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Burden of Telogen Effluvium Associated with Sjogren's Disease

Jennifer Walker*

Assistant Professor and MRI/CT Program Director for Southern Illinois University in Carbondale, Illinois, United States of America

***Corresponding Author:** Jennifer Walker, Assistant Professor and MRI/CT Program Director for Southern Illinois University in Carbondale, Illinois, United States of America, Tel.: 618-453-8812, E-mail: Jennifer.walker@siu.edu

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Abstract

Sjogren's disease is a chronic autoimmune disease with a wide range of symptoms. A patient can first experience symptoms from dry eyes or dry mouth to eventually progressing to more severe symptoms that can affect several organs in the body. Hair loss can be one of the symptoms that physicians might see as less severe but can have a negative impact on a person's quality of life. It is important to first know the signs of hair loss associated with autoimmune diseases. Next, finding a physician to listen to one's hair loss concerns is an important start for the treatment process. Luckily, there are many treatment options available to help hide hair loss as well as to help the hair regrowth process. With proper treatment to control the symptoms of autoimmune diseases, hair has a greater chance to regrow to a normal state and help restore a person's self--confidence.

Keywords: Telogen Effluvium (TE), Autoimmune Disease, Sjogren's Disease, Hair Loss

Introduction

Sjogren's disease (formerly known as Sjogren's syndrome) is a chronic autoimmune disease characterized by a wide variety of clinical manifestations [1]. Dry eyes, dry mouth, neurological problems such as memory loss or brain fog, dysphagia, fatigue, joint/muscle pain, gastrointestinal issues, and neuropathy are some of the common symptoms associated with Sjogren's disease [2]. Additionally, the disease can fluctuate over time with flares (exacerbation of symptoms) and remissions (temporary recovery), as well as progressing to other disease processes, such as shortness of breath, fatigue, or muscles aches to name a few [3,4]. As a result of these multifaceted symptoms, in September 2024, Sjogren's syndrome was changed to Sjogren's disease "to better indicate the serious and systemic nature of the disease" [2]. Sjogren's disease can be diagnosed through laboratory tests, patient symptoms, eye exams, or salivary gland tests [5]. There is currently no cure for Sjogren's disease, but treatment options focus on treating the symptoms [5].

One of the symptoms of Sjogren's disease that is often overlooked and unmentioned is hair loss. When a person is diagnosed with an autoimmune disease, they are trying to manage the vast number of symptoms ranging from a daily annoyance to some being quite debilitating. Although hair loss is more commonly seen in autoimmune diseases such as lupus or scleroderma, it does occur with Sjogren's disease as well [6,7]. While trying to manage daily life activities with an autoimmune disease, hair loss can take a backseat as some of the other symptoms can be more severe and require immediate attention. Managing these symptoms can become quite stressful. Hair loss and stress can create a vicious cycle. It can consume a person's daily thoughts and worries. As the stress of the autoimmune disease causes hair loss, in turn, the hair loss itself adds to a person's stress, making it quite difficult to break the vicious cycle [8].

Hair Loss Patterns

Hair loss can significantly impact a person's quality of life. In a recent study from Aldhouse et al, patients reported feelings of insecurity, inadequacy, loss of femininity, and/or self-consciousness with hair loss [9]. There are several different patterns of hair loss, such as alopecia areata, androgenetic alopecia, anagen effluvium, and telogen effluvium [10].

1.Alopecia areata appearance is typically acute and patchy hair loss. The most common appearance is smooth, round areas of complete hair loss on the scalp that develop within a few weeks [11]. Alopecia areata is a chronic inflammatory autoimmune disease with no cure, only treatments to help manage hair loss [6].

2.Androgenetic alopecia is the most common form of hair loss that is typically seen more gradually and is associated with a family history of hair loss [10]. This form of hair loss is seen more in men and has a M-shaped pattern in the frontal hairline [6].

3.Anagen effluvium is diffuse hair loss that is related to an exposure of a chemotherapeutic agent, such as chemotherapy [10]. The hair shedding is abrupt after exposure and can result in up to 90% hair loss [10].

4.Telogen effluvium (TE) is usually temporary and seen as clumps of hair shedding that involves a stressor on the body, such as an autoimmune disease [10]. Unlike the other hair loss patterns, TE is diffuse thinning and usually won't cause balding [6]. Telogen effluvium will usually resolve within six months of initial hair shedding while the other hair loss patterns will not show quick improvement [10,11]. Additionally, hair loss in all four of these categories not only affects the scalp, but has the potential to affect the eyelashes, eyebrows, and body hair [12,13]. Moreover, these different hair patterns can affect individuals of any age, gender, or race [14].

Hair Cycle

The scalp contains approximately 100,000 hairs [15]. The hair growth cycle has four phases: (1) Anagen or growth phase, (2) Catagen or transition phase, (3) Telogen or resting phase, and (4) Exogen or shedding phase [16,17]. Approximately, 80-90% of hair follicles are in the anagen phase, while the catagen and telogen phases each have about 5% of hair follicles [12]. "A hair follicle typically produces anagen hair for almost 4 years and then rests for about 4 months" [14]. Hair growth is most active in the anagen phase, where the hair follicles are continually pushing the hair out of the follicle [12,14]. Next, in the catagen phase, the hair is transitioning from the anagen to the telogen phase where the hair follicles start to shrink, and the hair growth slows down [12,16]. Thirdly, during the telogen phase, the hair is resting and is not usually falling out, but the hair is not actively growing either [14]. Lastly, during the exogen phase, the hair continues to grow upward, pushing the old hairs out causing the hair to shed [16].

Telogen effluvium is a reactive process caused by medications, hormonal change, or metabolic stress, as seen with certain autoimmune diseases, such as Sjogren's disease [12,13]. When the body remains under significant stress, approximately 70% of the anagen hair enters into the telogen phase which then causes hair loss [14]. With telogen effluvium, "a large number of hairs enter the telogen phase and fall out three to five months after a stressor on the body", such as a flare-up. [10]. An autoimmune flare-up is when the symptoms of the autoimmune disease are heightened and can last from days to months. Normal daily scalp shedding consists of approximately 100-150 hairs per day [17]. With telogen effluvium, a patient may lose up to 300 hairs per day [12]. Hair will continue to fall out for up to six months typically unless the underlying medical condition is not resolved, then telogen effluvium may last for years [10]. Telogen effluvium hair loss rarely exceeds 50% of scalp hair and more frequently affects adult females [19,20]. There are two types of telogen effluvium, acute and chronic. Acute telogen effluvium lasts less than six months and in 95% of cases it is resolved [12]. Emotional stress is a common cause of acute telogen effluvium [21]. Chronic telogen effluvium can last longer than six months and if the underlying medical problem is not treated, telogen effluvium can return [12]. Thyroid disorders, iron deficiencies, autoimmune diseases, and malnutrition are some examples of chronic telogen effluvium [21]. Additionally, chronic telogen effluvium is much less common than acute telogen effluvium [22]. Treatment of telogen effluvium is to first identify and treat the underlying condition that is causing the hair loss.

Clinical Features of Telogen Effluvium

Upon examination of the scalp, telogen effluvium can be seen with normal hair density as it is non-scarring, diffuse thinning rather than patchy hair loss [23]. Typically, telogen effluvium will present as thinning to the top of the head or even a receding hair line. A person may notice their hair is less dense and/or even have a tender scalp. Occasionally, inflammation and redness can be seen on the scalp. When the immune system is under attack, as with an autoimmune disease, inflammation can be systemic and damage healthy tissue including the hair follicles. When the hair roots are not able to get the proper nutrition, the scalp can have swelling, itchy red patches, flaking, burning, skin irritation, and pain [24]. Although TE does not directly affect your physical health, it can weigh in negatively for one's mental health [12]. It is important for physicians to give reassurance that their patient will not go bald and the follicles are healthy and capable of full regrowth [20, 23]. With scarring hair loss such as alopecia, the hair follicle is destroyed, while having TE the hair follicle is not destroyed but rather in the thinning phase. Additionally, it is important to remember that telogen effluvium is reversible and about 95% of patients will fully recover unlike the other hair loss patterns [8,13,16]. When the reversal process starts, a patient will continue to notice new short hairs growing, less itching, less hair loss, and less inflammation [8, 13, 16].

Diagnosis and Treatment

Occasionally, hair loss from an autoimmune disease such as Sjogren's, can go unnoticed for a short period of time if the patient

started with thick, voluminous hair, making it difficult for a physician to diagnose [20]. More often, patients will start to notice excessive hair loss in the shower, excess hair on their pillow, thinner ponytail, or more hair loss in their hairbrush [25]. Some patients will also notice a widened hair part. Additionally, Sjogren's disease can cause dry, brittle, and lackluster hair [13]. Excessive split ends and greater tendency of hair tangling are also characteristics associated with telogen effluvium from Sjogren's disease.

There are several different ways diagnose telogen effluvium. A dermatologist is usually the first physician to assess hair loss. After scalp evaluation, some tests they may recommend are: a detailed patient history and physical examination, blood tests, scalp biopsy, hair pull test, and/or evaluation of the patient collecting more than 100 hairs within a 24-hour period [14,26]. Some common blood tests that could be drawn are: TSH (thyroid stimulating hormone imbalance that can cause hair shedding), iron levels (if iron levels are low, it could mean hair follicles are not getting enough oxygen), endocrine panel (could diagnose hormonal imbalances), testosterone or progesterone (hormone imbalance that can shrink hair follicles), cortisol (stress hormone that can lead to inflammation), and antinuclear antibodies (to assess for autoimmune disease) [14,26]. A scalp biopsy consists of a four-millimeter punch biopsy which includes subcutaneous fat to ensure proper sampling of the follicle to help identify any underlying conditions like scarring alopecia [26]. A hair pull test consists of a physician gently pulling on 40-60 hairs and in normal conditions, only 2-3 hairs may fall out, but with TE, more than 6 hairs will fall out. Unfortunately, if a patient is diagnosed with TE, they may lose up to 300 strands of hair per day [12].

Hair loss can occur from damage to the hair phases (anagen, catagen, telogen, and exogen) and proper diagnosis is needed to help treat the patient [26]. Once a diagnosis is made, proper patient treatment can begin. Some systemic treatment options for Sjogren's Disease include oral corticosteroids and immunosuppressants, such as prednisone/methylprednisone and hydroxychloroquine, which can all help reduce inflammation and calm down the immune system [5, 13]. These medication treatment options have shown to halt the progression of hair loss with almost complete hair regrowth, as the underlying trigger is treated [13, 27]. This should be the first line of treatment. Additional hair treatment options are topical minoxidil (solution/shampoo applied directly to the scalp to stimulate hair growth), oral minoxidil (a medication in pill form that can stimulate hair growth), and topical anti-inflammatory solutions (solution to reduce inflammation, redness, and relieve itching) may also be effective in hair regrowth [14]. Corticosteroid scalp injections and ultraviolet therapy have also been helpful for hair growth treatments by reducing inflammation and improving scalp health [15]. Also, vitamins such as vitamin A (for cell growth), vitamin C (for creating collagen), iron (for blood circulation and oxygen), omega-3 fatty acids (for cell health), and biotin (for protein and keratin production) may help kick-start hair restoration [28]. Furthermore, maintaining a protein-rich diet can help promote hair regrowth and less shedding. With a low protein intake, a person can suffer from nutritional deficiencies which can contribute or worsen telogen effluvium [13]. Moreover, keeping autoimmune flares at bay, finding ways to deal with stress, healthy diet, and routine exercise are some ways to promote hair health [12]. If the causative issue has been diagnosed and treated, usually the hair loss will stop, and no further treatment is needed [14].

Ways to Camouflage Hair Thinning

It is important to avoid pulling on the hair with tight ponytails, instead, a hairstyle such as a loose braid may be a better alternative [26]. Additionally, shampooing and brushing too much can also cause the hair to break [26]. Moreover, try to avoid vigorous towel drying and heat to the hair as this only increases damage [26]. Fortunately, there are many options available to hide the hair loss and hair damage.

1.Wigs and hair extensions can be made from synthetic or real human hair [29]. Wigs are fixed to either a weft (synthetic hair rows made by a machine) or a net (mesh base with synthetic or human hair knotted by hand) [29]. Additionally, wearing a wig cap to help hide one's natural hair, keep their wig in place, and smooth out unwanted natural hair bumps has proven beneficial.

Moreover, the wig cap can serve as a protective barrier between the scalp and the wig. Furthermore, hair extensions are a great way to add volume and are attached to existing hair fibers by glue, braids, sewing, and/or clips [29]. Wiglets are also a type of partial hairpiece (usually to cover the crown of the scalp) to add volume and conceal localized areas of thinning [30].

2.There are also pigmented concealing powders and sprays used to conceal thinning hair [29,30]. An example of these pigmented powders are topical hair thickening fibers which are made from wool or rice keratin, rayon, or human hair [29]. These hair fibers are sprinkled directly onto the thinning area of the scalp, then gently patted onto the hair to allow the fibers to set in place. These powders will wash out during a routine shampooing.

3.Scalp micropigmentation (SMP) is another option. This option is described as a cosmetic tattooing to create the image of hair follicles on the scalp [29,30]. SMP can create natural looking results with the ability to camouflage bald spots, receding hairlines, or any other type of scalp imperfection [29].

4.Another more permanent option is a surgical hair transplant where hair is harvested from one part of the scalp and implanted to the thinning area [29]. This can be a costly option and is usually the last form of treatment after exhausting all other options.

Unfortunately, with certain activities such as exercise or swimming, many people face concerns of wig or hair extension displacement or self-conscious concerns of wearing a hair piece [9]. These concerns can lead to social avoidance. Proper education by a medical professional, patience, mental health support, and finding stress-coping strategies to manage hair loss are important considerations [8,20]. Additionally, counseling should be considered regarding the appropriate expectations for hair growth, as it can be a slow process [31].

Emotional Impact

For many people, hair can be an essential part of one's self-identity and feelings of attractiveness [32,33]. At first, some reactions to hair loss can be shock, sadness, or even denial. Some women may change their hair part or style their hair differently to try to cover up thinning areas. Underestimating a person's emotional impact from hair loss can only add to their emotional stress [31]. When someone experiences hair loss, it changes their physical appearance and can turn every day into a "bad hair day" [32]. Hair loss can create anxieties and psycho-emotional stress which can often have a negative impact on a person's quality of life [8,18]. It can cause a person to feel self-conscious, inadequate, uncomfortable, and helpless [8]. These feelings can lead to social withdrawal, avoidance, and other feelings of hair-specific dysmorphophobia, which can negatively affect family, friend, professional, and romantic relationships [8,34].

Anxiety of how others perceive you is a common worry of many experiencing hair loss. Everyday activities such as showering, can create tremendous stress because that is when a majority of hair loss can happen. Some people become completely preoccupied with their hair loss by spending hours each day checking their scalp or even comparing their hair to others, which only adds to one's stress [32]. Women typically experience more psychological stress from hair loss compared to men, because their hair is part of their femininity [35]. Unfortunately, these additional stressors can be an aggravating factor in hair loss, which only adds to the amount of hair being lost from telogen effluvium [8]. Stress-coping strategies can offer a therapeutic approach to help with the anxiety associated with hair loss [8].

Cognitive-behavioral therapy (CBT) is a way to improve one's quality of life from hair loss [36]. CBT is a type of therapy to help one's mental health and well-being by recognizing how thoughts and behaviors influence one's feelings [36]. There are four stages of adjustment to a difficult situation: shock, sense of helplessness, denial, and adjustment [36]. Through talking about these stages of hair loss, it aims to change the negative conceptions and find the ability to cope and promote a positive

change of thought. Additionally, meditation and deep breathing exercises can be of benefit as well. Through the combination of medications, education, and/or stress-coping strategies, hopefully one's hair loss journey can become more acceptable.

Conclusion

Hair loss from a chronic autoimmune disease, such as Sjogren's disease can be devastating. It is important to have a strong healthcare team to help resolve the underlying medical condition so that the hair can hopefully return to a normal state of growth. Patients can feel embarrassed to seek care, frustrated by treatment options, or feel isolated [26]. Finding a doctor to listen to one's concerns (medically and emotionally) and address the fears associated with hair loss is key in the treatment process. Whether there is a holistic treatment approach, such as vitamins or oils, or other hair loss management options, it is important to find which one is best for each individual person. Hair loss is something that many people face, but no one has to face it alone. With all the different treatment options and hair camouflages, there are many options to help regain confidence and improve one's quality of life.

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Conflict of Interest

The author declares that they have no competing interests.

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