

## Trichotillomania

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### Summary

Trichotillomania (TTM), also known as hair-pulling disorder, is characterised by an uncontrollable and persistent compulsion to pull out one's own hair, which results in noticeable hair loss. TTM, which belongs to a group of body-focused repetitive behaviour disorders (BFRBDs), considerably affects the quality of life by producing a sense of own unattractiveness, low self-esteem, dissatisfaction with the appearance of one's own body, and the associated feelings of shame and embarrassment. As a result, the disorder leads to significant distress and impairs the patient's functioning in both their social and working life. TTM often coexists with other mental conditions; it is underdiagnosed and often ineffectively treated.

This article presents a case of effective treatment with aripiprazole in a 38-year-old female who had suffered from concomitant body-focused repetitive behaviour disorders since childhood. Well-selected medical treatment, an increased patient willingness to undergo treatment, and her motivation to engage in psychotherapy helped improve the patient's psychosomatic condition and relieve her TTM symptoms.

**Key words:** trichotillomania, trichotillomania treatment, trichophagia

### Introduction

Trichotillomania (TTM), also known as hair-pulling disorder, is characterised by persistent and irresistible urges to pull out one's hair, which leads to noticeable hair loss [1–5]. The act of hair-pulling is preceded by a mounting tension or distress that is relieved once hair has been pulled out. The term *trichotillomania* was first used in a 1889 report by the French physician Francois Henri Hallopeau [6].

Apart from pulling out one's hair, the disorder encompasses other hair-related repetitive behaviours, such as playing with, biting, or even chewing on one's hair.

Hair-pulling is only one element and may be followed by biting off and swallowing hair follicles or even whole strands of hair (trichophagia) [3, 5]. Trichophagia is present in 5–20% of patients affected by TTM, and it may lead to the formation of a trichobezoar, which is an accumulation of undigested matter, typically found in the stomach (this phenomenon occurs in 1% of individuals with trichophagia) [3].

Individuals with TTM tend to pull the hair from their scalp or other parts of the body. In fact, most TTM sufferers pull their hair from more than one area of the body [2, 3, 5], with the scalp being the most common location (75%), followed by eyelids, eyebrows, pubic and perianal regions, the beard, and the forearms [2, 3, 5]. The duration of hair-pulling episodes varies from several minutes to several hours. TTM is inherently recurrent. Attempts to limit the intensity of the behaviour are often ineffective.

The fifth edition of the Diagnostic and statistical manual of mental disorders (DSM-5) classifies TTM under obsessive-compulsive and related disorders (OCRD); whereas ICD-11 classifies it as a body-focused repetitive behaviour disorder (BFRBD) [4, 7–9]. BFRBDs are characterised by repetitive behaviours directed against oneself, such as pulling, plucking, biting, or scratching of the hair, skin, or nails, which leads to physical injury [5].

A comparison of TTM in the ICD-10 [7], ICD-11 [8], and DSM-5 [9] classifications, including the diagnostic criteria, has been shown in Table 1.

**Table 1. Trichotillomania – a comparison between the ICD-10, ICD-11 and DSM-5 classifications, including the diagnostic criteria**

| <b>ICD-10 code F63.3</b><br><b>It is categorised under habit and impulse disorders</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>ICD-11 code 6B25.0</b><br><b>It is categorised under body-focused repetitive behaviour disorders (BFRBDs)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>DSM-5 code 312.39</b><br><b>It is categorised under obsessive-compulsive and related disorders</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>– A disorder characterized by noticeable hair-loss due to a recurrent failure to resist impulses to pull out hair.</li> <li>– The intense urge to pull out hair is usually preceded by mounting tension and is followed by a sense of relief or gratification.</li> </ul> <p>Exclusions:</p> <ul style="list-style-type: none"> <li>– dermatitis preceding hair-pulling</li> <li>– hair-pulling resulting from delusions or hallucinations</li> <li>– stereotyped movement disorder with hair-plucking (F98.4)</li> </ul> | <ul style="list-style-type: none"> <li>– It is characterized by recurrent pulling of one's own hair leading to significant hair loss, accompanied by unsuccessful attempts to decrease or stop the behaviour.</li> <li>– Hair pulling may occur from any region of the body in which hair grows but the most common sites are the scalp, eyebrows and eyelids.</li> <li>– Hair pulling may occur in brief episodes scattered throughout the day or in less frequent but more sustained periods.</li> <li>– The symptoms result in significant distress or significant impairment in personal, family, social, educational, occupational or other important areas of functioning.</li> </ul> <p>Inclusion – compulsive hair-plucking</p> <p>Exclusion – stereotyped movement disorder with hair-plucking (6A06)</p> | <ul style="list-style-type: none"> <li>A. Recurrent pulling out of one's hair resulting in hair loss.</li> <li>B. Repeated attempts to decrease or stop hair pulling.</li> <li>C. The hair pulling cannot be better explained by the symptoms of another mental disorder (e.g. attempts to improve a perceived defect or flaw in appearance, such as may be observed in body dysmorphic disorder).</li> <li>D. The hair pulling or hair loss cannot be attributed to another medical condition (e.g. a dermatological condition).</li> <li>E. The disturbance causes clinically significant distress or impairment in social, occupational or other important areas of functioning.</li> </ul> |

The extent of hair loss varies and depends on such factors as the frequency and the duration of hair-pulling episodes, the quantity of hair being pulled out and the number of affected areas of the body. The extent of TTM-induced alopecia ranges from unnoticeable (single hairs pulled from limited number of areas) to severe (extensive, visible areas of hair loss from the scalp and/or body) [1, 3]. Physical examination reveals isolated or multiple, irregularly shaped areas of intact skin devoid of hair, with no evidence of inflammation, atrophy, ulceration, or scarring.

TTM considerably affects the quality of life, causing significant distress and significant impairment in social and occupational functioning. Despite serious physical and emotional consequences, including suicidal thoughts and attempts, medical treatment and psychological support of patients with TTM is often inadequate [10–12].

TTM is a complex condition of multifactorial aetiology, combining neurobiological, genetic and psychological components. From the neurobiological perspective, an increasing amount of data suggests severe dysregulation of frontostriatal circuits, which

are responsible for impulse control [13, 14]. Neuroimaging analyses show altered white matter structure and connectivity in the frontal and limbic lobes and in the cerebellum, which may be responsible for the difficulties in regulating emotions and the deficits in executive functions observed in individuals with TTM [15, 16].

Family studies and genetic tests suggest a considerable hereditary component – with higher co-occurrence rates in monozygotic twins (>70% inheritance) and higher rates of concomitant TTM and obsessive–compulsive disorders (OCDs) in first-degree relatives [17, 18]. Moreover, familial subtypes of TTM have been suggested, particularly in the case of concomitant OCD [17]. Certain genes, such as *SAPAP3*, *SLITRK1* and *HOXB8*, which are associated with glutaminergic and dopaminergic system regulation, indicate common biological mechanisms behind tics and OCDs [19–22].

Psychological models of TTM pathogenesis emphasize the significance of emotional and impulse-control dysregulation. Cognitive-behavioural models, such as the regulation stimulation model and the behavioural addiction model, describe TTM as a means to reduce emotional tension, which has been reinforced by negative feedback [23]. Moreover, some studies demonstrated deficits in inhibitory control and cognitive flexibility, which indicates the importance of executive functions and places TTM on a spectrum of impulsivity and compulsivity [15, 24–28].

Conversely, the psychodynamic approach interprets TTM as a regressive defence mechanism. The act of hair-pulling may serve to release emotional tension or aggression directed towards an internal or external target; it may also be a reflection of unresolved conflicts associated with separation, autonomy, or identity [29].

TTM is a recurrent condition, with an onset at any age, although it most commonly develops in childhood or adolescence [3–5, 7–9]. For a very long time TTM was believed to be a very rare condition. Currently, as a result of the most recent studies, its estimated prevalence in the general population ranges from 0.6% to 3% [30–32]. Establishing the diagnosis is made additionally more difficult by the fact that over a half (approximately 65%) of those affected either do not seek specialist help or visit a dermatologist [33]. The dermatologist may exclude infection or other skin conditions, which helps establish the correct diagnosis.

Due to a lack of clear epidemiological data on TTM, it is difficult to estimate not only its prevalence but also its distribution between the sexes. Earlier data on TTM distribution between the sexes in the general population were inconsistent. A majority of previous studies based on sample patient populations suggested the condition was predominant in women (4:1; Grant & Chamberlain, [24] (2016)). However, according to DSM-5 [4] that disproportion increases with age, and is as high as 10:1 in adults. The most recent epidemiological studies (Grant et al., [31] (2020)) and meta-analyses (Thomson et al., [32] 2022)) failed to show differences in TTM rates between sexes. Thomson et al. [32] highlighted the existence of a considerable heterogeneity between studies. Some authors believe that males less often spontaneously seek specialist help, which may lead to the inter-sex differences in TTM rates observed in epidemiologi-

cal studies. Moreover, it is easier for males to hide the problem (e.g. by shaving the affected areas of the body) [5].

Patients with TTM may feel unattractive and dissatisfied with the appearance of their body and experience the accompanying shame, embarrassment and low self-esteem [5]. It is worth noting that TTM is usually not an isolated disorder. The rates of concomitant mental conditions diagnosed in patients with TTM over their lifetime reach 80%. The most common of such conditions include depression (37–65%), anxiety disorders (10–60%), OCD (5–13%), tics (6–9%), attention deficit hyperactivity disorder (ADHD) (10–40%), personality disorder, eating disorder, substance use disorder and addiction (>30%), and post-traumatic stress syndrome [3, 5, 24, 25, 34, 35]. Coexistence of BFRBDs is common, and the affected patients tend to have much more severe symptoms and are more susceptible to major depressive disorders than those who only suffer from TTM or pathological skin picking (excoriation disorder) [36]. Most authors categorize both TTM and pathological skin picking as part of impulse control disorders. This umbrella term encompasses disorders characterised by repetitive actions performed without any clear or rational motives, which are uncontrollable and lead to harmful consequences. Impulse control disorders include also pyromania, kleptomania and pathological gambling. All these disorders have been included in one category due to their impulsive nature, which includes having an impulse to perform a specific act (e.g. hair-pulling) and a mounting tension that persists until that act is initiated. Performing this impulse-driven act is followed by a feeling of gratification and/or relaxation, with a feeling of guilt being a relatively frequent long-term consequence.

A relationship between difficulties in regulating emotions and TTM symptoms has been suggested. The 2024 meta-analysis by Crowe et al. [30] provided initial consolidation of evidence and demonstrated that individuals with more severe TTM seem to exhibit lower general capacity and poorer strategies for regulating emotions.

Based on hair-pulling styles, TTM can be divided into four categories. These depend on disorder severity and whether or not hair-pulling is intentional or automatic [37]. However, this categorisation is believed to be of no clinical use; instead, three TTM types of patients have been suggested: sensory sensitive pullers, low awareness pullers and impulsive/perfectionist pullers [24, 25]. The most simplified categorisation distinguishes two basic hair-pulling styles: automatic, that is habitual hair-pulling without focusing attention on the activity, and focused hair-pulling. Sufferers of the latter type are fully aware of the activity, which often is a form of a distractor from unwanted thoughts or emotions. In the focused type, hair-pulling is preceded by a feeling of distress or mounting tension, and followed by a sense of relaxation, relief and gratification. Patients are often able to identify the factor that triggers a TTM episode [3, 5].

Despite a growing body of knowledge on the neurobiological mechanisms of TTM, the effectiveness of therapeutic interventions is limited, with no medical treatment approved by the Food and Drug Administration (FDA) to date [38, 39]. Medical treat-

ment strategies are based mainly on the use of selective serotonin reuptake inhibitors (SSRIs) and clomipramine. Unfortunately, the effectiveness of these drugs – particularly in patients with predominant impulsivity – remains limited and inconsistent [39, 24–28]. TTM treatment remains a considerable clinical challenge. A 2021 systematic literature review by Hoffman et al. [40] failed to provide adequate evidence to support or refute the effectiveness of any group of drugs in the treatment of TTM, irrespective of the age group (the study included children, adolescents and adults).

Recent years saw a growing interest in drugs affecting other neurotransmitter systems, including the dopaminergic and glutaminergic system. One of the most promising drugs is aripiprazole (a second-generation antipsychotic), which acts as a partial agonist of dopamine D2 and serotonin 5-HT<sub>1A</sub> receptors and an antagonist of 5-HT<sub>2A</sub> receptors. Its mechanism of action involves stabilising frontostriatal function, which may improve impulsivity control and reduce emotional tension [14].

Clinical studies suggest that even low doses of aripiprazole (1.5–5 mg/day) may be effective in relieving TTM symptoms. An open study by White and Koran [41] (2011) demonstrated that the use of aripiprazole at a mean dose of 7.5 mg/day for 8 weeks led to significant symptom reduction in most of the evaluated patients, without simultaneously affecting depressive or anxiety symptoms. Similar effects were achieved in case reports of adolescent patients, including a 14-year-old female who achieved complete symptomatic remission following the use of 1.5 mg/day aripiprazole [42], or a 15-year-old female successfully treated with a 2.5–5 mg/day dose [43]. In our case (described in detail below), a complete remission of TTM symptoms was achieved in a patient who had been struggling with the embarrassing and persistent behaviours for decades.

Due to its beneficial safety profile, characterised by a low risk of weight gain, sedation, or extrapyramidal symptoms, aripiprazole may be particularly useful in cases refractory to SSRI or psychotherapy [41, 44]. A systematic review by Ghani et al. [44] (2024) presented aripiprazole, as well as N-acetylcysteine, as the most promising pharmacotherapeutic options for TTM treatment. Nonetheless, those authors emphasised the need for further, well designed randomized studies.

Despite these promising data, it is worth noting that nonmedical treatment, particularly psychotherapy with elements of habit reversal training (HRT), remains the recommended first-line treatment [45, 46]. Nonetheless, the effectiveness of this method may be limited in some patients; with other problems including high rates of recurrence and difficulties in specialist accessibility. Moreover, coexistence of anxiety and depressive disorder may limit the effectiveness of treatment [24–28].

In light of the above, aripiprazole seems to be an attractive alternative, particularly in cases that are refractory to standard treatment. The mechanism of action, good safety profile and the initial clinical study outcomes are the basis for further exploring the role of this drug in TTM treatment. This paper presents a case of effective treatment with aripiprazole in a 38-year-old patient additionally affected with concomitant BFRBDs since childhood.

### Case study

A 38-year-old female, who had been married for 20 years and is a mother of two teenage children, had a history of hypertension, hypercholesterolemia, atopic arthritis, and morbid obesity (body weight of 138 kg). At the age of 7 years, she had suffered a concussion.

The patient had been treated psychiatrically for TTM since the age of 9 years. At the ages of 9 to 10 years she attended psychotherapy sessions. As a teenager, she suffered from depression, and experienced periodic auditory hallucinations, consistent with her mood. The patient's relations with her parents were difficult and sustained the problem.

At the age of 13 years, she attempted suicide by substance abuse and was hospitalised at the Paediatric Psychiatry Department. After discharge, she did not continue her treatment.

Over the subsequent years, she experienced recurrent worsening in her mental condition, with TTM symptom exacerbation, depression and suicide attempts. At the age of 28–34 years, she remained under outpatient care but attended the scheduled visits irregularly and was hospitalised several times at psychiatric general and rehabilitation wards. Her diagnoses included TTM, personality disorder, recurrent depressive disorder, and OCD. The patient discontinued treatment several times. Her medical treatment included paroxetine (up to 40 mg/day; the treatment was discontinued due to severe headaches and vomiting), fluvoxamine (which was discontinued due to side effects), venlafaxine (at 75 mg, 150 mg and eventually 225 mg/day), and aripiprazole (initially at a dose of 5 mg/day, subsequently increased to 15 mg/day, which was well tolerated). According to the patient's account, aripiprazole was the most effective drug in reducing her TTM symptoms; however, the patient discontinued the treatment periodically for financial reasons.

In 2023, three years after her previous hospitalisation, the 38-year-old patient was readmitted to the psychiatric ward of the Nowowiejski Hospital in Warsaw following a suicide attempt involving taking drugs (tramadol, sertraline, ketoprofen) combined with consumption of approximately 300 ml of homemade liquor. The patient had made a suicide attempt in response to the news of her husband's infidelity. During hospitalisation, aripiprazole was reintroduced due to the previously good clinical response. Five days later, the patient discharged herself voluntarily; however, a few days later, she returned to the hospital due to a difficult situation at home and eagerness to continue treatment.

Initially, the patient exhibited difficult-to-control, severe TTM symptoms. In response to the stress and tension resulting from her difficult personal situation, she pulled the hair from her scalp, eyebrows and eyelids. This was her way of regulating emotions and achieving relief. At the same time, she reported a sense of guilt, shame and low self-esteem due to her appearance. She also avoided social situations, such as participating in group sessions of psychiatric rehabilitation or socialising with other patients. The patient reported persistent low mood and generalised anxiety. Over the course of



individual cognitive–behavioural therapy and the use of 15 mg/day aripiprazole and 20 mg/day escitalopram, the patient’s mental condition showed gradual improvement, with improved mood, reduced anxiety and complete resolution of TTM symptoms. The patient was discharged home in a good general condition.

### Conclusions

TTM rarely occurs as an isolated disorder. For a number of reasons the condition is still underdiagnosed and/or inadequately treated. The example case described above demonstrates how TTM exacerbations may cause an escalation in the patient’s distress resulting from difficult life situations. If left untreated, TTM leads to a progressive deterioration in the patient’s social, occupational and other areas of functioning. Well selected medical treatment and an increased motivation to engage in psychotherapy may help improve the patient’s mental condition and alleviate TTM symptoms.

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