

TRICHORRHEXIS NODOSA OF THE SCALP ATTRIBUTABLE TO CALCIUM HYDROXIDE

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A 30-year-old male complaining of loss of 1-2 cm long fragments of hair from his scalp, was discovered to have trichorrhexis nodosa involving approximately 40% of his scalp hairs. The defect was located 1-4 mm proximal to the distal ends of the hairs and was attributable to the topical application of calcium hydroxide in an ayurvedic preparation.

Key words : Trichorrhexis nodosa, Hair.

A brush-like splintering of the hair shaft, called trichorrhexis nodosa is commonly attributed to physical (mechanical stress or heat)^{1,2} and chemical (thioglycolate, bleaches or alkali) trauma^{1,3} and poorly formed hair shaft (arginino-succinicaciduria,⁴ trichothiodystrophy^{5,6}). In majority of the cases however, the cause is not apparent. The paucity of reports in the literature tends to suggest that this disease is very infrequent. From India, there are only two reports; in one case, trichorrhexis nodosa of the scalp hair was associated with pili torti and irregular constrictions on the hair shaft⁷ and in the other report, there were two young sikh boys having trichorrhexis nodosa on their beards⁸ only. We have however, observed trichorrhexis nodosa in approximately one third of the patients having alopecia areata, and also in most of the Indian girls who do not trim their hairs. In alopecia areata, the defect involves hairs at the periphery of the patch of alopecia, while in the girls having long hairs the defect can be observed proximal to the terminal splitting at the distal end of the hair. Recently, we observed a patient who developed trichorrhexis nodosa attributable to the topical applications of calcium hydroxide in an ayurvedic remedy.

Case Report

Approximately 2 years ago, a 30-year-old shop assistant working in a provision store noticed 50-60 hairs, 1-2 cm in length, falling off from his scalp every day. The length of his scalp hair at that time was 5-7 cm. During these 2 years, he used to wash his hair with bathing soap once a week and apply coconut hair oil daily. He had not used any shampoos or detergents on his scalp. Six months ago, he had taken ayurvedic treatment for the hair loss, which consisted of shaving the scalp followed by daily applications of a hair oil containing lime (calcium hydroxide), an extract of brahmi (*Bacopa monnieri* Linn) leaves, and amla (*Phyllanthus emblica* Linn). This treatment was continued for 3 months. Two months after starting this treatment he consulted a dermatologist who advised him to take 1 tablet of Basiton Forte (thiamine 10 mg, riboflavin 10 mg, pyridoxine 2 mg, niacinamide 100 mg, calcium pantothenate 5 mg, vitamin B-12 4 mcg, ascorbic acid 300 mg and folic acid 1.5 mg per tablet) daily and to wash his hair with cetavlon shampoo every day. During this period his hair stopped falling, but 15 days after stopping this treatment and changing over to coconut hair oil applications, he once again noticed 50-60, 1-2 cm long pieces of hair breaking off every day. He continued to take 1 tablet of Basiton Forte daily and to wash his hair with cetavlon till he was seen by us 3 months later. At that

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time, examination of his hairs revealed 1-2 mm long whitish spots on some of his hairs located approximately 1 mm proximal to the distal end. This spot under the light microscope was found to be trichorrhexis nodosa (Fig. 1). There were no other abnormalities of the hair shaft. There was no evidence of any nutritional deficiency and no one else in his family had a similar disease. Twenty hairs were randomly plucked from his scalp for microscopic examination and measurement of the hair length. The mean length of the hairs was 8.7 cm, 8 of these hairs showed trichorrhexis nodosa (TN) and the distance of the TN spot from the distal end varied between 1-4 mm. Seven weeks later, 10 more hairs were plucked from his scalp, and this time the mean length of the hairs was 10.8 cm, 3 hairs had TN spots and the distance of the TN spot from the distal end varied between 1-2 mm. Another 6 weeks later, 10 more hairs plucked from the scalp showed mean hair length as 13.6 cm and TN spots in 6 hairs, located 1-3 mm from the distal end. All through this period, he had been advised to shampoo his hair daily, to stop using hair oil and to take 1 tablet of orabolin (2 mg ethylestrenol) daily. Seven weeks after the last visit, he was advised to have a hair cut, following which none of his hairs showed any evidence of trichorrhexis.

Comments

The sequence of events in our patient suggests that he developed trichorrhexis at one point of time which affected approximately 40% of his scalp hairs, and that there was no further damage, because the proximal parts of the hairs were normal. The most probable cause of this damage could be the use of lime which is known to dissolve keratin. The distance of the TN spots from the proximal end of the hairs, and the rate of growth of his hairs (5 cm in 5 months approximately) are consistent with the time when the patient applied lime on his scalp. Since, he started using lime after shaving off all his scalp hairs, the point of damage was obvi-

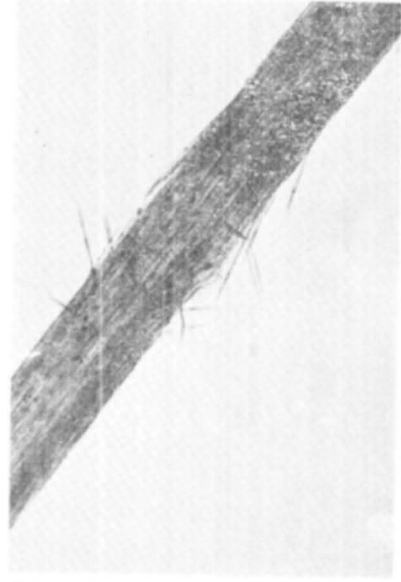


Fig. 1. Trichorrhexis nodosa on the hair.

ously very close to the distal end. The normal proximal part of the hair indicates that the cause of damage was no longer operative and a hair-cut to remove the portions of the hair bearing TN was all that was necessary.

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