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Investigation of Hair Diseases Accompanying Bitemporal Alopecia: An Observational Cross-Sectional Study

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ABSTRACT

Objective: Bitemporal alopecia may occur in association with various hair diseases. However, it has not yet been officially classified as a distinct type of alopecia. This study aimed to identify hair diseases that commonly accompany bitemporal hair loss and to evaluate the clinicodemographic characteristics of affected patients.

Materials and Methods: This study included 86 patients aged ≥18 years with bitemporal alopecia. Clinicodemographic characteristics and concomitant hair diseases were recorded. The severity of bitemporal alopecia was classified into three categories: mild, moderate, and severe.

Results: The mean age of the patients was 36.2±15.7 years. Of the participants, 58.1% were female and 41.9% were male. Most patients were in the 18-24 (29.1%) and 25-34 (25.6%) age groups. A positive hair pull test was observed in 45 patients. Bitemporal alopecia was classified as mild in 22 patients (25.6%), moderate in 40 patients (46.5%), and severe in 24 patients (27.9%). Hair diseases accompanying bitemporal alopecia included androgenetic alopecia (n=57, 66.3%), seborrheic dermatitis (n=38, 44.2%), telogen effluvium (n=29, 33.7%), traction alopecia (n=11, 12.8%), lichen planopilaris (n=5, 5.8%), alopecia areata (n=3, 3.5%), frontal fibrosing alopecia (n=2, 2.3%), and anagen effluvium (n=1, 1.2%). The most frequent coexisting conditions were androgenetic alopecia (25.6%), androgenetic alopecia with seborrheic dermatitis (25.6%), seborrheic dermatitis with telogen effluvium (9.3%), androgenetic alopecia with telogen effluvium (8.1%), seborrheic dermatitis with telogen effluvium and traction alopecia (5.8%), and other combinations.

Conclusion: Bitemporal alopecia may serve as a potential predictive indicator for the diagnosis and follow-up of associated hair diseases.

Keywords: Alopecia, bitemporal alopecia, hair diseases, hair loss, hair.

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INTRODUCTION

Bitemporal alopecia is a clinical finding that may be observed in various hair disorders and is not typically recognized as a distinct disease entity.[1] It can pose a challenge for dermatologists due to uncertainties in the nomenclature and classification of alopecia.[1] Severe bitemporal alopecia may significantly affect a patient's aesthetic appearance, potentially leading to social stigma and feelings of shame.[1]

Numerous conditions can affect the frontal hairline to varying degrees.[2] When involvement of the temporal region is not a typical feature of a disease, it is considered uncommon,[2] which may lead to delayed diagnosis and treatment. Disorders in which bitemporal hair loss may be observed include female and male pattern androgenetic alopecia, frontal fibrosing alopecia, trichotillomania, traction alopecia, alopecia areata, congenital triangular alopecia, chemotherapy-induced alopecia, central centrifugal cicatricial alopecia, seborrheic dermatitis, alopecia areata incognito, and chronic telogen effluvium.[2–5] A patient history and comprehensive dermatological, dermoscopic, and histopathological evaluations are essential for distinguishing conditions that present solely with bitemporal alopecia and for enabling early disease control.[2] It is important to inquire about the presence of systemic diseases, medication or hormone use, dietary habits, emotional stressors, weight loss, hair care practices (such as the use of hair straighteners or stylers, chemical treatments, and perms), smoking, and sun protection habits.[4] Additionally, a comprehensive approach is required, as some patients may have systemic comorbidities alongside the diagnosed hair disorder.[4]

This study aimed to investigate hair diseases associated with bitemporal alopecia, as well as the clinical and demographic characteristics of affected patients.

MATERIALS AND METHODS

Study Setting and Design

This observational cross-sectional study included patients aged ≥18 years who were diagnosed with bitemporal alopecia during examinations at dermatology outpatient clinics between July 2024 and May 2025.

Ethical Approval

The study was approved by Ankara Etlik City Hospital Scientific Research Evaluation and Ethics Committee (Approval Number: AEŞH-BADEK-2024-564, Date: 26.06.2024). Written informed consent was obtained from all participants. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki.

Patients and Data Collection

For all patients with bitemporal alopecia, detailed medical histories, dermatological and dermoscopic examinations, and, when indicated, laboratory and histopathological findings were recorded, along with the identified diagnoses, to evaluate accompanying hair diseases.

Diagnostic Criteria

The severity of bitemporal alopecia was categorized into three groups: mild, moderate, and severe (Fig. 1).

KEY MESSAGES

- Bitemporal alopecia frequently occurs alongside other hair conditions, most commonly androgenetic alopecia, seborrheic dermatitis, and telogen effluvium, and more than half of the patients demonstrated a positive hair pull test, indicating ongoing hair shedding.
- The severity of bitemporal alopecia varies, with most cases classified as mild to moderate.
- Early recognition of bitemporal alopecia may facilitate prompt diagnosis and monitoring of associated hair disorders.

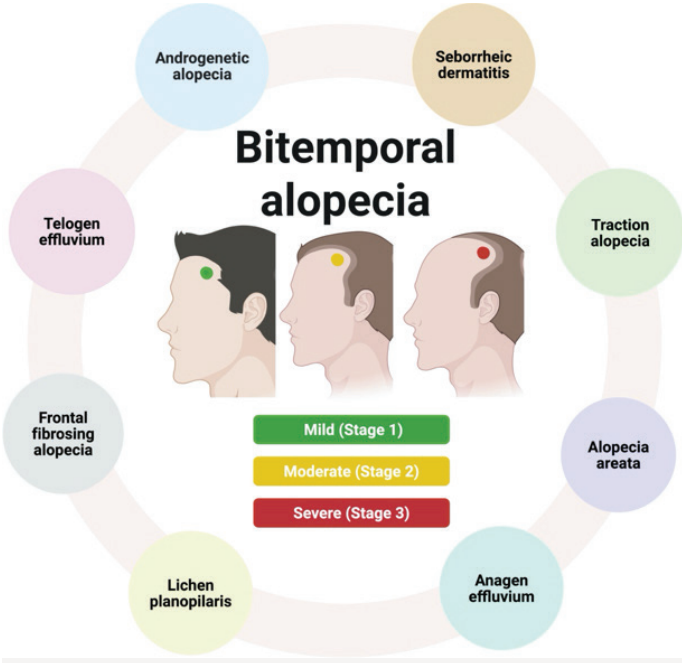

Figure 1. Hair diseases associated with bitemporal alopecia and severity grading of bitemporal alopecia. Created with BioRender.com.

Inclusion Criteria

Patients with clinically detected bitemporal alopecia were enrolled in the study.

Exclusion Criteria

Patients who had undergone hair transplantation or who were pregnant were excluded from the study.

Clinical, Surgical, and Laboratory Investigations

In this study, no laboratory tests specific to the diagnosis of bitemporal alopecia were requested.

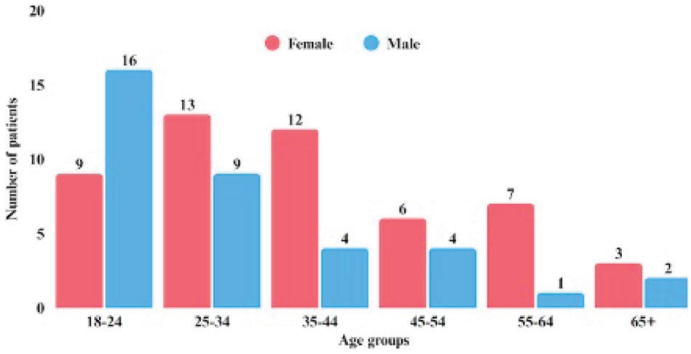

Figure 2. Distribution of patients by age group.

Statistical Analysis

Statistical analyses were performed using Jamovi (version 2.3.28; computer software; Sydney, Australia). Descriptive statistics were calculated as frequencies and percentages for categorical data and as means with standard deviations for continuous data. The chi-square (χ^2) test was used to compare differences among categorical variables. The level of statistical significance was set at $p<0.05$.

RESULTS

A total of 86 patients were included in the study; 50 (58.1%) were female and 36 (41.9%) were male. Patient ages ranged from 18 to 87 years, with a mean age of 36.2±15.7 years. The majority of patients were in the 18-24 (29.1%) and 25-34 (25.6%) age groups (Fig. 2). Twenty-two patients (25.6%) were smokers, seven (8.1%) had hypothyroidism, six (7.0%) had hypertension, and three (3.5%) had type 2 diabetes mellitus. A positive hair pull test was observed in 45 patients. Bitemporal alopecia was classified as mild in 22 patients (25.6%), moderate in 40 patients (46.5%), and severe in 24 patients (27.9%) (Table 1).

Hair diseases accompanying bitemporal alopecia included androgenetic alopecia (n=57, 66.3%), seborrheic dermatitis (n=38, 44.2%), telogen effluvium (n=29, 33.7%), traction alopecia (n=11, 12.8%), lichen planopilaris (n=5, 5.8%), alopecia areata (n=3, 3.5%), frontal fibrosing alopecia (n=2, 2.3%), and anagen effluvium (n=1, 1.2%) (Table 2, Fig. 3).

Based on the distribution of hair diseases, isolated androgenetic alopecia was the most common diagnosis among the 86 patients (25.6%). This was followed by androgenetic alopecia with seborrheic dermatitis (25.6%), seborrheic dermatitis with telogen effluvium (9.3%), androgenetic alopecia with telogen effluvium (8.1%), seborrheic dermatitis with telogen effluvium and traction alopecia (5.8%), and other disease combinations (Table 3). Data regarding the severity of bitemporal alopecia in relation to the accompanying hair diseases are presented in Table 4.

Table 1. Demographic characteristics and general data of all patients

Variables	N, Mean±SD	%, Min–Max
Age	36.2±15.7	18–87
Gender		
Female	50	58.1
Male	36	41.9
Skin type		
Type II	22	25.6
Type III	34	39.5
Type IV	28	32.6
Type V	2	2.3
Hypertension	6	7.0
Hypothyroidism	7	8.1
Type 2 diabetes mellitus	3	3.5
Smoking	22	25.6
Positive pull test	45	52.3
Severity of bitemporal alopecia		
Mild (stage 1)	22	25.6
Moderate (stage 2)	40	46.5
Severe (stage 3)	24	27.9
Family history of bitemporal alopecia	44	51.2
Use of sunscreen	28	32.6
History of sunburn	12	14.0
Use of hair dye	29	33.7
Hair breakage	42	48.8

N: Number; %: Percentage; SD: Standard deviation; Min: Minimum; Max: Maximum.

Patterns of Hair Diseases

- Androgenetic alopecia: A total of 57 patients were diagnosed with androgenetic alopecia (AA). The mean age at onset was 31.0±14.0 years, and the mean disease duration was 68.5 months. Pathological examination was performed in two patients, while the remaining patients were diagnosed clinically and by dermoscopic evaluation. Among male patients, five (5.8%) had Hamilton–Norwood Type I, seven (8.1%) Type II, 13 (15.1%) Type III, five (5.8%) Type IV, four (4.7%) Type V, and two (2.3%) Type VI disease. Among female patients, seven (8.1%) were classified as Ludwig Type I and 14 (16.3%) as Ludwig Type II.
- Seborrheic dermatitis: Among the 38 patients with seborrheic dermatitis (SD), the mean age at disease onset was 27.4±11.5 years, and the mean disease duration was 50.6 months. The severity of scalp SD at the time of

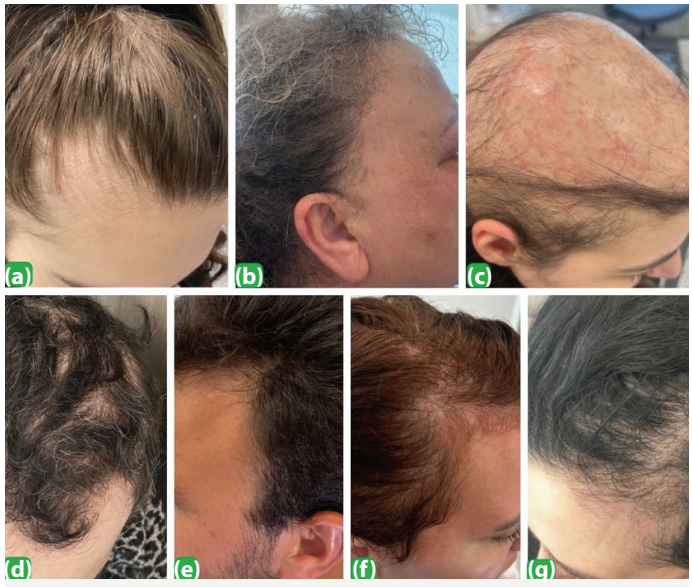

Figure 3. Clinical manifestations of bitemporal alopecia: **(a)** traction alopecia; **(b)** frontal fibrosing alopecia; **(c)** lichen planopilaris; **(d)** alopecia areata; **(e)** male androgenetic alopecia; **(f)** telogen effluvium; **(g)** female pattern androgenetic alopecia.

examination was evaluated using the Clinical Severity Score Criteria (CSSC), with a mean score of 4.29±1.80.

- Telogen effluvium: The mean disease duration among the 29 patients with telogen effluvium was 19.3 months. Histopathological examination was performed in four patients, while the remaining patients were diagnosed clinically and by dermoscopic evaluation.
- Traction alopecia: The mean age at disease onset among the 11 patients with traction alopecia was 31.8±11.1 years, with a mean disease duration of 28.4 months. Pathological examination was performed in three patients, and the remaining cases were diagnosed clinically. Additionally, four patients reported a history of using hair straighteners or hairstyling products.
- Lichen planopilaris: The mean age at disease onset among the five patients with lichen planopilaris was 40.4±12.8 years, with a mean disease duration of 67.4 months. One patient had eyebrow involvement, while two patients had skin or mucosal involvement of lichen planus. All patients reported regular sunscreen use.
- Alopecia areata: The mean age at disease onset among the three patients with alopecia areata was 35.7±2.52 years, with a mean disease duration of 15.3 months. Diagnosis was confirmed histopathologically in one patient and clinically with dermoscopic evaluation in the remaining two patients.
- Frontal fibrosing alopecia: The mean age at disease onset among the two patients with frontal fibrosing alopecia was 48.0±17.0 years, with a mean disease duration of 18.0 months. Both patients underwent pathological examination, which revealed eyebrow involvement, and both reported sunscreen use.
- Anagen effluvium: One patient diagnosed with anagen effluvium was a 63-year-old woman who had received chemotherapy for breast cancer.

DISCUSSION

Bitemporal alopecia may result from a wide range of scarring and non-scarring hair disorders, which can also occur in combination.[5] Despite its relevance, there is a lack of studies investigating bitemporal alopecia.

Table 2. Hair diseases accompanying bitemporal alopecia according to gender

Hair diseases	Male n (%)	Female n (%)	Total n (%)	p*
Androgenetic alopecia	36 (41.9)	21 (24.4)	57 (66.3)	<0.001
Seborrheic dermatitis	19 (22.1)	19 (22.1)	38 (44.2)	0.17
Telogen effluvium	3 (3.5)	26 (30.2)	29 (33.7)	<0.001
Traction alopecia	0 (0.0)	11 (12.8)	11 (12.8)	0.002
Lichen planopilaris	0 (0.0)	5 (5.8)	5 (5.8)	0.051
Alopecia areata	0 (0.0)	3 (3.5)	3 (3.5)	0.13
Frontal fibrosing alopecia	0 (0.0)	2 (2.3)	2 (2.3)	0.22
Anagen effluvium	0 (0.0)	1 (1.2)	1 (1.2)	0.39

*: Chi-Square (χ^2) test; n: Number; %: Percentage.

Table 3. Co-occurrence of hair diseases accompanying bitemporal alopecia

Hair diseases	Male n (%)	Female n (%)	Total n (%)	p*
Androgenetic alopecia	14 (16.3)	8 (9.3)	22 (25.6)	
Androgenetic alopecia + seborrheic dermatitis	19 (22.1)	3 (3.5)	22 (25.6)	
Seborrheic dermatitis + telogen effluvium	0 (0.0)	8 (9.3)	8 (9.3)	
Androgenetic alopecia + telogen effluvium	3 (3.5)	4 (4.7)	7 (8.1)	
Seborrheic dermatitis + telogen effluvium + traction alopecia	0 (0.0)	5 (5.8)	5 (5.8)	
Lichen planopilaris	0 (0.0)	4 (4.7)	4 (4.7)	
Telogen effluvium + traction alopecia	0 (0.0)	3 (3.5)	3 (3.5)	
Telogen effluvium	0 (0.0)	2 (2.3)	2 (2.3)	
Androgenetic alopecia + seborrheic dermatitis + telogen effluvium	0 (0.0)	1 (1.2)	1 (1.2)	
Androgenetic alopecia + seborrheic dermatitis + traction alopecia	0 (0.0)	1 (1.2)	1 (1.2)	
Androgenetic alopecia + telogen effluvium + traction alopecia	0 (0.0)	1 (1.2)	1 (1.2)	<0.001
Androgenetic alopecia + traction alopecia	0 (0.0)	1 (1.2)	1 (1.2)	
Androgenetic alopecia + frontal fibrosing alopecia	0 (0.0)	1 (1.2)	1 (1.2)	
Androgenetic alopecia + alopecia areata	0 (0.0)	1 (1.2)	1 (1.2)	
Seborrheic dermatitis	0 (0.0)	1 (1.2)	1 (1.2)	
Telogen effluvium + alopecia areata	0 (0.0)	1 (1.2)	1 (1.2)	
Telogen effluvium + lichen planopilaris	0 (0.0)	1 (1.2)	1 (1.2)	
Traction alopecia	0 (0.0)	1 (1.2)	1 (1.2)	
Frontal fibrosing alopecia	0 (0.0)	1 (1.2)	1 (1.2)	
Alopecia areata	0 (0.0)	1 (1.2)	1 (1.2)	
Anagen effluvium	0 (0.0)	1 (1.2)	1 (1.2)	

*: Chi-Square (χ^2) test; n: Number; %: Percentage.

In 2021, a review analyzed 94 studies published between 1957 and 2019 using keywords related to hair diseases that may cause bitemporal alopecia.[5] Reported combinations of hair disorders included female pattern androgenetic alopecia with telogen effluvium, female androgenetic alopecia with telogen effluvium, lichen planopilaris/frontal fibrosing alopecia, female pattern androgenetic alopecia with central centrifugal cicatricial alopecia, central centrifugal cicatricial alopecia with lichen planopilaris/frontal fibrosing alopecia, central centrifugal cicatricial alopecia with traction alopecia, central centrifugal cicatricial alopecia with traction alopecia and seborrheic dermatitis, and female androgenetic alopecia with seborrheic dermatitis.[5] The review emphasized the importance of recognizing the causes of temporal alopecia.[5] In our study, the most common coexisting hair disorders observed in patients with bitemporal alopecia were androgenetic alopecia and seborrheic dermatitis. In contrast to the findings of the aforementioned review, androgenetic alopecia was more frequently observed in men in our cohort. However, among patients with other combined conditions, including androgenetic alopecia alone; androgenetic alopecia with telogen effluvium; androgenetic alopecia with seborrheic dermatitis and telogen effluvium; androgenetic alopecia with seborrheic dermatitis and traction alopecia; androgenetic alopecia with telogen effluvium and traction alopecia; androgenetic alopecia with traction alopecia; androgenetic alopecia with frontal fibrosing alopecia; and androgenetic alopecia with alopecia areata, androgenetic alopecia were more prevalent in women than in men. However, as most combinations involved only a single patient, it would be inappropriate to draw definitive conclusions.

Bitemporal alopecia has also been reported as a potential complication following thread-lift procedures, which are non-surgical facial rejuvenation treatments.[6,7] In one report, a 61-year-old woman who developed swelling and pain in the temporal region after a thread-lift procedure subsequently experienced severe bilateral bitemporal alopecia three days

Table 4. Severity of bitemporal alopecia and accompanying hair diseases

Hair diseases	Mild BTA n (%)	Moderate BTA n (%)	Severe BTA n (%)	Total BTA n (%)	p*
Androgenetic alopecia	3 (3.5)	11 (12.8)	8 (9.3)	22 (25.6)	
Androgenetic alopecia + seborrheic dermatitis	5 (5.8)	13 (15.1)	4 (4.7)	22 (25.6)	
Seborrheic dermatitis + telogen effluvium	3 (3.5)	4 (4.7)	1 (1.2)	8 (9.3)	
Androgenetic alopecia + telogen effluvium	2 (2.3)	3 (3.5)	2 (2.3)	7 (8.1)	
Seborrheic dermatitis + telogen effluvium + traction alopecia	2 (2.3)	3 (3.5)	0 (0.0)	5 (5.8)	
Lichen planopilaris	1 (1.2)	1 (1.2)	2 (2.3)	4 (4.7)	
Telogen effluvium + traction alopecia	1 (1.2)	0 (0.0)	2 (2.3)	3 (3.5)	
Telogen effluvium	2 (2.3)	0 (0.0)	0 (0.0)	2 (2.3)	
Androgenetic alopecia + seborrheic dermatitis + telogen effluvium	0 (0.0)	1 (1.2)	0 (0.0)	1 (1.2)	
Androgenetic alopecia + seborrheic dermatitis + traction alopecia	0 (0.0)	1 (1.2)	0 (0.0)	1 (1.2)	
Androgenetic alopecia + telogen effluvium + traction alopecia	1 (1.2)	0 (0.0)	0 (0.0)	1 (1.2)	0.30
Androgenetic alopecia + traction alopecia	0 (0.0)	1 (1.2)	0 (0.0)	1 (1.2)	
Androgenetic alopecia + frontal fibrosing alopecia	0 (0.0)	0 (0.0)	1 (1.2)	1 (1.2)	
Androgenetic alopecia + alopecia areata	0 (0.0)	0 (0.0)	1 (1.2)	1 (1.2)	
Seborrheic dermatitis	1 (1.2)	0 (0.0)	0 (0.0)	1 (1.2)	
Telogen effluvium + alopecia areata	0 (0.0)	1 (1.2)	0 (0.0)	1 (1.2)	
Telogen effluvium + lichen planopilaris	0 (0.0)	0 (0.0)	1 (1.2)	1 (1.2)	
Traction alopecia	0 (0.0)	1 (1.2)	0 (0.0)	1 (1.2)	
Frontal fibrosing alopecia	0 (0.0)	0 (0.0)	1 (1.2)	1 (1.2)	
Alopecia areata	1 (1.2)	0 (0.0)	0 (0.0)	1 (1.2)	
Anagen effluvium	0 (0.0)	0 (0.0)	1 (1.2)	1 (1.2)	

*: Chi-Square (χ^2) test; n: Number; %: Percentage; BTA: Bitemporal alopecia.

later. The hair pull test was negative, and histopathological examination revealed no evidence of inflammation or hair shaft abnormalities.[6] The condition was thought to have developed secondary to pressure effects in areas of maximal tension, and the patient responded favorably to topical minoxidil therapy.[6] In another case, a 52-year-old woman who underwent a facelift developed bitemporal alopecia nine weeks after the procedure.[7] Clinical examination revealed thinning of hair in the bilateral bitemporal regions, a negative hair pull test, and histopathological findings demonstrating an increased proportion of hair follicles in the catagen and telogen phases. This presentation was interpreted as a form of acute, transient, localized telogen effluvium.[7] No treatment was initiated, and the patient's hair returned to its original state within one year.[7] It is thought that the histopathological findings and the lack of established guidelines for the management of bitemporal alopecia account for the differences in treatment approaches between the two patients.

In the present study, telogen effluvium was one of the most common conditions observed in association with bitemporal alopecia and was significantly more prevalent in women than in men ($p<0.001$). Most affected female patients were in the middle adult age group (25–34 years), similar to patients with chronic telogen effluvium.[8] Telogen effluvium (TE) is one of the most common causes of hair loss and may present in either acute or chronic forms.[9] In acute TE, an identifiable triggering factor is typically present within the preceding three months.[9] In most patients with acute TE, improvement occurs within a few months.[9] However, in a small proportion of cases, improvement may not occur. In such patients, underlying androgenetic alopecia or diffuse alopecia areata should be considered.[9] Defining chronic telogen effluvium is challenging due to the lack of consensus.[10] Studies on chronic telogen effluvium have not definitively established whether it represents a form of premature female pattern androgenetic alopecia or is triggered by an unknown secondary factor.[10] Furthermore, it remains unclear whether factors such as hair length or stress contribute

to the development of this condition.[10] Chronic telogen effluvium can persist for years and is characterized by periods of increased hair shedding, known as attacks, and periods of remission marked by a spontaneous decrease in hair loss.[11] It is crucial to perform histopathological examination during the active phase of the disease to ensure accurate diagnosis and appropriate treatment.[11] As supported by the findings of our study, bitemporal alopecia may result from TE; therefore, this condition warrants comprehensive investigation.

In a study conducted in 2021 on fibrosing alopecia in a pattern distribution (FAPD), a new type of alopecia exhibiting features of both androgenetic alopecia and lichen planopilaris, 15 studies examining FAPD concluded that the condition is triggered by androgenetic alopecia (AGA) and that inflammatory responses to damaged hair follicles contribute to its pathogenesis.[12] The importance of dermoscopy and biopsy in guiding diagnosis has been emphasized, as FAPD is frequently misdiagnosed as androgenetic alopecia with seborrheic dermatitis.[12] In the present study, a substantial proportion of patients had concomitant AGA and seborrheic dermatitis (n=22; 25.6%). This raises the possibility that scarring may not be a prominent feature, particularly in the early stages, suggesting that these patients may fall within the FAPD spectrum over time. Therefore, patients presenting with AGA and seborrheic dermatitis in addition to bitemporal alopecia should be closely monitored, and histopathological examination should be performed when necessary to avoid overlooking FAPD.

Another study reported that seborrheic dermatitis may potentially trigger central centrifugal cicatricial alopecia (CCCA), a condition of unknown etiology, and was the most common accompanying hair disorder in patients with CCCA.[13] Similarly, our study found that seborrheic dermatitis, along with telogen effluvium, was the most common hair disease, suggesting that it may contribute to the development of bitemporal alopecia. It is believed that treating or controlling seborrheic dermatitis could positively influence the prognosis of bitemporal alopecia.

In a review published in 2022, androgenetic alopecia (approximately 40%) and seborrheic dermatitis were among the most common accompanying hair disorders in patients with frontal fibrosing alopecia (FFA).[14] Frontal fibrosing alopecia is a variant of lichen planopilaris and progresses through three clinical stages with differing prognoses.[14] Our findings suggest that the coexistence of FFA and androgenetic alopecia raises the possibility that bitemporal alopecia may also play a role in patient staging and long-term management. However, studies comparing larger cohorts of patients with and without bitemporal alopecia are needed to clarify this relationship.

In female patients, similar to males with Hamilton-type hair loss, hair loss or thinning is typically observed in the front and top regions of the scalp.[4] Previous studies have shown that, particularly during menopause, although the Ludwig pattern of hair loss is often observed initially, a Hamilton-type pattern may develop later.[4] In our study, more than half of the women with androgenetic alopecia had an additional concomitant hair disorder, highlighting the need to further investigate whether early-onset or progressive bitemporal alopecia is triggered by accompanying conditions (e.g., telogen effluvium and seborrheic dermatitis).

Limitations

The main limitation of this study is that it was conducted at a single center with a relatively small number of patients, which may limit the generalizability of the findings. Therefore, larger multicenter studies are required to validate and extend these results. Additionally, the mild severity of bitemporal alopecia observed in some patients may be attributable to individual hairline characteristics or genetic factors, which should not be overlooked.

CONCLUSION

Bitemporal alopecia is a pattern of hair loss that may occur in various hair disorders, particularly androgenetic alopecia, seborrheic dermatitis, and telogen effluvium. The coexistence of multiple hair conditions may exacerbate bitemporal alopecia, significantly affecting a patient's appearance and potentially leading to permanent hair loss. Bitemporal alopecia may be considered a distinct clinical feature, as it could serve as a predictive indicator of associated hair disorders and should be incorporated into a comprehensive diagnostic approach that accounts for multiple disease associations.

Ethics Committee Approval: The Ankara Etlik City Hospital Scientific Research Evaluation and Ethics Committee granted approval for this study (date: 26.06.2024, number: AEŞH-BADEK-2024-564).

Informed Consent: Written informed consent was obtained from all patients.

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