CASE REPORT

A case of acquired trichorrhexis nodosa after applying new hair spray

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Abstract Trichorrhexis nodosa is a hair shaft disorder presented with whitish nodes all over the hair (diffuse form) or localized to an area (localized form) and could be either congenital or acquired. We are reporting a case of acquired localized form of trichorrhexis nodosa due to trauma (physical–chemical).

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1. Introduction
Trichorrhexis nodosa is one of the hair shaft abnormalities which can be congenital or acquired. The condition was first described in 1852 by Samuel Wilks of Guy’s Hospital, but the term trichorrhexis nodosa was introduced in 1876 by M. Kaposi and is used to describe this peculiar condition ever since (Schwartz and Seiff, 2012).

Trichorrhexis nodosa is ultimately a response to physical or chemical trauma (Schwartz and Seiff, 2012) that leads to formation of nodes along the hair shaft. The acquired form is more common than the congenital form, localized form is more common than the diffuse form and the latter is usually reported with the hereditary form.

2. Case report
A 17 year old boy presented for consultation with abnormal appearance of the hair at the temporal zone bilaterally for 6 months. The patient has no past medical or surgical history and he does not take any medication. There is no atopic or allergic background. No similar cases have been reported in the family. The history started 6 months earlier when the patient noticed multiple whitish points over both temporal zones (Fig. 1).

The patient thought this condition was temporary and will resolve within certain time. However when the lesions did not disappear he sought medical advice to have a diagnosis and possible treatment for this condition.

Scalp physical examination revealed normal hair density, length and caliber. The clinical aspect of the hair was normal except for multiple whitish points or nodes along the hair shaft. The differential diagnosis included dandruff, pediculosis...
and other shaft abnormalities like pilli annulati and trichorrhexis nodosa.

Hair sample was taken and examined under the light microscopy that revealed a decreased or absent cuticular cell layer and the characteristic paintbrush bristle appearance of trichorrhexis nodosa which resembles a crushed paintbrush (Rogers, 1995) and is called a “paint brush fracture” (Figs. 2–5).

After the microscopic exam, we asked the patient several questions trying to have an explanation of the condition and we found that the patient had changed his hair spray which he was using for a long time of another brand during the summer time. The patient did put more amounts at those 2 zones.

Body and pubic hair were not involved and the skin overlying did not show any erythematous lesions. Cutting the hair off was done to obtain a cosmetically acceptable result.

3. Discussion

Patients with trichorrhexis nodosa present with a history of white flecking, abnormal fragility and failure to attain normal hair length because of premature breakage of the hair fiber.
Congenital trichorrhexis nodosa becomes apparent at birth or infancy. It may occur alone or in conjunction with a constellation of associated symptoms (Rogers, 1995).

Possible congenital disorders may occasionally display similar trichorrhexis-like fractures and these include Menkes disease, argininosuccinic aciduria, and trichothiodystrophy (Rogers, 1995). Common concurrent symptoms are mental retardation, motor defects, growth failure and seizures. Other associated symptoms may include nail and skin changes (ichthyosis), photosensitivity, ocular dystrophy and infertility. A family history of similar hair problems with or without convulsive disorder, mental deficiency or other heritable syndromes may indicate a congenital cause.

Acquired trichorrhexis nodosa falls into three basic categories: proximal, distal, and localized.

Proximal trichorrhexis nodosa is common in African Americans who use caustic chemicals (relaxers) when styling their curly hair. The involved hair develops the characteristic nodes and breaks a few centimeters from the skin surface in areas subject to physical damage like friction from combing or textiles like head scarfs or pillows. This breakage results in areas of alopecia. Some people appear to be more susceptible than others, based on genetic factors. Hypothyroidism has also been identified in such patients (Lurie et al., 1996).

Distal type primarily occurs in Caucasian or Asian individuals. Nodes and breakage occur several centimeters from the scalp surface, producing hair that appears dull and uneven. Breakage is usually the result of excessive hair styling (Miyamoto and Tsuboi, 2009) and is commonly associated with trichoptilosis or longitudinal splitting, also referred to as split ends.

Localized type occurs as a patch, a few centimeters across. It is usually accompanied by a pruritic dermatosis such as circumscribed neurodermatitis, contact dermatitis or atopic dermatitis. Scratching and rubbing are most likely the ultimate cause.

Trichorrhexis nodosa is an uncommon disease, females are affected more than males in acquired form, skin phenotype 6 (African background) is affected more commonly than other phenotypes.

In conclusion we are reporting a case of acquired localized trichorrhexis nodosa 6 months after changing the hair spray with sun exposure during summer. The question is whether the spray alone or the combination with sun exposure and hair styling did the damage is still to be clarified. Multiple factors can play a role in this condition.

References