

## Trichotillomania: Bizarre Pattern of Hair Loss at 11-Year-old Girl

Trichotillomania (TTM) is defined by the *Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV)* as hair loss from a patient's repetitive self-pulling of hair. The disorder is included under anxiety disorders because it shares some obsessive-compulsive features. Patients have the tendency towards feelings of unattractiveness, body dissatisfaction, and low self-esteem (1,2). It is a major psychiatric problem, but many patients with this disorder first present to a dermatologist.

An 11-year-old girl came to our department with a 2-month history of diffuse hair loss on the frontoparietal and parietotemporal area (Figure 1). She had originally been examined by a pediatrician with the diagnosis of alopecia areata. The patient's personal history included hay fever and shortsightedness, and she suffered from varicella and mononucleosis. Nobody in the family history suffered from alopecia areata, but her father has male androgenetic alopecia (Norwood/Hamilton *MAGA C3F3*). The mother noticed that the child had had changeable mood for about 2 months and did not want to communicate with other persons in the family. The family did not have any pet at home. At school, her favorite subjects were Math and Computer Studies. She did not like Physical Education and did not participate in any sport activities during her free time. This was very strange because she was obese (body-mass index (BMI) 24.69). She was sometimes angry with her 13-year-old sister who had better results at school. The girl had suddenly started to wear a blue scarf. The parents did not notice that she pulled out her hair at home.

Dermatological examination of the capillitium found a zone of incomplete alopecia in the frontoparietal and parietotemporal area, without inflammation, desquamation, and scarring. Hairs were of variable length (Figure 1). There was a patch of incomplete alopecia above the forehead between two stripes of hair of variable length (Figure 2). The hair

pull test was negative along the edges of the alopecia. Mycological examination from the skin capillitium was negative. The trichoscopy and skin biopsy of the parietotemporal region of the capillitium (Figure 3) confirmed trichotillomania. Laboratory tests (blood count, iron, ferritin, transferrin, selenium, zinc, vitamin B12, folic acid, serology and hormones of thyroid gland) were negative. We referred the girl for ophthalmologic and psychological examination. Ophthalmologic examination proved that there was no need to add any more diopters. The psychological examination provided us with a picture in which she drew her family (Figure 4). The strongest authority in the family was the mother because she looked after the girls for most of the day. She was in the first place in the picture. The father had longer working hours and spent more time outside the home. He worked as a long vehicle driver. He was in the second place in the picture. There was sibling rivalry between the girls, but the parents did not notice this problem and preferred the older daughter. She was successful at school and was prettier (slim, higher, curly brown hair, without spectacles). Our 11-years-old patient noticed all these differences between them, but at her level of mental development was not able to cope with this problem. She wanted to be her sister's equal. The sister is drawn in the picture in the third place next to father, while the patient's own figure was drawn larger and slim even though she was obese. Notably, all three female figures had very nice long brown hair. It seemed that the mother and our patient had better quality of hair and more intense color than the sister in the drawing. The only hairless person in the picture was the father. The girl did not want to talk about her problems and feelings at home. Then it was confirmed that our patient was very sensitive, anxious, willful, and withdrawn. She was interested in her body and very perceptive of her physical appearance. From the psychological point of view, the parents started to pay more interest to their younger daughter and tried to understand and help her.



**Figure 1.** Diffuse hair loss in the frontoparietal and parieto-temporal area.



**Figure 2.** A patch of incomplete alopecia between two stripes of hair with variable length above the forehead.

After consultation with the psychiatrist, we did not start psychopharmacologic therapy for trichotillomania; instead, we started treatment with cognitive behavioral therapy, mild shampoo, mild topical steroids (e.g. hydrocortisone butyrate 0.1%) in solution and methionine in capsules. With parents' cooperation, the treatment was successful.

The name trichotillomania was first employed by the French dermatologist Francois Henri Hallopeau in 1889, who described a young man pulling his hair out in tufts (3-5). The word is derived from the Greek thrix (hair), tillein (to pull), and mania (madness) (5).

The prevalence of TTM in the general adult population ranges from 0.6% to 4%, and 2-4% of the

**Table 1.** Differential diagnosis between trichotillomania and patchy alopecia areata (6)

	<b>Trichotillomania</b>	<b>Alopecia areata</b>
<b>Clinical history:</b>	Children around 6 years of age  No preference for sex  Impulsive/compulsive habits; Anxiety symptoms	Children over 3 years of age, female  Autoimmune diseases  Atopic status (40%)  Thyroid diseases (40%)
<b>Clinical examination:</b>	Patches of alopecia are asymmetrical, geometrical, or of unusual shapes (principally in the parietal and vertex regions)  Scratches and bleeding  Onychophagia and onychotillomania	Round or oval patches of alopecia  Nail pitting
<b>Hair pull test:</b>	Negative	Positive along the edges of the active lesions
<b>Treatment:</b>	Explanation of the diagnosis  Psychotherapy in special cases	Principally local immunotherapy and anti-inflammatory/immunosuppressive agents
<b>Prognosis:</b>	Benign and self-limiting if initiated prior to 6 year of age	Benign and self-limiting within one year, if localized  Factors indicative of poor prognosis: family history, atopy, autoimmune disease, nails affected



**Figure 3.** In detail: patch of incomplete alopecia with broken hairs of varying lengths without inflammation and scaling.

general psychiatric outpatient population meet the criteria for TTM (2-5). The prevalence among children and adolescents has been estimated at less than 1% (5). The disease can occur at any age and in any sex. The age of onset of hair pulling is significantly later for men than for women (3). There are three subsets of age: preschool children, preadolescents to young adults, and adults. The mean age of onset is pre-pubertal. It ranges from 8 to 13 years (on average 11.3 years) (2-5). The occurrence of hair-pulling in the first year of life is a rare event, probably comprising <1% of cases (5).

The etiology of TTM is complex and may be triggered by a psychosocial stressor within the family, such as separation from an attachment figure, hospitalization of the child or parent, birth of a younger sibling, sibling rivalry, moving to a new house, or problems with school performance. It has been hypothesized that the habit may begin with "playing" with the hair, with later chronic pulling resulting in obvious hair loss (2). Environment is a factor because children usually pull their hair when alone and in relaxed surroundings. The bedroom, bathroom, or family room are "high-risk" situations for hair-pulling (5). Men and women also differed in terms of the hair pulling site (men pull hair from the stomach/back and the moustache/beard areas, while women pull from the scalp) (3). Pulling hair from siblings, pets, dolls, and stuffed animals has also been documented, often occurring in the same pattern as in the patient (5).

Genetic factors contributing to the development of TTM are mutations of the SLITRK1 gene, which



**Figure 4.** Painting – family members: 1<sup>st</sup> person – mother, 2<sup>nd</sup> person – father, 3<sup>rd</sup> person – our patient, 4<sup>th</sup> person – patient's older sister. The yellow building with a red roof is their family house.

plays a role in cortex development and neuronal growth. The protein SAPAP3 has been present in 4.2% of TTM cases and patients with obsessive-compulsive disorder (OCD). It may be involved in the development of the spectrum of OCD. A significantly different concordance rate for TTM was found in monozygotic (38.1%) compared with dizygotic (0%) twins in 34 pairs (3).

The core diagnostic feature is the repetitive pulling of hairs from one's own body, resulting in hair loss. The targeted hair is mostly on the scalp (75%), but may also be from the eyebrows (42%), eyelashes (53%), beard (10%), and pubic area (17%) (3,5). There are three subtypes of hair pulling – early onset, automatic, and focused. Diagnostic criteria for TTM according to DSM-IV criteria are (2,3,5):

- 1) recurrent pulling of one's hair resulting in noticeable hair loss;
- 2) an increasing sense of tension immediately prior to pulling out the hair or when attempting to resist the behavior;
- 3) pleasure, gratification, or relief when pulling out the hair;
- 4) the disturbance is not better accounted for by another mental disorder and is not due to a general medical condition (e.g., a dermatologic condition);
- 5) the disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

The differential diagnosis includes alopecia areata (Table 1) (6), tinea capitis, telogen effluvium, secondary syphilis, traction alopecia, loose anagen syndrome, lichen planopilaris, alopecia mucinosa, and scleroderma (2-5). Biopsy of an involved area (ideally from a recent site of hair loss) can help to confirm the diagnosis (5). On histologic examination, there are typically increased numbers of catagen and telogen hairs without evidence of inflammation. Chronic hair pulling induces a catagen phase, and more hairs will be telogen hairs. Pigment casts and empty anagen follicles are often seen. Perifollicular hemorrhage near the hair bulb is an indicator of TTM (2).

Complications of TTM are rare, but they comprise secondary bacterial infections with regional lymphadenopathy as a result of picking and scratching at the scalp. Many patients play with and ingest the pulled hairs (e.g. touching the hair to lips, biting, and chewing). Trichophagia (ingestion of the hair) can lead to a rare complication named trichobezoar (a "hair ball" in stomach). This habit is present in approximately 5% to 30% of adult patients, but it is less frequent in children. Patient with trichophagia present with pallor, nausea, vomiting, anorexia, and weight loss. Radiologic examination and gastroscopy should not be delayed (2,4,5).

The management of the disease is difficult and requires strong cooperation between the physician, patient, and parents. The dermatologist cannot take part in the therapy, strictly speaking, but without the psychological, psychopharmacologic, and topic dermatologic treatment a vicious circle will be perpetuated.

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