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Evaluation of Quality of Life in Children and Adolescents Diagnosed with Striae Distensae

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What is already known on this topic?

Striae distensae (SD), also known as stretchmarks, are characterized by erythematous, violaceous, or atrophic bands on the skin that occur in areas of dermal damage. The condition may have psychosocial effects, especially in adolescence when aesthetic anxiety is high.

What this study adds onthis topic?

Despite the fact that striae may cause aesthetic anxiety, studies on the psychosocial effects of SD on adolescents are limited in the literature. Our study evaluated the effect of striae distensae on quality of life in the adolescent period.

ABSTRACT

Objectives: Striae distensae (SD) are characterized by erythematous or atrophic bands, which are common during adolescence and can adversely impact the psychosocial status of the affected patients. Our aim in this study is to evaluate the quality of life of children and adolescents diagnosed with SD.

Methods: This prospective observational study included 50 adolescents with SD. The gender and the age of the patients were noted. Quality of life was evaluated with the Children's Dermatology Life Quality Index (CDLQI).

Results: The present study included 50 patients with SD. Female patients were more common than male patients, with frequencies of 58% and 42%, respectively. The median values of the total scores of the CDLQI were 9 (0-21) in females and 4 (0-12) in males. The difference of 5 units between them was statistically significant ($P = .003$). The age groups of the participants were 9-12 and 13-16. There were 15 (30%) patients in the 9-12 age range and 35 (70%) patients in the 13-16 age range. The median values of the total score of the CDLQI were 7 (0-21) in the 9-12 age group, and 6 (0-20) in the 13-16 age group. Total score did not differ significantly between groups ($P = .679$).

Conclusion: SD are common during adolescence and affect the quality of life. Therefore, this should not be considered only as a cosmetic problem. Patients should also be evaluated in terms of the psychosocial aspects.

Keywords: Adolescents, striae distensae, quality of life, children's dermatology life quality index (CDLQI)

INTRODUCTION

Striae distensae (SD) are characterized by erythematous, violaceous, or atrophic bands on the skin in areas that have experienced stretching. Striae are several centimeters long, and their width varies from a few millimeters to several centimeters.[1,2] SD are classified as striae rubrae, characterized by erythematous and tense lesions in the acute period, and striae albae, characterized by atrophic and wrinkled bands in the chronic period.[3]

Although the pathogenesis is not clear, SD occur as a result of increased stress on the connective tissue in areas where the skin is constantly exposed to tension. In addition, hormonal effects and genetic factors are thought to contribute to striae formation.[4] The natural development of striae is similar to scar formation or wound healing. Predisposing factors include pregnancy, rapid growth during puberty, drug exposure (particularly steroids), strenuous exercises, surgery, and underlying diseases (e.g., Cushing's syndrome).[5]

SD are more common in females than in males. Although the frequencies vary by gender, the prevalence reported in the adolescent population varies between 6 and 86%.[6] It is also

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common in adolescence when growth spurts are seen. The most common areas affected in adolescents are the outer thighs and lumbosacral regions in males, and the thighs, buttocks, and breasts in females.[2] Striae distensae can rarely ulcerate, but are usually asymptomatic. However, deformity may disturb the patient. Typical clinical findings are sufficient for diagnosis.[5]

The aim of striae treatment is to improve the cosmetic appearance and reduce the formation of new striae. Topical tretinoin, laser, and superficial dermabrasion are the options available for treatment. Striae cause therapeutic and psychosocial difficulties because the lesions may be symptomatic and may cause aesthetic anxiety and cosmetic morbidity.[7] Our aim in this study is to evaluate the effect of the presence of striae on the quality of life of children and adolescents.

METHODS

This prospective observational study was conducted in Istanbul University-Cerrahpasa, Cerrahpasa Medical Faculty Dermatology Clinic between October 6, 2020 and December 1, 2020. When the studies on scale evaluations in adolescents were examined in the literature, the study in which Askın et al. evaluated the Rosenberg self-esteem scale in adolescents attracted attention. Sixty patients were followed in this study by Askın et al.[8] In our study, we included 50 patients who met the inclusion criteria. The study was approved by the Clinical Research Ethics Committee of Istanbul University Cerrahpasa Medical Faculty (Approval number: 83045809-604.01.02 Approval date: October 06, 2020). Striae distensae were diagnosed based on the clinical presentation. Those with a known history of systemic disease, skin disease other than SD, and a history of psychiatric disease were not included in the study. Informed consent was obtained from the patients and their parents. The age and gender data of the patients were recorded. The quality of life levels of the patients was assessed using the Children's Dermatology Life Quality Index (CDLQI). The quality of life questionnaire was filled during face-to-face interaction with the patients.

The Children's Dermatology Life Quality Index (CDLQI)

The CDLQI developed by Finlay was used in this study. The CDLQI is used to evaluate dermatological diseases in children aged 4-16. The CDLQI consists of 10 questions assessing how much the quality of life has been impacted by the disease over the past week. The questions concern different areas of the patient's life: symptoms and feelings (questions 1 and 2), leisure time (questions 4, 5, and 6), school or holidays (question 7), personal relationships (questions 3 and 8), sleep (question 9), and treatment (question 10). The choice of answers is "not at all," "only a little," "quite a lot," or "very much," which are scored 0, 1, 2, or 3. The total score is between 0 and 30. The scores are evaluated as: 0-1, no effect on life; 2-6, small effect; 7-12, moderate effect; 13-18, very large effect; 19-30, extremely large effect. A high score is associated with a low quality of life.[9] The Turkish version of the CDLQI was evaluated for validity and reliability by Balcı et al. The reliability of the Turkish CDLQI questionnaire was obtained by Cronbach's alpha coefficient ($\alpha = 0.82$). The results of the study demonstrated that the translated version of CDLQI is reliable and valid.[10]

Statistical Analysis

Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) version 21.0 (IBM SPSS Corp.; Armonk, NY, USA). The conformity of numerical variables to normal distribution was examined using visual (histogram and probability graphs) and analytical methods (Shapiro–Wilk test). Descriptive analyses were given using median and interquartile range for non-normally distributed variables, and frequency and percentage for categorical variables. The data had an abnormal distribution. The total scores in the subcategories of the CDLQI and the gender variable were compared between the groups using the Mann–Whitney *U*-test, and the cases where $P < .05$ were considered statistically significant.

RESULTS

Evaluation by Gender

In the study, 50 patients of adolescent age were evaluated. There were more female patients than male patients, with frequencies of 58 and 42%, respectively. The median total score of the CDLQI was 9 (0-21) in females and 4 (0-12) in males. The difference of 5 units between them was statistically significant ($P = .003$). There was a statistically significant difference between the total score distributions of the symptoms and feelings subcategory of between females and males ($P = .005$). The differences in the total scores in the personal relationships ($P = .019$), leisure time ($P = .001$), and school or holidays ($P = .009$) subcategories of the index were also statistically significant. The gender-wise scores of the subcategories of the CLDQI are presented in Table 1.

Evaluation by Age

Age groups of the participants were 9-12 and 13-16. There were 15 (30%) patients in the 9-12 age range and 35 (70%) patients

Table 1. Gender-Wise Assessment Results of the Subcategories of the Children's Dermatology Life Quality Index

	Female, $n = 29$		Male, $n = 21$		
	Median (Min–Max)	Mean ± SD	Median (Min–Max)	Mean ± SD	*P*^
Symptoms and feelings (point)	2 (0-6)	2.34 ± 1.518	2 (0-4)	1.19 ± 1.123	.005
Leisure (point)	4 (0-8)	3.36 ± 2.058	2.5 (0-6)	1.67 ± 1.770	.001
School or holidays (point)	1 (0-3)	1.17 ± 0.889	0 (0-2)	0.52 ± 0.680	.009
Personal relationships (point)	1 (0-3)	1.03 ± 1.052	0 (0-4)	0.83 ± 1.043	.019
Sleep (point)	0 (0-1)	0.24 ± 0.435	0 (0-2)	0.40 ± 0.553	.428
Treatment (point)	0 (0-3)	0.48 ± 0.949	0 (0-3)	0.17 ± 0.453	.674

SD, standard deviation.
^Mann–Whitney *U*-test.

Table 2. Assessment Results of the Subcategories of the Children's Dermatology Quality of Life Index According to Patients' Age Group

	9-12 years ($n = 15$)		13-16 years ($n = 35$)		
	Median (Min–Max)	Mean ± SD	Median (Min–Max)	Mean ± SD	*P*
Symptoms and feelings (point)	2 (0-6)	1.93 ± 1.710	2 (0-6)	1.83 ± 1.381	.862
Leisure (point)	3 (0-8)	3.13 ± 2.326	2 (0-8)	2.69 ± 2.111	.591
School or holidays (point)	1 (0-2)	0.93 ± 0.799	0 (0-3)	0.89 ± 0.900	.727
Personal relationships (point)	0 (0-3)	0.67 ± 0.900	0 (0-4)	0.83 ± 1.043	.686
Sleep (point)	0 (0-1)	0.07 ± 0.258	0 (0-2)	0.40 ± 0.553	.029
Treatment (point)	0 (0-3)	1.07 ± 1.387	0 (0-2)	0.17 ± 0.453	.017

SD, standard deviation.
^Mann–Whitney *U*-test.

in the 13-16 age range. The median values of the total scores of the CDLQI were 7 (0-21) in the 9-12 age group, and 6 (0-20) in the 13-16 age group. The groups did not differ in terms of age distribution ($P = .679$). The change in the total scores of the symptoms and emotions subcategory by age groups was not statistically significant ($P = .862$). There were statistically significant differences between the total score distributions of the sleep ($P = .029$) and treatment ($P = .017$) subcategories between age groups. The findings of the subcategories of the CDLQI according to the patients' age groups are presented in Table 2.

DISCUSSION

SD are linear scars that occur in areas of different regions caused by stretching, and are common in adolescents. SD of adolescence has been previously reported to be much more common in females than in males.[11] According to our study, SD in adolescents is more common in females than in males, with frequencies of 58 and 42%, respectively. In a study conducted in Korea, 71.75% males and 28.24% females were diagnosed with SD.[12]

The etiology and pathophysiology of SD are poorly understood and are likely multifactorial. Mechanical factors, skin structure or function, and hormonal factors may be involved.[13,14] Gender difference in the occurrence of SD may result from a combination of these mechanisms.

SD can cause a burning and itching sensation, and they are often considered a cosmetic issue.[11,15] SD may cause psychosocial effects, especially in adolescence when aesthetic anxiety is high. Despite this, studies on the psychosocial effects of SD on adolescents are limited in the literature. In our study, quality of life in adolescents diagnosed with striae was evaluated using the CDQLI. The analyses demonstrated that the quality of life score of females was significantly higher than males. Negative evaluations regarding physical appearance and aesthetic concerns associated with skin disease are high during adolescence.[16] The CDLQI consists of 6 domains: symptoms and emotions, leisure time, school or holidays, personal relationships, sleep, and treatment.[9] According to our study results, females were affected more than males in the subcategories of symptoms and emotions, and personal relationships. One of the most important issues of adolescence is social relationships with their peers.[17]

Personal relationships in adolescents with SD are affected, which may be explained by the importance of outside perceptions of their peer relationships. The changes in the total scores of the leisure, and school or holiday subcategories were also significant, but there was no gender difference in the sleep and treatment subcategories. Our study results show a lower quality of life in the leisure time, and symptoms and feelings subcategories in females. This was consistent with previous studies, which found that females generally experience more psychological morbidity than males.[18]

The absence of a significant difference in the total score of the CDLQI between age groups indicates that striae can affect quality of life throughout childhood and adolescence. However, differences were found in sleep and treatment subcategories. While sleep was affected more in the 13-16 age group, treatment was more affected in the 9-12 age group. SDs are often a primary cosmetic concern for patients. For this reason, a wide variety of treatment methods are used, from topical treatments to more invasive methods such as laser therapy. Treatment of SD can be challenging, as no therapy achieves complete resolution.[7] Past studies have reported that topical treatments can be cumbersome and time-consuming for patients.[19] In the 9-12 age group, the effect on treatment may be related to the choice of topical treatment. However, more comprehensive studies are needed. The reason that the subcategory of sleep is more affected in the 13-16 age group may be related to the transition from childhood to adolescence, when the need for sleep is higher.

The failure to evaluate the extent and stage of SD is the limitation of our study. Widespread striae may cause higher aesthetic anxiety.

CONCLUSION

SD should not be considered only as a cosmetic problem. Patients should also be evaluated and supported psychologically. Their impact on patients' quality of life should be taken into account.

Ethical Committee Approval: Ethical committee approval was received from the the Clinical Research Ethics Committee of Istanbul University Cerrahpasa Medical Faculty (Approval number: 83045809-604.01.02 Approval date: October 06, 2020).

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

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