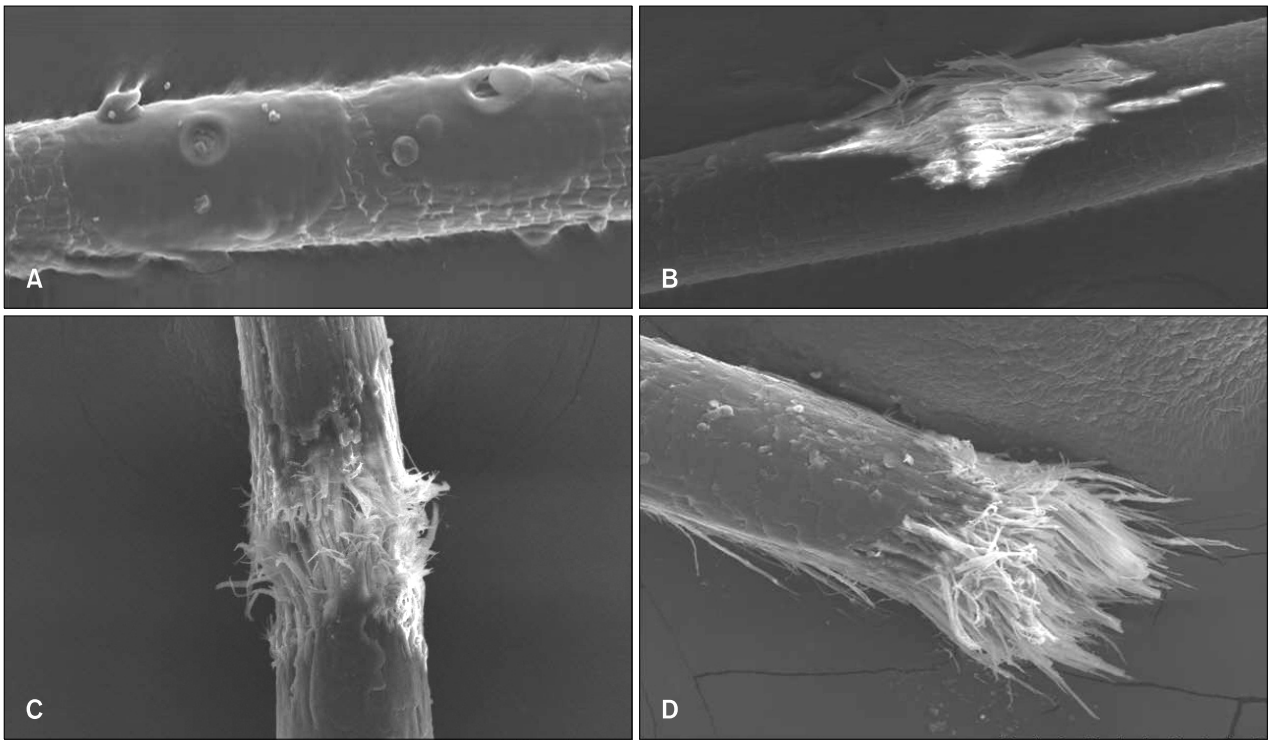

Fig. 2. (A) Loss of cuticle and mild indentation on the surface of mildly damaged hair. (B) Longitudinal cracks are visible in the hair shaft, which exposed the microfibers of the hair cortex. (C) Swollen node resembles two broomsticks pushed into each other and formed a so-called thrust paint brush. (D) Mechanical trauma on the swollen node fractured the hair ends, as shown by the frayed macrofibers.

dent (Fig. 1A, B). On dermoscopic examination, the hair shafts had alternating light and dark bands with multiple white nodes (Fig. 1C). Light microscopy revealed an air-filled dark space or cavity, which appeared to be bright bands or white-gray beads on the hair shaft with the unaided eye (Fig. 1D). A scanning electron microscope showed loss of the cuticle, mild indentation and longitudinal fissuring on the hair shaft that revealed the microfibers of the cortex (Fig. 2A, B). In addition, white nodular swelling was evident that resembled the ends of two brushes aligned in opposition, and the end of the fractured hairs was a paint-brush appearance (Fig. 2C, D).

Pili annulati (PA) has not been classically associated with increased hair fragility, as and tensile strength of hair in cases of PA is normal[1]. It has been suggested that intermittent hair banding without fragile hair may be related to a gene controlling hair growth dynamics instead of hair structure, such as keratins or keratin-associated proteins[2]. However, some abnormal weathering patterns have been reported in cases of PA, such as mild indentations to severe longitudinal folding in some hair shafts[2-5]. Thus, the air filled spaces in cases of PA may be the reason for hair fragility, which would increase susceptibility to shearing stress[4].

The scanning electron microscopic examination in our case revealed mild indentations or longitudinal cracking of the hair cortex, which is observed frequently in typical cases of PA. These findings could be the result of uneven compression of the hair shaft caused by the underlying air spaces[4]. Some severely damaged hair had multiple white nodes on the hair shaft or longitudinal fissures on the surface that exposed the microfibers of the cortex, which is usually observed in trichorrhexis nodosa. In particular, the nodes associated with the underlying air-filled cavities in a patient with PA may be the focus for the structural damage by environmental trauma[4].

In conclusion, it is postulated that heavy use of hair dryer in our patient could have severely traumatized his underlying PA and caused multiple fragile hairs.

CONFLICTS OF INTEREST

The authors have nothing to disclose.

REFERENCES

1. Giehl KA, Dean D, Dawber RP, Leigh I, de Berker DA, Wojnarowska F. Cytokeratin expression in pili annulati hair

follicles. Clin Exp Dermatol 2005;30:426-428.
2. Giehl KA, Ferguson DJ, Dawber RP, Pittelkow MR, Foehles J, de Berker DA. Update on detection, morphology and fragility in pili annulati in three kindreds. J Eur Acad Dermatol Venereol 2004;18:654-658.
3. Akoglu G, Emre S, Metin A, Erbil KM, Akpolat D, Firat A, et al. Pili annulati with fragility: electron microscopic findings of a case. Int J Trichology 2012;4:89-92.
4. Feldmann KA, Dawber RP, Pittelkow MR, Ferguson DJ. Newly described weathering pattern in pili annulati hair shafts: a scanning electron microscopic study. J Am Acad Dermatol 2001;45:625-627.
5. Werner K, St-Surin-Lord S, Sperling LC. Pili annulati associated with hair fragility: cause or coincidence? Cutis 2013; 91:36-38.

https://doi.org/10.5021/ad.2017.29.2.256

Successful Repigmentation of Vitiligo-Like Hypopigmentation in a Case of Acanthosis Nigricans

Seung Hyun Chun, Ji Hyun Park, Jae Beom Park, Il-Hwan Kim

Department of Dermatology, Korea University Ansan Hospital, College of Medicine, Korea University, Ansan, Korea

Dear Editor:

Acanthosis nigricans (AN) is characterized by hyperpigmented thickened skin with velvety texture in the flexural areas such as axillae, neck, groin, inner thigh, umbilicus, and perianal area. Obesity, insulin resistance, and hyperinsulinemia are often found in association with AN[1]. Vitiligo is an autoimmune disease which shows decreased melanin and melanocyte in epidermis. It is associated with autoimmune diseases such as thyroid disease and diabetes mellitus[1].

A 16-year-old male patient presented with hypopigmented mildly erythematous patch within hyperpigmented patch on neck and shoulder (Fig. 1). The preceding hyperpigmented patch appeared 6 years ago when the patient was treating his obesity and impaired insulin tolerance. The hypopigmented lesion appeared 6 months prior to the visit and gradually grew in size. The patient did not remember any history of trauma before the lesion appeared. Although the patient had previously taken oral metformin for a year, he was not taking any medication at the time of visit. No similar skin lesions could be found in family members of the patient.

Skin biopsy was performed on both hyperpigmented and hypopigmented lesions. In the former, typical features of AN such as hyperkeratosis, papillomatosis, and basal layer hyperpigmentation were observed. In the latter, however, S-100 protein stain and Fontana-Masson stain did not reveal remarkable decrease in both epidermal melanocytes and degree of basal pigmentation (Fig. 2).

The patient applied topical steroid and tretinoin for a year, resulting in complete repigmentation (Fig. 1). In contrast, the patient has kept his body weight and no significant change was seen in the AN lesion.

Up to this day there are four reports of AN accompanied by vitiligo[1-4]. Out of these, histologic confirmation of depigmented epidermis was conducted in two cases[1,2]. Har-

Received January 27, 2016, Accepted for publication May 9, 2016

Corresponding author: Il-Hwan Kim, Department of Dermatology, Korea University Ansan Hospital, 123 Jeokgeum-ro, Danwon-gu, Ansan 15355, Korea. Tel: 82-31-412-5186, Fax: 82-31-412-4208, E-mail: kumcihk@korea. ac.kr