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Evaluation of sociodemographic and clinical characteristics of dermatochalasis patients: A retrospective epidemiologic study in a tertiary care eye clinic

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ABSTRACT

OBJECTIVE: The aim of this study was to evaluate systemic and environmental risk factors, clinical findings and surgical trends in patients admitted to our clinic with the diagnosis of dermatochalasis.

METHODS: Between January and March 2024, 114 patients with upper eyelid dermatochalasis were retrospectively analyzed cross-sectionally. Demographic data, history of systemic disease, surgical history, presenting complaints, tear tests (Schirmer, tear breakup time (TBUT)) and dermatochalasis grades were recorded.

RESULTS: In the patient cohort, females constituted 66.66%, with a mean age of 53.08±6.35 years. The predominant complaint was a sensation of heaviness or fatigue in the upper eyelid, as reported by 41.22% of the patients. A substantial 70.17% of the participants presented with at least one systemic illness, with diabetes mellitus, hypertension, thyroid disorders, and rheumatologic diseases being the most common. Symptoms of dry eye were observed in 31.57% of the patients, with an average Schirmer test result of 11.03±3.07 mm and a TBUT of 5.87±1.86 seconds. No significant correlation was found between Schirmer and TBUT values and the severity of dermatochalasis (p>0.05). Among the patients, 37.71% were considering surgery, with 65.11% seeking it for cosmetic reasons and 34.88% for functional purposes.

CONCLUSION: Dermatochalasis is a complex condition associated with functional and systemic effects and aesthetic problems. A history of systemic disease, dry eye symptoms and visual field limitation should be considered in managing the disease. Therefore, a multidisciplinary approach should be adopted, and patient expectations should be considered in treatment planning. Prospective studies with a large sample size may better elucidate the etiopathogenesis and patient management.

Keywords: Blepharoplasty; dermatochalasis; eyelid; oculoplasty.

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Dermatochalasis, characterized by the laxity and drooping of bilateral eyelids, predominantly manifests in middle and advanced age, with a higher incidence in the upper eyelid [1]. It is often observed in conjunction with blepharochalasis, a condition marked by recurrent eyelid edema, although it may also present independently. Dermatochalasis can be mistaken for blepharochalasis and steatoblepharon, the latter referring to septal laxity and adipose tissue prolapse [2, 3]. This condition, characterized by facial wrinkles or folds, can negatively affect an individual's physical and psychological well-being [4].

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Associated symptoms may include visual field defects, ocular surface irritation, and headaches. Dermatochalasis is considered a component of the aging process, with its pathophysiology linked to structural changes in the eyelid skin's elastic fibers and collagen bonds [5, 6].

Numerous risk factors for the development of dermatochalasis have been documented. A particular study investigated genetic background, smoking habits, hormonal status in female patients, and body mass index (BMI) in patients with dermatochalasis. The study's findings indicated that genetic predisposition, smoking habits, and high BMI are risk factors for dermatochalasis [7]. Research has also shown that connective tissue diseases and conditions that accumulate in connective tissue, such as amyloidosis, may increase the risk of dermatochalasis [8, 9]. A study of anterior segment findings in patients with type 2 diabetes identified dermatochalasis as the most prevalent finding after blepharitis. The development of dermatochalasis has also been documented in patients with thyroid orbitopathy [7–10].

Patients with dermatochalasis seek treatment for aesthetic purposes or for symptoms such as heaviness and visual field limitation. Blepharoplasty, the most common treatment for dermatochalasis worldwide, involves the surgical removal of excess skin from the eyelids. This procedure addresses ocular ptosis and can be performed on both the upper and lower eyelids [10, 11].

This study aimed to investigate the systemic and environmental risk factors associated with dermatochalasis in patients presenting at our clinic.

MATERIALS AND METHODS

In this retrospective cross-sectional study, we analyzed 114 patients diagnosed with dermatochalasis who presented to our institution's general ophthalmology outpatient clinic between January and March 2024. All patients aged 18 years or older who were identified as having upper eyelid dermatochalasis during routine clinical examination—regardless of their initial presenting complaint—were included. Exclusion criteria comprised a history of previous eyelid surgery, congenital or neurologic ptosis, and active ocular surface infection or inflammation. The study was approved by Selcuk University Faculty of Medicine Ethics Committee (date: 26.03.2024, number: 2024/181). This study was conducted in accordance with the principles outlined in the Helsinki Declaration.

Highlight key points

- Dermatochalasis is not only an aesthetic problem; it is also associated with systemic diseases and functional symptoms such as dry eye, visual field limitation, and periorbital pain.
- The rate of systemic comorbidity was higher in female patients, especially diabetes, hypertension, thyroid dysfunction, and rheumatologic diseases, which were frequently associated with dermatochalasis.
- The reasons for surgery are not only cosmetic concerns; many patients also request blepharoplasty for functional complaints.

Each patient's age, gender, and history of systemic diseases were documented. Anterior segment findings were assessed during ophthalmologic examination. The condition of the upper eyelids was recorded, the severity of drooping was graded, and brow ptosis (displacement of the eyebrows from their normal position) was documented. Patients' presenting complaints were detailed, and the presence of symptoms such as a sensation of heaviness or fatigue in the upper eyelid, cosmetic discomfort, dry eyes (burning, stinging, sanding), watery eyes (epiphora), visual field limitation, and forehead pain due to eye strain was investigated. Objective tear function tests, including the Schirmer test and tear breakup time (TBUT), and ocular surface evaluation were conducted in patients reporting dry eye symptoms. All Schirmer and TBUT measurements were performed under standardized conditions in a controlled environment (ambient temperature: 22–24°C) and within the same time window (09:00–12:00 a.m.) to minimize the influence of diurnal variation. No topical treatments were administered before the testing phase.

Requests for blepharoplasty and the reasons for surgical requests were evaluated. Dermatochalasis grading was conducted according to the classification by Leonie C. Jacobs et al. [7] According to this classification, the severity of dermatochalasis was graded as usual (A) if the upper eyelid skin does not touch the eyelashes, mild (B) if the upper eyelid touches the eyelashes, moderate (C) if the upper eyelid extends over the eyelashes, and severe (D) if the upper eyelid skin extends over the eye.

Statistical analyses were performed using IBM SPSS Statistics for Windows, version 21.0 (IBM Corp., Armonk, USA); a p-value of less than 0.05 was considered statistically significant. All quantitative data were presented as mean±standard deviation, while categorical data were expressed as numbers and percentages. Nor-

Table 1. Demographic data of patients with dermatochalasis (n=114)

Variables	
Gender, (%)	
Female	66.66
Male	33.33
Place of residence, (%)	
City center	75.43
Village	24.56
Mean age, (mean years±SD)	
Female	53.639±6.55
Male	53.33±5.96
Total	53.08±6.35

SD: Standard deviation.

mality of continuous variables was assessed using the Shapiro-Wilk test to determine the appropriate statistical approach.

RESULTS

A total of 114 patients diagnosed with dermatochalasis were included in the study, of whom 66.66% (n=76) were female. The overall mean age was 53.08±6.35 years. The majority of participants (75.43%) resided in urban areas, with a smaller proportion living in rural or peripheral districts (Table 1).

The most frequently reported symptom was a sensation of heaviness or fatigue in the upper eyelid, followed by aesthetic dissatisfaction, ocular irritation symptoms (burning, stinging), visual field constriction, and frontal headache due to compensatory muscle overuse (Table 2). These findings reflect the multifaceted burden of dermatochalasis beyond cosmetic concern.

A systemic comorbidity was present in 70.17% of patients, with a predominance among females. Diabetes mellitus and hypertension were the most frequently encountered conditions, often occurring concomitantly. Other common systemic diseases included thyroid dysfunction and rheumatologic disorders (Table 2), all of which may contribute to structural weakening of periorbital connective tissues.

Surgical history revealed that 65.78% of patients had previously undergone at least one operation, with gynecological procedures being predominant among female participants. These findings may point toward a potential interplay between cumulative surgical exposure and connective tissue degeneration, though causal inference requires further investigation.

Table 2. Systemic diseases and background characteristics in patients with dermatochalasis

	%
Application complaint	
Feeling of heaviness or fatigue in the upper eyelid	41.22
Cosmetic discomfort	28.94
Stinging and burning sensations in the eyes, and watery eyes (epiphora)	24.56
Visual field limitation	20.17
Pain in the forehead due to eye strain	14.91
Systemic diseases	
Diabetes	21.92
Hypertension	20.17
Thyroid dysfunction	13.15
Rheumatology diseases	16.66
Have at least two systemic diseases	30.70
Surgical history	
No history of surgery	33.33
History of at least one surgery	65.78
History of two or more surgeries	22.80

Table 3. Patient's evaluation of dermatochalasis and their thoughts about surgery (n=114)

	%
Dermatochalasis evaluation	
Group A	12.28
Group B	35.96
Group C	35.96
Group D	15.78
Surgical motivation	
Requesting surgery	37.71
Who doesn't want to have surgery	62.28
Reason for requesting surgery	
Functional purpose	34.88
Aesthetic purpose	65.11

In terms of clinical grading, most patients were categorized within mild to moderate severity groups (Groups B and C), while severe dermatochalasis (Group D) was less frequently observed (Table 3). Despite reported symptomatology, only 37.71% of patients expressed willingness to undergo blepharoplasty. Among those, cosmetic motivation was predominant (65.11%), whereas the remainder cited functional limitations as their primary concern.

Dry eye symptoms were reported in 31.57% of the cohort. Objective tear function testing revealed a mean Schirmer score of 11.03±3.07 mm and a TBUT of 5.87±1.86 seconds. Epiphora was present in 21% of cases. Despite the frequency of symptoms, statistical analysis demonstrated no significant association between tear function parameters and dermatochalasis severity (Schirmer: p=0.681; TBUT: p=0.755). Additionally, brow ptosis was identified in 11.4% of the patients and was considered in surgical planning when present.

DISCUSSION

In this study, we comprehensively evaluated the demographic and clinical characteristics and presenting complaints and symptoms of patients with dermatochalasis who were admitted to our outpatient clinic. Our findings indicate that dermatochalasis predominantly affects individuals in the advanced age group. It is well-established that the ligaments within skin tissue weaken with age, leading to increased skin laxity. The prevalence of dermatochalasis is anticipated to rise with age [7]. Although the condition affects both sexes, most patients in our clinic were female. This higher prevalence in women may be attributed to hormonal factors, differences in skin structure, and biological changes associated with aging [12, 13].

Previous studies have suggested that residing in rural areas may increase the risk of ultraviolet sunlight exposure, potentially leading to changes in skin tissue [14]. Our analysis, however, revealed that most patients resided in urban centers. While our study did not directly support this relationship, comparative studies between rural and urban populations may elucidate the causal link between living environment and dermatochalasis. Nonetheless, our study's limited sample size may restrict the generalizability of our findings.

A significant proportion of our patients had at least one systemic disease, with a statistically higher prevalence in women compared to men. The most common combination of systemic diseases observed was diabetes and hypertension. Existing literature suggests a potential association between dermatochalasis and vascular and metabolic disorders. Although it has been reported that diabetes may alter the structure and function of connective tissue components, data on the effects of hypertension on the skin and periorbital region remain limited [15]. In our study, thyroid dysfunction and rheumatologic diseases were also prevalent among dermatochalasis patients. Connective tissue involvement in thyroid orbitopathy may predispose individuals to dermatochalasis [16]. Similarly, impaired connective tissue metabolism and reduced skin hemodynamics in hypothyroidism may contribute to the development of dermatochalasis [17]. The chronic inflammatory nature of rheumatologic diseases may adversely affect dermal structures' integrity and regenerative capacity [18]. In this context, a thorough assessment of existing systemic diseases in patients with dermatochalasis is clinically essential for surgical planning, intraoperative bleeding control, and postoperative wound healing.

Although the study provided detailed documentation of systemic comorbidities observed in patients with dermatochalasis, a statistical analysis was not conducted to explore the relationship between specific systemic diseases and the severity of dermatochalasis. This decision was based on the limited sample size, particularly within certain stratified subgroups, which would have undermined the validity of any statistical inference. Specifically, small cell counts in multiple contingency tables would violate the assumptions required for robust chi-square testing. Nevertheless, we recognize the clinical relevance of this association and recommend that future studies with larger and more balanced sample distributions investigate this potential relationship using prospective designs.

A subsequent analysis of the patients' surgical histories indicated that most had undergone at least one surgical procedure. Gynecologic surgeries, such as cesarean sections and hysterectomies, were frequently recorded, particularly among female patients. Surgical interventions and the administration of general anesthesia have been shown to elicit a systemic stress response in the body [19]. It has been hypothesized that this stress response may lead to alterations in skin structure, particularly by affecting connective tissue homeostasis. Whether repeated surgical exposure contributes to the development of dermatochalasis through chronic systemic inflammation, oxidative stress, or vascular dysfunction warrants further investigation. Consequently, the potential impact of surgical history on the pathophysiology of dermatochalasis should be prospectively evaluated in future studies.

In our study, the most common complaint among patients was a sensation of heaviness and fatigue in the upper eyelid. This suggests that dermatochalasis should be considered a cosmetic issue and a functional disorder. Aesthetic discomfort was also frequently reported, highlighting the importance of the psychosocial aspect affecting patients' quality of life. Additionally, irritative symptoms such as stinging and burning suggest indirect involvement of the ocular surface. Visual field limitation and forehead pain due to eye strain indicate secondary effects of dermatochalasis on visual performance and peripheral muscle groups [12]. These findings underscore the necessity of a multidisciplinary approach in evaluating dermatochalasis and emphasize the importance of considering functional and symptomatic effects beyond aesthetic concerns.

One of our study's notable findings was the standard reporting of dry eye symptoms in patients with dermatochalasis. Various studies have previously emphasized the relationship between dermatochalasis and ocular surface health, rendering this observation significant. Dermatochalasis is known to contribute to the pathogenesis of dry eye, particularly by disrupting meibomian gland function and decreasing the stability of the tear lipid layer. Maintaining lid hygiene and employing appropriate surgical approaches may alleviate symptoms in this context [12]. However, our study found no statistically significant relationship between dermatochalasis groups and dry eye severity. This result may be attributed to the limited sample size or the sensitivity of subjective symptom assessment, but it may also be due to heterogeneity in the patient population. Therefore, it is essential to include dry eye evaluation in the routine examination process for patients with dermatochalasis and to address its management with a multidisciplinary approach. Further studies with larger samples and prospective and parametric assessments are needed to clarify this issue.

Upon analyzing the distribution of patients according to dermatochalasis groups, it was observed that the majority were classified within Groups B and C, indicating mild to moderate dermatochalasis. This finding suggests that these levels of dermatochalasis are more prevalent clinically, whereas severe forms are less frequently encountered. Our findings indicate that most patients did not pursue surgical intervention, likely due to the minimal functional impairment caused by dermatochalasis and the relatively low priority of aesthetic concerns among patients. Nonetheless, the fact that some patients seek surgical intervention for both aesthetic and functional reasons underscores the importance of addressing dermatochalasis based on individual complaint profiles. In this context, clinical classification, patient subjective perception, impact on quality of life, and personal expectations should be integrated into the treatment decision-making process. Additionally, factors such as cultural values, sociocultural status, aesthetic sensitivity, and access to healthcare services are hypothesized to be critical variables influencing the motivation for surgery [20]. This multidimensional approach supports the necessity for a more personalized framework in treatment planning for individuals with dermatochalasis.

This study has certain limitations. Firstly, the study's retrospective design rendered the data quality dependent on the accuracy and completeness of patient records, with potential information gaps or biases possibly limiting the generalizability of the results. A prospective study design could facilitate a more standardized and systematic evaluation of symptoms and clinical findings, thereby establishing more robust causal links associated with dermatochalasis. Secondly, the study's conduct within a single center and with a limited sample size implies that the rates and clinical associations observed may differ in other geographical or demographic populations. Finally, although meibomian gland dysfunction (MGD) has been proposed in the literature as a contributing factor to ocular surface instability in patients with dermatochalasis, it was not directly assessed in our study. Therefore, any reference to MGD in the present discussion remains theoretical and is based on existing evidence from prior studies rather than direct clinical observation. Future investigations incorporating clinical or imaging-based assessment of MGD would offer a more comprehensive understanding of the dry eye component associated with dermatochalasis. Despite these limitations, our study contributes to the existing literature by providing a detailed clinical profile of patients with dermatochalasis in a tertiary healthcare institution.

Conclusion

Dermatochalasis is a medical condition marked by the sagging of skin and diminished elasticity in the upper eyelids, often linked to aging. While it is frequently seen as a cosmetic issue, it can lead to functional problems, such as restricted visual fields and disorders of the ocular surface, especially in more severe cases. The patients studied here demonstrate that dermatochalasis goes beyond mere aesthetic concerns, causing functional issues

like dry eye symptoms, excessive tearing, and discomfort around the eyes. The condition is further aggravated by meibomian gland dysfunction and changes in the tear lipid layer, which negatively affect ocular surface health. Addressing and treating this condition, which involves the skin's collagen and elastic fibers, necessitates a multidisciplinary approach. Future multicenter, prospective controlled studies with larger participant groups are crucial to gain more detailed and widely applicable insights into the causes and progression of dermatochalasis, as well as patient preferences for surgical intervention.

Ethics Committee Approval: The Selcuk University Clinical Research Ethics Committee granted approval for this study (date: 26.03.2024, number: 2024/181).

Informed Consent: Written informed consents were obtained from patients who participated in this study.

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