

Trichotillomania in Childhood: Case Series and Review

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ABSTRACT. Trichotillomania is a relatively common cause of childhood alopecia. We report our observations of 10 children with trichotillomania seen over a 2-year period at Texas Children's Hospital. Patient ages ranged from 9 to 14 years (mean: 11.3 years) with an equal gender ratio. The duration of hair-pulling ranged from 1 month to 10 years (median: 4.6 months). The scalp alone was affected in 8 cases, the scalp and eyelashes in 1 case, and the eyelashes alone in 1 case. The frontal scalp and vertex were the most common sites affected. Associated findings included nail-biting in 2 cases, "picking" of the skin in 1 case, and headaches in another case. Noted precipitating factors in 3 patients included "stress" at home and school. Associated psychopathology included major depression in 1 case, attention-deficit/hyperactivity disorder in 1 case, and an "anxious and nervous personality" in 1 case. The most important differential diagnosis to exclude from trichotillomania is alopecia areata, which was seen concomitantly in 1 patient and preceded the onset of hair-pulling by 11 months. Eight patients were referred to a child psychologist for additional management, of which 2 were subsequently treated with antidepressant medication. Trichotillomania is a disorder of multifaceted pathology, and an interdisciplinary approach to management is often helpful. The common prepubertal age of onset provides an important opportunity for the pediatrician to lend support to affected patients and their families. *Pediatrics* 2004;113:e494–e498. URL: <http://www.pediatrics.org/cgi/content/full/113/5/e494>; trichotillomania, hair-pulling.

ABBREVIATIONS. TTM, trichotillomania; DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition.

Trichotillomania (TTM), an irresistible urge to pull one's own hair, was first coined in 1889 by French dermatologist Hallopeau, who described a young man who pulled out his hair in tufts.¹ The word is derived from the Greek *thrix* (hair), *tillein* (to pull), and *mania* (madness). The term is an unfortunate misnomer, because it implies a psychiatric process, but it is now so pervasive throughout the literature that it is likely to stay. Arising primarily in children and adolescents, TTM is a relatively common cause of childhood alopecia. This article presents our observations of 10 children

seen over a 2-year period and reviews the literature on TTM in children.

PATIENTS AND METHODS

This was a retrospective chart review of children diagnosed with TTM between April 1999 and March 2001 in the dermatology service at Texas Children's Hospital. Demographic data and the following specifics were collected: duration of hair-pulling, site(s) of hair loss, potential triggering factors and associated psychopathology, and treatment rendered.

RESULTS

A total of 10 children, ranging from 9 to 14 years old (mean: 11.3 years) with an equal gender ratio, were diagnosed with TTM over a 2-year period (Table 1). The duration of hair-pulling ranged from 1 month to 10 years. The average duration in 9 patients (cases 1-9) was 4.2 months; the patient described in case 10 had pulled her hair for 10 years. The scalp alone was affected in 10 cases, the scalp and eyelashes in 1 patient (case 7), and eyelashes alone in 1 patient (case 9). The most common sites of the scalp affected were frontal and vertex, followed by parietal, occipital, and temporal. The majority of children pulled from more than one site.

Alopecia areata was noted in 1 patient (case 4), which preceded the onset of TTM by 11 months. Associated findings include nail-biting in 2 patients (cases 3 and 10), skin "picking" in 1 patient (case 10), and headaches in 1 patient (case 8). Trigger factors noted in 3 patients included stress at home and/or school. One patient carried a diagnosis of attention-deficit/hyperactivity disorder (case 3), 1 was described as having an "anxious and nervous personality" (case 6), and 1 had major depression (case 9). Eight patients were referred to a child psychologist for additional evaluation and management.

DISCUSSION

Diagnostic criteria for TTM, applied to both adults and children, have been established and are published in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) (Table 2).² TTM is included under other disorders of "impulse control" such as pyromania, kleptomania, and pathologic gambling. These conditions share in common a sense of tension before performing a given act and gratification and/or relief after completion. However, many patients with TTM, especially children, deny this tension/gratification phenomenon and therefore do not meet DSM-IV criteria for the disorder.³ It thus has been suggested that TTM be included instead under anxiety disorders, because it shares some obsessive-compulsive features. A new

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TABLE 1. 10 Cases of Childhood TTM

Case	Age, y	Gender	Duration	Location	Other findings	Treatment
1.	12	Female	1 mo	Forehead and vertex	Stress at school	Use of hair oil on affected areas; referred to child psychologist
2.	12	Male	6 mo	Large; extended from right frontal to occipital scalp	Moved into a new area recently and mother was concerned that "something in the house" was causing the hair loss	Behavioral counseling
3.	12	Male	7 mo	Frontal and occipital scalp	Attention-deficit/hyperactivity disorder, nail-biting	Referred to child psychologist
4.	9	Female	3 mo	Left frontal scalp	Preceding alopecia areata 11 mo prior, with hair regrowth, but had fallen out again recently	Behavioral counseling
5.	9	Male	4 mo	Vertex and occipital scalp	Hair-pulling at night before going to sleep	Referred to child psychologist
6.	11	Female	5 mo	Parietal scalp and vertex	Anxious and nervous personality	Referred to child psychologist
7.	11	Male	5 mo	Vertex and eyelashes (bilateral upper and lower lids)	Erythema, scaling, and lichenification of the upper lids	Referred to child psychologist
8.	10	Male	2 mo	Linear patch of alopecia 9 × 2 cm, extending from frontal scalp near the hairline to the vertex	Associated headaches and stress at home and school	Referred to child psychologist
9.	13	Female	5 mo	Eyelashes	Major depression	Psychiatric follow-up; on sertraline
10.	14	Female	10 y	Frontal and temporal scalp	Nail-biting and skin-picking	Psychiatric follow-up; on sertraline

diagnostic category (displacement activity disorder) that would include TTM as well as other "nervous habits" such as severe face-picking and nail-biting was also proposed.^{4,5}

The prevalence of TTM is probably grossly underestimated because of the secretiveness so characteristic of the disorder as well as underrecognition by medical professionals. Hair-pulling behavior also likely occurs along a continuum, ranging from a relatively common and benign form that produces no significant cosmetic and emotional distress, to a more serious disorder that is often disfiguring and leads to great personal suffering. A point prevalence of 4% in the general population has been estimated by some authors, with up to 10% of people having engaged in hair-pulling at some point in their lives.⁶ Of several large studies that anonymously surveyed college students, 0.6% met DSM-IV criteria for TTM, 2.5% acknowledged pulling with resultant visible hair loss, 13.3% reported noncosmetic, "nonclinical" hair-pulling, and 30% acknowledged having known someone else who pulled out their hair.⁷⁻⁹ The true prevalence of hair-pulling among children and adolescents is unknown but is probably <1%.^{7,10}

The mean age of TTM onset is prepubertal (between 9 and 13 years), which was supported by our series, with a mean patient age range of 11.3 years.^{11,12} It is important to distinguish TTM from the habitual hair-pulling that occurs in younger children (< 5 years old). The occurrence of hair-pulling in the first year of life is a rare event, probably comprising < 1% of cases.¹⁰ Also known as "baby trichs," infants with such behaviors have been observed to pull their mothers hair while being held and/or nursing. It has been proposed that this behavior is a variant of normal tactile, environmental exploration, and thus these infants are generally considered to have a benign, more favorable prognosis

than their prepubertal counterparts.¹³ Similarly, in preschool-aged children, habitual hair-pulling, most commonly of the scalp, typically occurs at naptime or bedtime. In contrast to TTM, such hair-pulling is generally recognized by children and their parents, is not associated with situational stress or obsessive-compulsive disorders, and is usually self-limited. Although there are no data to suggest that preschool hair-pullers progress to TTM, we describe 1 patient (case 10) with a 10-year history of hair-pulling that began at age 4. However, our experience with other preschool-aged children with benign, self-limited hair-pulling suggests this case to be exceptional. Among adults, TTM has predominantly been reported in female patients. However, among children, as supported in our patients, both genders are affected equally, suggesting that adult males with TTM are simply less likely to seek medical attention.¹⁴

Specific clinical signs and hair-pulling methods are shared among patients with TTM. As noted in our series, the scalp is the most common site of pulling, where the pattern of hair loss is often bizarre, with irregularly shaped angular or linear borders.¹³ Pulling of hair over the crown is especially common, which results in a pattern known as the "Friar Tuck sign" because of the resemblance to the characteristic pate adopted by certain Christian monks (Fig 1).¹⁵ Hair-pulling also tends to be biased toward the side of a patient's handedness. Patients tend to pull from more than one site, and simultaneous TTM of eyelash and eyebrow hair is especially common among prepubertal children, as seen in 2 of our patients. However, TTM has been reported from almost every imaginable location, including pubic, perianal, nasal, ear, and abdominal sites, in decreasing order of frequency.^{13,16,17} Affected areas are never completely bald, displaying clues of short, broken-off hairs of

TABLE 2. DSM-IV Diagnostic Criteria for TTM²

A	Recurrent pulling out of one's hair, resulting in noticeable hair loss
B	An increasing sense of tension immediately before pulling out the hair or when attempting to resist the behavior
C	Pleasure, gratification, or relief when pulling out the hair
D	The disturbance is not better accounted for by another mental disorder and is not caused by a general medical condition (eg, a dermatologic condition)
E	The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning

Fig. 1. Bizzare pattern of hair loss in an adolescent with TTM (case 2).



varying lengths. Perifollicular erythema, hemorrhage, or excoriations may also be present.

Often, children with TTM will scrutinize and then touch or stroke the hair before pulling.^{16,18} Hairs are usually pulled out individually, and often patients will select hairs they describe as being different from the rest (eg, "wiry," "thick," "stubby," "kinky," or of a darker color).¹⁹ Unfortunately, the trauma of pulling, which damages the hair root, induces a new, dystrophic "target" hair that is consequently at high risk for being pulled. On average, children with TTM spend over an hour per day engaged in hair-pulling. Ninety-five percent of patients note that "bingeing" describes at least some episodes of hair-pulling.¹⁶

Additionally, >50% of children practice a variety of strange oral behaviors and will commonly touch or tickle their lips or nostrils with the hair after it is pulled.²⁰ Although not noted in our patients, one third bite off the root of the hair, and 5% to 18% engage in trichophagy (ingestion of the hair).^{20,21} Trichophagy can also lead to the rare, serious complication of the trichobezoar ("hair ball"). This also can clot with vegetable matter (trichophytobezoar), in which complete casting of the gastric lumen can occur, known as the "Rapunzel" sign.²² Not surprisingly, this can result in a number of gastrointestinal complications including anemia, intestinal obstruction, intussusception, ulceration, and/or perforation.¹¹

The etiology of TTM is complex; however, several common features among children have been recognized. Golomb and Vavrichek²³ coined a useful acronym, the "fiddling sheep," to describe this phe-

nomenon (Table 3). Many children with TTM are natural "fiddlers" and tend to have a need for tactile stimulation via the fingertips (eg, blades of grass or blanket fuzz), which may serve as a self-quieting, calming function, especially in infants and younger children.^{24,25} Pulling from siblings, pets, dolls, and stuffed animals has been documented also, often occurring in the same pattern as the patient.^{3,26,27} Sensation may be a factor because, counterintuitively, children generally claim pulling to be painless, if not pleasurable.¹⁶ Because children have been noted to pull when emotionally distressed, it has been postulated that perhaps pulling produces "counterirritation" that competes with dysphoria for central nervous system recognition.⁷ In some children, TTM 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, as was noted in 3 of our patients.³ TTM is often not a focused, conscious act, but rather the hands seem to "have a mind of their own," and pulling often occurs in a disengaged or "trance-like"

TABLE 3. Features of Children With TTM: the "Fiddling Sheep"

Fiddling
Sensation
Hands
Emotion
Environment
Perfectionism

state. As an extreme example of this concept, some children have been observed to pull while they are asleep. Environment is a factor, because children usually pull when alone and in relaxed surroundings. The bedroom (while talking on the phone or before falling asleep), bathroom (while looking at oneself in the mirror), or family room (while watching television or reading) are "high-risk" situations for pulling.¹⁶ Last, children with TTM tend to have perfectionistic personality qualities. Body dysmorphic disorder and general feelings of inadequacy are especially prevalent among such patients.^{11,28}

Although less common, neurobiologic factors have also been implicated in TTM. Affective, disruptive, attention-deficit, anxiety, and obsessive-compulsive disorders have been noted in some children, but the true incidence is uncertain because it is difficult in many cases to determine whether the presence of such comorbid conditions is a cause or consequence of pulling.^{13,29} Associated psychopathology in our study included 1 patient with an "anxious and nervous personality," 1 with attention-deficit/hyperactivity disorder, and 1 with depression.

The role of serotonin dysregulation, as implicated in obsessive-compulsive behavior, has been entertained but not specifically studied in children with TTM.³⁰ Poststreptococcal exposure, in which autoantibodies initially directed against streptococci cross-react with the central nervous system, has been implicated in other pediatric behavioral abnormalities such as Sydenham's chorea and behavioral tics. The potential implications of streptococcal infection in relation to early-onset hair-pulling is another area of great interest in which research is currently ongoing.^{11,13}

The differential diagnosis of TTM includes alopecia areata, tinea capitis, and secondary syphilis.²⁹ In alopecia areata, smooth, round areas of hair loss are generally seen, with "exclamation point" hairs (hairs at the edges of the area of alopecia, a few millimeters long, which are broader at the end than at the scalp level). Shallow pitting of the nails may also be seen. In our and others experience, TTM and alopecia areata can occur concomitantly, as noted in 2 of our patients who had alopecia areata that preceded the onset of TTM by several months.³¹ The infected hairs of tinea capitis can be extracted easily from a scalp that is characteristically scaly and often erythematous. Microscopic, KOH examination of scalp hair or scale and/or a fungal culture can be performed for definitive diagnosis. Patients exhibiting "moth-eaten" alopecia, especially combined with scaly, pityriasis rosea-like lesions of the trunk, palms, and/or soles, should have secondary syphilis ruled out by serologic testing. Biopsy of an involved area (ideally from a recent site of hair loss) can help confirm TTM when the diagnosis is in question. Histopathologic features of TTM include a marked increase in catagen and telogen hairs, the presence of pigment casts, and trichomalacia (small, distorted hair shafts that are keratinized incompletely).¹⁴ Other findings include dilated ostia with soft keratin, empty follicles, traumatized hair bulbs, and absence of bulbar inflammation.

The literature suggests that childhood-onset TTM is typically of short duration, with resolution often occurring on its own or with simple interventions.^{32,33} However, no large prospective studies of children with TTM have been undertaken. One study found spontaneous resolution or resolution after minimal intervention to be characteristic of those patients with hair-pulling of ≤ 6 months' duration, whereas hair-pulling in patients who had pulled for > 6 months was characterized by a more chronic and treatment-resistant course. In our series, the duration of hair-pulling ranged from 1 month to 10 years (median: 4.6 months).

The management of TTM is often difficult and requires strong physician-patient and physician-parent relationships. Although children sometimes admit to touching the affected areas, they frequently deny pulling the hair. Direct confrontation and accusation are rarely helpful. For the minority of children with associated psychopathology, referral to a child psychiatrist is appropriate. Pharmacotherapy should only be used as adjunctive therapy, because no controlled pediatric trials have been performed. Among 12 pediatric case reports of TTM with comorbid psychiatric conditions, selective serotonin reuptake inhibitors, antipsychotics, and stimulants were attempted with mixed results, and no definite conclusions could be drawn.³⁴ Of these, the selective serotonin reuptake inhibitors are the most commonly used pharmacotherapy for TTM; the rationale being the similarities between TTM and obsessive-compulsive disorder.³⁵ However, in a recent randomized, blinded, 12-week study of 43 adult patients, 12 of whom had coexisting mood, impulse-control, and anxiety disorders, behavioral therapy was compared with fluoxetine (60 mg/day) and no treatment. Although the majority of patients in the behavioral therapy group experienced clinical improvement, success rates with fluoxetine were actually less than placebo.³⁶

Nonpharmacologic treatments, in the form of behavioral and/or supportive family and professional counseling, should be considered first-line therapy for children with TTM and were successful in the majority of our patients. For cases of TTM in which a trigger can be identified (eg, birth of a new sibling or new school), brief counseling and parental support/reassurance may be enough to overcome the habit. It is important to recognize that the majority of children are motivated to stop pulling and have tried on their own (generally unsuccessfully) to do so. A workbook for adolescents with TTM (and their parents and/or therapist), *The Hair Pulling "Habit" and You: How to Solve the Trichotillomania Puzzle*,²³ is available. Written primarily for ages 10 to 16 years (younger children can have a parent read to them), this workbook encourages strategy development to help manage hair-pulling behavior and is a useful aid for younger patients with TTM. In addition, the Trichotillomania Learning Center (www.trich.org) recently published a treatment brochure for children. Another excellent, current resource for those with additional interest in this disorder is *Trichotillomania*.³⁴ The common prepubertal age of onset of TTM

provides an important opportunity for the pediatrician to lend support to affected patients and their families.³⁷

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