

Recent advances in trichotillomania: a narrative review

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Abstract

Trichotillomania, defined as the compulsive pulling out of one's hair, is a psychocutaneous condition associated with functional impairment and decreased quality of life. The pathophysiology of trichotillomania is poorly understood and likely multifactorial, involving alterations in both neural activity and cognitive function. Behavioral treatment options for trichotillomania are limited and are often only modestly effective. Moreover, there are no medications currently approved by the U.S. Food and Drug Administration for its treatment. The gaps in knowledge regarding the neurological underpinnings and behavioral markers of trichotillomania and effective treatment options for it highlight the importance of ongoing research in this field. For this narrative review, PubMed was searched to identify articles related to trichotillomania published until July 2023. Recent advances in research on trichotillomania pathophysiology, diagnosis, clinical associations, and treatment are presented, with particular focus on how this condition uniquely spans the disciplines of both psychiatry and dermatology.

Keywords: trichotillomania, compulsive behavior, psychodermatology, psychocutaneous

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Introduction

Trichotillomania, a dermatological condition characterized by recurrent pulling out of one's own hair, is classified as a psychiatric disorder that results in hair loss and significant functional impairment (1). Individuals affected by trichotillomania experience an irresistible compulsion to pull hair from various areas of the body, including the scalp and eyebrows (1). Although medical literature has discussed trichotillomania for over a century, its official recognition as a mental disorder in the Diagnostic and Statistical Manual of Mental Disorders 3 (DSM-3) was not established until 1987 (2).

Trichotillomania underwent a notable transition with the release of the DSM-5, now reclassified as a part of the chapter on obsessive-compulsive and related disorders, aligning it with disorders such as obsessive-compulsive disorder (OCD), excoriation disorder, body dysmorphic disorder, and hoarding disorder (3). This reclassification reflects a more comprehensive understanding of the shared features and underlying mechanisms between psychocutaneous conditions.

Although trichotillomania manifests as a distinct disorder, recent studies have identified the presence of three subtypes within this condition: sensory-sensitive pullers (Subtype 1), low-awareness pullers (Subtype 2), and impulsive/perfectionist pullers (Subtype 3) (2).

Subtype 1: sensory-sensitive pullers

Subtype 1, referred to as "sensory-sensitive pullers," is characterized by highly focused pulling behavior (2). Individuals in this subtype experience infrequent and low-intensity urges to pull their hair, resulting in a lower overall frequency of pulling behavior compared to other subtypes (4). The findings of one study recognized that individuals in Subtype 1 scored high on measures of sensory sensitivity, indicating heightened sensitivity to sensory

stimuli that can be correlated with their pattern of pulling behavior (2). They also report mood impairment secondary to their pulling behavior (5). The moderate lifestyle impairment and mood symptoms correlated with this subtype may suggest a potential association between trichotillomania, sensory sensitivity, and emotional wellbeing.

Subtype 2: low-awareness pullers

Subtype 2, known as "low-awareness pullers," is the most common subtype, comprising approximately 54.2% of individuals with trichotillomania (2). Individuals in this subtype exhibit automatic pulling behavior and are more likely to engage in pulling due to emotional triggers (6). Whereas individuals in Subtype 2 may report lifestyle and mood impairment similar to those in Subtype 1, attention-deficit hyperactivity disorder (ADHD) symptoms and higher levels of overall impulsivity may be represented as well.

Subtype 3: impulsive/perfectionist pullers

Subtype 3, referred to as "impulsive/perfectionist pullers," exhibits the most distinct characteristics among the three subtypes. Individuals in this subtype engage in hair pulling as a means to control unpleasant feelings, and they experience a greater degree of lifestyle and mood impairment compared to those in other subtypes (7). Individuals in this subtype also demonstrate lower distress tolerance (2). In addition to higher impulsivity scores, individuals in Subtype 3 are more likely to have elevated measures of perfectionism, highlighting their unique profile within the trichotillomania population.

The identification of subtypes within trichotillomania underscores the importance of considering individual differences when developing clinical approaches. By advancing the understanding of the unique clinical presentations, both quality of care and treatment outcomes can be optimized.

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Epidemiology

Understanding the epidemiological characteristics of trichotillomania is crucial for developing effective prevention strategies, improving diagnostic accuracy, and providing appropriate treatment interventions. Lifetime prevalence estimates of trichotillomania range from 0.6% to 2.2% in various studies, with approximately equal proportions among men and women, as well as across a variety of ethnic groups (1, 8).

The mean age of onset for trichotillomania is reported to be 17.7 years (8). However, there is some variation in the age of onset between sexes, and one study indicated that females tend to have a significantly younger average age of onset (14.8 years) compared to their male counterparts (19.0 years) (8). This sex difference in age of onset may reflect unique psychosocial factors or hormonal influences associated with trichotillomania.

Pathophysiology

The pathophysiology of trichotillomania is poorly understood and is likely multifactorial. Alterations in brain structure and neural activity, biomarkers, and cognitive function are hypothesized as central components to its underlying mechanism.

Brain structure and neural activity

Studies on structural brain differences suggest that patients with trichotillomania have significantly greater right inferior frontal gyrus thickness compared to controls. Thickness in these regions, however, has not been linked to clinical severity (9–10). In other brain regions, including the bilateral superior frontal cortex and left rostral middle frontal cortex, decreased thickness appears to be associated with longer duration of illness (10). Alterations in neural activity have been mapped onto regions of structural difference through the use of functional magnetic resonance imaging (fMRI), which has emerged over the past decade as a promising tool for assessing neural activation and circuitry of patients with psychopathology. Such fMRI studies have demonstrated impairments among trichotillomania patients in activation of brain regions closely related to reward circuits. In one pilot study assessing cognitive flexibility in participants with trichotillomania, participants showed increased activation of the frontal cortex and decreased activation of the occipital cortex (11). Another investigation of reward processing in participants with body-focused repetitive behavior disorder found enhanced activation in the bilateral inferior frontal gyrus of patients compared to controls (12).

Biomarkers

Certain biomarkers, including neurotransmitters, inflammatory markers, and oxidative stress markers, have been implicated in the pathophysiology of trichotillomania. In a pilot study, Peris et al. found that pretreatment symptom severity in pediatric trichotillomania patients was positively correlated with glutamate levels in the pregenual anterior cingulate cortex and the thalamus, and negatively correlated with gamma-aminobutyric acid (GABA) levels in the pregenual anterior cingulate cortex. GABA was found to significantly increase following an 8-week behavioral intervention (13). Poorly regulated immune functioning has also been hypothesized to play a role in the development of trichotillomania. One pilot study found that patients with trichotillomania had rel-

atively lower levels of salivary inflammatory cytokines compared to controls, although further investigation in this area is needed (14). Finally, in a pilot study exploring blood levels of oxidative stress markers in patients with trichotillomania, glutathione levels were found to be decreased when compared to reference ranges. Moreover, lower glutathione levels were correlated with increased symptom severity (15).

Cognitive functioning

Recent research has highlighted that, like various other psychiatric diseases, trichotillomania may be characterized by specific impairments in cognitive function. In particular, studies have found deficits in cognitive flexibility among patients with trichotillomania, defined as the ability to adapt behavior and thinking to a changing environment (16–17). Age is not believed to be a significant predictor of impairments in executive functioning in patients with trichotillomania, suggesting that these deficits remain stable over time (17). Sleep quality has also been implicated in the pathophysiology of trichotillomania, with cross-sectional research showing that patients with trichotillomania or skin picking disorder have significantly poorer sleep quality compared to controls. Importantly, decreased sleep quality in this study was correlated with increased severity of hair pulling (18).

Clinical features

Trichotillomania is clinically characterized by recurrent hair pulling that results in patchy alopecia on various hair-bearing surfaces of the body, including the scalp, beard, eyebrows, and eyelashes (1). Understanding the clinical features of trichotillomania is essential for accurate diagnosis and effective management.

Psychosocial characteristics

Psychosocial characteristics often associated with trichotillomania play a significant role in the manifestation and progression of the disorder. Psychological factors, such as stress, anxiety, or a need for tension relief, can trigger hair-pulling behaviors (19). In addition, individuals with trichotillomania may experience feelings of shame, guilt, or embarrassment due to visible hair loss, which can further impact their psychosocial wellbeing (19). Research exploring personality traits in patients with trichotillomania has found that, compared to controls, patients with trichotillomania may have greater scores in neuroticism and lower scores of extraversion and conscientiousness. These personality traits were correlated with clinical features including symptom severity, perceived stress, impulsivity, anxiety, and depressive symptoms, and poorer quality of life (12).

Cutaneous lesions and trichoscopic findings

Skin lesions observed in trichotillomania are characterized by patchy areas of alopecia (see Figs. 1a, 1c, 1e) (20). These lesions can occur on any hair-bearing surface and are a direct result of hair pulling. Trichoscopic examination, a non-invasive dermoscopic tool, reveals distinct findings that aid in the identification of trichotillomania. One such finding is the presence of tulip hairs, which are short hairs with a slightly thinner proximal end and a tulip-like hyperpigmentation pattern at the distal end (21). Tulip hairs, however, may also be observed in other disorders, such as

alopecia areata (20). Other trichoscopic findings that are highly specific to trichotillomania include flame hairs, which are thin, wavy-shaped hair residues, and V-hairs, where two or more hairs are broken at the same length emerging from one follicle (21). Characteristic trichoscopic findings are demonstrated in Figures 1b, 1d, and 1f. Hair powder, characterized by an almost entirely damaged hair shaft showing only sprinkled dots, and mace hair, consisting of broken terminal hairs with a bulging distal end, are also highly specific trichotillomania findings (21).

Diagnostic approach

The DSM-5 provides five specific criteria to aid clinicians in the diagnosis of trichotillomania, which are outlined in Table 1 (22). It is important to note that patients presenting with hair loss may conceal hair-pulling behaviors for fear of shame or stigma. In these cases, clinicians should carefully evaluate for trichoscopic findings suggestive of trichotillomania to differentiate it from other common causes of hair loss, including alopecia areata, telogen effluvium, and androgenetic alopecia.

Comorbid conditions

Trichotillomania frequently co-occurs with other mental health conditions (8). Comorbid conditions, particularly anxiety disorders and OCD, play an important role in determining a patient's functional impairment (24). Recent research has shown that natural recovery from trichotillomania (i.e., symptom resolution without therapy or medication) is associated with significantly lower rates of comorbid conditions (25). Thus, addressing the comorbid conditions associated with trichotillomania is essential for providing comprehensive care and improving treatment outcomes.

Anxiety

High rates of anxiety disorders are observed among individuals

with trichotillomania, specifically generalized anxiety disorder and social anxiety disorder (26). The feelings of anxiety often worsen the distress experienced by individuals, leading to increased impairment in daily functioning and reduced quality of life.

Depression

Depressive symptoms commonly accompany trichotillomania, contributing to the overall burden experienced by affected individuals (27). The psychosocial consequences of trichotillomania, such as noticeable hair loss and impaired appearance, can negatively impact self-esteem and body image, contributing to depressive symptoms (27).

Obsessive-compulsive disorder (OCD)

Trichotillomania shares similarities with OCD because both disorders involve repetitive and compulsive behaviors (28). It is not uncommon for individuals with trichotillomania to meet diagnostic criteria for OCD (28). The presence of both conditions suggests a potential overlap in underlying neurobiological mechanisms and may influence treatment strategies.

Skin picking disorder

Trichotillomania frequently coincides with skin picking disorder, also known as excoriation disorder. These two conditions, collectively referred to as body-focused repetitive behaviors, often share similar etiological factors and treatment approaches (28). The co-existence of trichotillomania and skin picking disorder may necessitate interventions targeting both behaviors for optimal treatment outcomes (28).

Attention-deficit hyperactivity disorder (ADHD)

In a recent study of 308 adults with a current diagnosis of tricho-

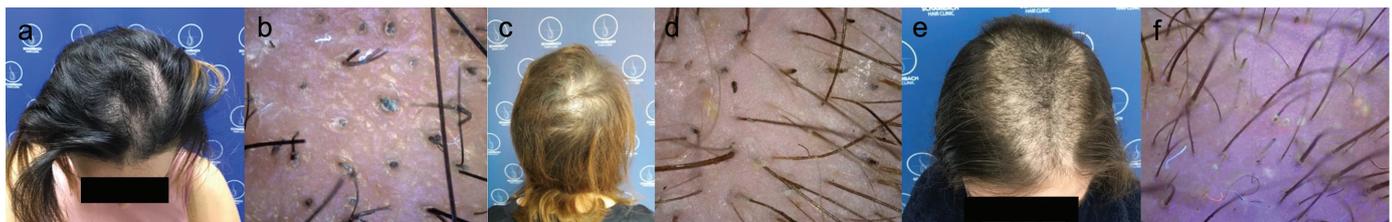


Figure 1 | Clinical (a, c, e) and trichoscopic findings (b, d, f) in three patients with trichotillomania. Image: "Figure 1" by Rachel Christensen, Marie Schambach, and Mohammad Jafferany is licensed under CC BY-NC-ND 4.0 (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9787776/>).

Table 1 | DSM-5 criteria for trichotillomania and clinical relevance.

DSM-5 criteria	Clinical characteristics and relevance
Recurrent pulling out of one's hair, resulting in hair loss	The hair pulling can occur from any hair-bearing surface of the body, such as the scalp, beard, eyebrows, or eyelashes (1).
Repeated attempts to decrease or stop hair pulling	Individuals with trichotillomania often make efforts to control or stop their hair-pulling behavior. However, these attempts may be unsuccessful and can be followed by relapses (23).
The hair pulling directly causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.	The distress caused by the hair pulling behavior can lead to difficulties in relationships, work or school performance, and overall quality of life, having implications for the individual's wellbeing and daily functioning (23).
The hair pulling or hair loss is not attributable to another medical condition.	It is crucial to rule out any underlying medical conditions that may cause hair loss. Trichotillomania diagnosis requires that the hair pulling and hair loss cannot be solely attributed to a comorbid medical condition (23).
The hair pulling is not attributable to another mental disorder.	The hair-pulling behavior observed in trichotillomania should not be better explained by the symptoms of another mental disorder. For instance, if the hair pulling is primarily driven by attempts to improve perceived defects or flaws in appearance, a diagnosis of body dysmorphic disorder may be more appropriate (23).

DSM-5 = diagnostic and statistical manual of mental disorders, fifth edition.

tillomania, 15.3% met the clinical threshold for ADHD (29). Participants with ADHD reported significantly higher scores of impulsivity compared to participants without ADHD. No differences in trichotillomania symptom severity, functional impairments, or perceived quality of life were found between participants with ADHD and those without. Importantly, several cases of worsening trichotillomania symptoms following ADHD treatment with stimulant medications have been reported; however, further evidence supporting this relationship is limited (30, 31). Clinicians should nevertheless remain mindful of this potential association when treating patients.

Substance use disorders

Recent research indicates a potential association between trichotillomania and substance use disorders (32). Substance abuse may serve as a maladaptive coping mechanism for managing the distress associated with trichotillomania (32). Clinicians can assess and address substance use issues in individuals with trichotillomania in order to enhance treatment efficacy and reduce the risk of relapse.

Suicidal ideation

Individuals with trichotillomania may experience higher rates of suicidal ideation compared to the general population (33). The chronic nature of the disorder, coupled with the psychosocial consequences and comorbid mental health conditions, increases the risk of suicidal thoughts (33). Early identification and intervention for suicidal ideation in individuals with trichotillomania is crucial for preventing self-harm and providing appropriate mental health support.

Impaired physical and mental quality of life

Trichotillomania and its comorbidities significantly impact both the physical and mental aspects of quality of life. The repetitive hair-pulling behavior, resulting hair loss, and associated psychological distress may contribute to impaired social relationships, occupational functioning, and overall wellbeing (33). Individuals with trichotillomania can experience challenges with social interactions, reduced self-confidence, and limitations in pursuing personal and professional goals.

Recognizing and addressing the comorbid conditions associated with trichotillomania is crucial for comprehensive treatment planning. A multidisciplinary approach that addresses both the hair-pulling behavior as well as its comorbidities can improve treatment outcomes and enhance the quality of life for individuals affected by trichotillomania. Collaborative efforts between mental health professionals, dermatologists, and other relevant specialists are essential to provide integrated care and address the complex needs of individuals with trichotillomania and comorbid conditions.

Management

Management of trichotillomania is multimodal and involves both a behavioral and pharmacological approach. Although various behavioral and pharmacological therapies have emerged as potential options for symptomatic improvement of trichotillomania (Table 2), additional large-scale randomized trials are necessary

to fully understand their efficacy and safety profiles. Currently, there are no medications approved by the U.S. Food and Drug Administration for the treatment of trichotillomania.

Behavioral therapies

The most widely accepted behavioral therapy for trichotillomania is habit reversal therapy, a type of cognitive behavioral therapy (CBT) that focuses on increasing habit awareness and developing sustainable habit responses (34). Other common therapeutic approaches include dialectical behavior therapy (DBT) and acceptance and commitment therapy (ACT). DBT centers on patient identification and change of negative thoughts and behaviors. Clinical trials have revealed DBT-enhanced CBT as a promising approach for improving symptom severity, emotion regulation, experiential avoidance, and anxiety and depression (35). Similar to DBT, ACT encourages patients to accept their emotional responses as appropriate for certain situations. By learning to take action without first eliminating negative feelings, patients increase their cognitive flexibility and ability to function in their surrounding environment. A study evaluating the feasibility and efficacy of ACT-enhanced group behavior therapy for patients with trichotillomania and/or skin-picking disorder found that behavioral symptoms significantly decreased following 10 weeks of therapy (36).

Exposure and ritual prevention therapy is a novel management approach to trichotillomania based on the concept that negative reinforcement perpetuates symptoms of hair-pulling behaviors. The model consists of four components: 1) assessment of hair-pulling patterns, including emotional and environmental triggers; 2) development of a hierarchy that rates the severity of each trigger; 3) hierarchical exposure to triggers; and 4) management of emotional dysregulation. A recent case series of two patients each undergoing four sessions of exposure and ritual prevention therapy reported notable clinical improvement with sustained effects (37).

Early investigation into several other therapies for trichotillomania are underway. Comprehensive behavioral model therapy addresses the different modalities of a patient's unique hair-pulling experience, including the sensory, cognitive, affective, motor, and place factors. Studies have demonstrated that both 8-week and 12-week treatment sessions of comprehensive behavioral model therapy can decrease patient symptom severity and improve patient quality of life (38). More recently, interest in a

Table 2 | Therapeutic options for trichotillomania.

Category	Treatment
Behavioral	Habit reversal therapy
	Dialectical behavioral therapy
	Acceptance and commitment therapy
	Exposure and ritual prevention therapy
	Psychodynamic therapy
	Comprehensive behavioral model therapy
Pharmacological	Microneedling
	Selective serotonin reuptake inhibitors (fluoxetine, sertraline, fluvoxamine)
	Tricyclic antidepressants (clomipramine)
	Monoamine oxidase inhibitors (phenelzine, tranylcypromine)
	Glutamate modulators (<i>N</i> -acetylcysteine, memantine)
	Atypical antipsychotics (olanzapine, risperidone)
	Anticonvulsants (valproate)
	Opioid antagonists (naltrexone)
	Synthetic tetrahydrocannabinol (dronabinol)
	Noninvasive

psychodynamic approach to trichotillomania has emerged. Several case studies have explored the association between underlying psychological stressors, such as emotional distress and relationship conflicts, and compulsive hair-pulling behaviors (39). To this end, psychodynamic therapy can be effective in helping patients address underlying triggers of hair-pulling and develop healthier coping strategies. In one case study, an 11-year-old boy with trichotillomania showed significant improvement in his emotional regulation and hair-pulling behavior following 15 months of psychodynamic therapy (40). Another recent case series reported the use of microneedling as an adjunctive treatment for patients with trichotillomania, highlighting the ability of this therapy to relieve hair-pulling urges while potentially stimulating hair regrowth (41). Finally, repetitive transcranial magnetic stimulation (rTMS) for treatment of trichotillomania was evaluated in a recent case series of five patients. Following 3 weeks of low-frequency rTMS, three of five patients reported notable improvements in hair-pulling symptom severity, whereas one patient experienced clinical worsening (42).

Pharmacological therapies

Selective serotonin reuptake inhibitors (SSRI) and drugs with serotonin-reuptake inhibiting properties, such as the tricyclic antidepressant and monoamine oxidase inhibitors, have been studied as therapeutic options in patients with trichotillomania (43). Although fluoxetine is the most commonly researched SSRI for trichotillomania and oftentimes the first-line SSRI employed for management, successful response to other agents such as fluvoxamine and sertraline have also been reported in smaller pilot studies and case reports (44, 45). Findings from various randomized controlled trials (RCT) suggest that behavioral therapy or combination therapy (behavioral therapy with pharmacotherapy) for trichotillomania is often superior to SSRIs alone. One 12-week trial of 43 patients with trichotillomania receiving either behavioral therapy or fluoxetine found that patients receiving behavioral therapy had significantly greater symptomatic improvement compared to those receiving fluoxetine (46). Similarly, a 9-week, placebo-controlled, randomized trial comparing clomipramine with CBT in 23 patients demonstrated greater improvements in patients receiving CBT compared to those receiving medication. Moreover, clomipramine was not significantly more effective in reducing trichotillomania symptoms than placebo (47). A 2014 random effects meta-analysis of 11 studies by McGuire et al. assessed the treatment effect sizes of behavioral therapy and serotonin reuptake inhibitor therapy relative to comparison conditions (48). The findings revealed a large pooled effect size ($ES = 1.41, p < 0.001$) for behavioral therapy. This effect size was found to increase with greater therapeutic contact hours ($p = 0.009$) and mood-enhanced therapeutic techniques ($p = 0.004$). A moderate pooled effect size ($ES = 0.41, p = 0.02$) was reported for serotonin reuptake inhibitor trials. No significant difference in effect size was found between SSRIs and clomipramine (48).

Other pharmacotherapeutic options for the treatment of trichotillomania include antipsychotic medications, of which the atypical antipsychotic olanzapine has been studied the most. In a 12-week RCT assessing olanzapine for the management of trichotillomania, a significantly greater percentage of patients in the olanzapine group showed treatment response compared to the placebo group (49). Similarly, an open-label, flexible-dose study of olanzapine for trichotillomania in 18 adult patients found that monotherapy with olanzapine (up to a maximum dose of 10

mg/day) decreased hair-pulling behaviors by an average of 66% from baseline ($p < 0.001$) and decreased mean scores for anxiety by 63% ($p < 0.05$) (50). Four patients experienced complete remission of their symptoms. Other atypical antipsychotics, including aripiprazole and quetiapine, have been studied, albeit to a lesser extent. Aripiprazole may hold utility as a therapy for trichotillomania given its ability to modulate dopamine signaling and influence the neural reward pathways that underly hair-pulling behavior. The findings of an 8-week, open-label flexible-dose study in 12 adult participants treated with aripiprazole revealed a significant average reduction in hair-pulling behaviors at the end of treatment compared to baseline (51). As evidenced by limited case reports, quetiapine similarly appears to decrease hair-pulling behavior in adult patients with trichotillomania. In general, quetiapine seems to be most effective when added as an adjunctive therapy to another psychotropic drug such as fluoxetine (52). More robust, placebo-controlled studies on these agents are needed.

Glutamate modulators, including *N*-acetylcysteine and memantine, have also been evaluated for the management of trichotillomania. These compounds may decrease compulsive behaviors through enhancement of glutamate activity in the nucleus accumbens (53). A recent RCT by Grant et al. investigated the efficacy of memantine in reducing hair-pulling and skin-picking behaviors. One hundred participants were randomly assigned to receive either memantine or placebo for 8 weeks. The results demonstrated that memantine treatment led to significant improvements in scores of symptom severity, disability, and global impressions compared to placebo (54). Similarly, in a 12-week, double-blind, placebo-controlled trial of 50 adults with trichotillomania, participants receiving *N*-acetylcysteine had significantly greater reductions in trichotillomania symptoms, with clinical improvement seen as early as 9 weeks following treatment initiation (53). These results, however, contrast with those of a RCT investigating the effects of *N*-acetylcysteine on pediatric trichotillomania, which found no significant differences in hair pulling severity among 39 children and adolescents with trichotillomania receiving either *N*-acetylcysteine or placebo (55).

Several other classes of medications are under investigation as potential therapies for trichotillomania. The efficacy of valproate, an anticonvulsant, was reported in a case report of a 13-year-old patient with persistent motor tic disorder and trichotillomania. Monotherapy with valproate (1,200 mg daily) resulted in decreased tic severity and frequency as well as markedly decreased hair-pulling (56). Naltrexone is an opioid antagonist that can be used to treat alcohol dependence given its effects on the limbic system. Its ability to modulate reward circuitry has made it an agent of interest for treating other impulsion-driven behaviors, such as hair-pulling (57). Findings on the efficacy of naltrexone for trichotillomania are limited, and results have been mixed. In one open-label pilot study, 11 of 14 participants with adult-onset trichotillomania were found to show a positive response to naltrexone with improvements in hair-pulling behaviors (58). In a larger, double-blind, placebo-controlled study of 8-week naltrexone dosing for adults with trichotillomania, however, naltrexone did not lead to significant reductions in hair pulling compared to placebo (59). Finally, dronabinol, an orally active cannabinoid, may reduce glutamate-induced neuronal excitation, which aids in reducing compulsive behavior underlying trichotillomania symptomatology. An open-label treatment trial of 14 female patients with trichotillomania demonstrated significant reductions in hair pulling after 12 weeks of treatment (60).

Conclusions

Trichotillomania remains a challenging condition with profound implications for individuals' quality of life and functioning. Despite its recent classification as a distinct disorder, there are still considerable gaps in understanding its underlying pathophysiology, diagnostic indicators, and viable treatment modalities. Recent research has identified subtypes within trichotillomania, providing valuable insights for personalized clinical management. The disorder's prevalence in both sexes, onset in late adolescence, and association with comorbid mental health conditions highlights the need for early detection and comprehensive interventions. Studies on trichotillomania's pathophysiology have revealed brain alterations and cognitive dysfunction, em-

phasizing the involvement of reward circuits, neurotransmitters, and inflammatory markers in the development and maintenance of the disorder. Ongoing research is necessary to elucidate the precise mechanisms underlying trichotillomania and to identify potential biomarkers that can inform future diagnostic and therapeutic approaches.

Psychosocial factors, cutaneous lesions, and trichoscopic examination all play crucial roles in diagnosis and management, with specific patterns and features found to be associated with the condition. These findings also underscore that trichotillomania transcends the boundaries of psychiatry and dermatology, requiring a multidisciplinary approach for comprehensive understanding, accurate diagnosis, and effective treatment.

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