Original Investigation
Orijinal Araştırma

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A prospective descriptive study of 100 patients with facial trichostasis spinulosa

Fasyal trikostazis spinulozalı 100 hastanın prospektif tanımlayıcı çalışması

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Abstract

Background and Design: Trichostasis spinulosa (TS) is a common but frequently underdiagnosed dermatological condition. Dermoscopy has recently been identified as the most practical and useful noninvasive diagnostic tool. This study aimed to assess the demographic, clinical, and dermoscopic features of TS, as well as the patients' perspectives. The objective was to increase awareness of this disease.
Materials and Methods: This was a prospective descriptive study. A total of 100 adult patients diagnosed with facial TS at a tertiary center between October 2021 and April 2023 were included. Physical and dermoscopic examinations were performed. Demographic data, reasons for admission, age at onset, subjective complaints, comorbidities, previous treatments, treatment responses, lesion location, dermoscopic findings, and patient perspectives on the disease were recorded.
Results: Ninety-nine percent of the patients presented to the clinic with other dermatological conditions. The most common age group was 18-25 years. Of the patients, 81% were female and 19% were male. When patients' perspectives were evaluated, 67% were aware of the TS findings, 52% reported being disturbed by the lesions, and 56% requested treatment of the lesions. On dermoscopy, vellus hairs surrounded by keratotic plugs were observed in 68% of patients and black comedone-like structures in 58% of patients, together with hair tufts. The combined presence of hair tufts, vellus hairs surrounded by keratotic plugs, and black comedone-like structures was observed in 33% of the patients.
Conclusion: TS can cause cosmetic distress, particularly in young adults. TS should be considered in the differential diagnosis of treatment-resistant, comedone-like facial lesions. In most cases, a practical diagnosis can be established using a dermatoscope.
Keywords: Trichostasis spinulosa, hair diseases, dermoscopy

Öz

Amaç: Trikostazis spinuloza (TS), yaygın fakat sıklıkla yeterince tanı konulamayan bir dermatolojik hastalıktır. Son zamanlarda dermoskopinin tanı için invaziv olmayan en yararlı ve kolay araç olduğu bildirilmektedir. Bu çalışmada hastalığın demografik, klinik, dermoskopik özellikleri ve hastaların hastalığa bakış açılarının değerlendirilmesi amaçlandı. Bu hastalık hakkında farkındalığın artırılması hedeflendi.
Gereç ve Yöntem: Araştırma prospektif tanımlayıcı bir çalışma olarak tasarlandı. Ekim 2021 ile Nisan 2023 tarihleri arasında üçüncü basamak bir merkezde fasiyal TS tanısı alan 100 yetişkin hasta dahil edildi. Fizik muayene ve dermoskopik muayene yapıldı. Demografik veriler, başvuru nedenleri, başlangıç yaşı, subjektif şikayetler, komorbiditeler, daha once uygulanan tedaviler, tedavilere yanıtlar, lezyonların lokalizasyonu, dermoskopik bulgular ve hastaların hastalığa bakış açıları kaydedildi.
Bulgular: Hastaların %99'u başka dermatolojik hastalıklar nedeniyle kliniğe başvurdu. En sık görülen yaş aralığı 18-25 yaş idi. Hastaların yüzde 81'i kadın, yüzde 19'u erkekti. Hastaların hastalığa bakış açıları sorgulandığında, %67'si TS bulgularının farkındaydı, %52'si lezyonlardan rahatsız olduğunu belirtti, %56'sının tedavi talebi mevcuttu. Dermoskopide küme kıl bulgusuyla birlikte hastaların %68'inde keratotik tıkaçla çevrili vellüs kıllar, %58'inde siyah komedon benzeri yapılar mevcuttu. Hastaların %33'ünde küme kıl, keratotik tıkaçla çevrili vellüs kıllar ve siyah komedon benzeri yapılar bir arada gözlendi.

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Sonuç: TS hastalarda, özellikle genç erişkinlerde kozmetik strese neden olabilir. Yüz bölgesinde tedaviye dirençli komedon benzeri lezyonların ayırıcı tanısında TS akılda tutulmalıdır. Çoğu durumda dermoskopi ile pratik bir şekilde teşhis koymak mümkündür.
Anahtar Kelimeler: Trikostazis spinuloza, saç hastalıkları, dermoskopi

Introduction

Trichostasis spinulosa (TS) is a common but often underdiagnosed dermatological disorder[1]. It results from the retention of vellus telogen club hairs within the follicles and delayed hair shedding. The reported causative factors include hyperkeratosis (congenital or acquired), abnormal hair follicle angulation, and follicle damage due to external factors[2]. Clinically, TS presents as asymptomatic or pruritic comedone-like lesions containing keratin and multiple vellus hairs, most commonly located on the face, but also observed on the trunk, extremities, and scalp[1,3]. Two clinical variants have been proposed: the classic (non-pruritic) type, usually seen in the elderly, presents as clinically asymptomatic, blackhead-like lesions. In contrast, the pruritic variant, typically observed in young adults, presents as multiple pinhead-sized papules on the trunk and upper extremities. However, this classification does not adequately encompass all the reported clinical features. Histopathology, standard skin surface biopsy, and microscopic examination of the extracted content are established diagnostic procedures[1,4-6]. Recently, dermoscopy has been reported as the most practical and useful non-invasive diagnostic tool[3].

Only a limited number of studies on TS are available in the literature. Although common, it remains an almost neglected disease that is frequently underdiagnosed and misdiagnosed. We aimed to identify the demographic, clinical, and dermoscopic features of facial TS, the most common form of the disease. We also sought to evaluate the patients' perspectives on the disease.

Materials and Methods

This was a prospective descriptive study. All patients who presented to the outpatient clinic of a tertiary health center between October 2021 and April 2023 were evaluated for TS, regardless of their presenting symptoms. A total of 100 adult patients with TS confirmed by dermoscopy were included. Considering that summary statistics would be presented as numerical and percentage values, a sample size of 100 was deemed sufficient for the study. Pediatric cases were not included. Dermoscopy was performed using a DermLite DL4 (3GEN, LLC, Dana Point, CA, USA) handheld dermatoscope in the polarized mode. The presence of hair tufts, defined as multiple hairs emerging from a single follicle, was used as a diagnostic criterion. The facial areas of the patients were examined using a dermoscope for black comedone-like structures, vellus hairs surrounded by keratotic plugs, and hair tufts, which have been reported as characteristic findings of TS in the literature[3,7]. All patients provided their written informed consent. Demographic data, reasons for admission, age at onset, subjective complaints, comorbidities, previous treatments and treatment responses, disease location, dermoscopic findings, and patients' perspectives on the disease were recorded in an Excel file.

Statistical Analysis

Statistical analyses were performed using the IBM SPSS Statistics for Windows, version 25.0 (IBM Corp., Armonk, NY, Version 25.0. Armonk, NY: IBM Corp.) package program. For numerical variables, t-test analysis was performed for comparisons between the two groups. For categorical data, cross-tabulations were created and analyzed using the chi-square test. Numerical variables were summarized as mean ± standard deviation, and categorical variables as numbers and percentages. Statistical significance was set at $p<0.05$.

Our study was conducted in accordance with the Declaration of Helsinki and was approved by the local ethics committee of Ege University Medical Research Ethics Committee (decision no: 21-10T/10, dated: 07.10.2021).

Results

In our study, 99% of the 100 adult patients diagnosed with facial TS presented to the outpatient clinic for other dermatological conditions. The patients were aged between 18 and 74 years, with a mean age of 32.53±14.39 years. The age of onset ranged from 10 to 50 years, with a mean of 17±6.9 years among those who were aware of their condition. The most common age group was 18-25 years (Figure 1). Of the patients, 81% were female and 19% were male.

Thirty-seven percent of patients had a history of prior treatment for TS. Among them, 65% did not benefit, 5.4% benefited, and 29.7% benefited initially but later relapsed. Previously reported treatments included adhesive tape application (17%), moisturizers (15%), topical retinoids (15%), comedone extraction (2%), and chemical peels (2%). 15.8% of men and a significantly higher proportion of women (42%) reported a history of prior treatment ($p=0.033$). Among the three

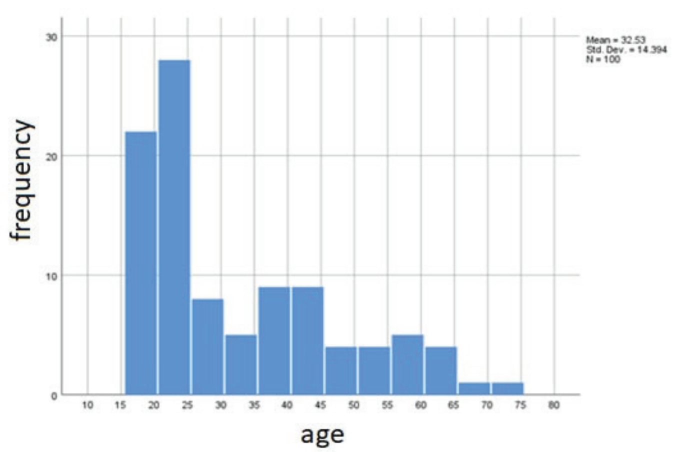

Figure 1. The age distribution of patients is shown as percentages in 10-year intervals (minimum 18 years, maximum 74 years)
Std. Dev.: Standard deviation

male patients who had previously received treatment, one (33.3%) responded, and two (66.7%) reported recurrence. Of the female patients with a prior treatment history, 70.6% reported no response, 26.5% experienced relapse, and 2.9% responded to treatment.

When the patients' perspectives on the disease were questioned, 67% were aware of TS findings, 52% reported being disturbed by the lesions, and 56% requested treatment. Previous awareness of the disease was significantly higher in female patients (74.1%) than in male patients (36.8%) (p=0.002). Similarly, 56.8% of women reported being disturbed by the disease, a rate significantly higher than that of men (31.6%) (p=0.048). Although treatment requests were more common in women, the difference between the sexes was not statistically significant (p=0.062).

The mean age of patients who were aware of the disease was 26.9, significantly younger than those who were not aware (mean age 45.39 years) (p<0.001). The mean age of patients who were disturbed by the lesions was 26.17 years, significantly younger than that of those who were not disturbed (39.42 years) (p<0.001). Similarly, the mean age of patients who did not request treatment was 40.2 years, whereas that of those who requested treatment was significantly lower (26.5 years; p<0.001).

The most common concomitant diseases were acne vulgaris (48%), rosacea (16%), seborrheic dermatitis (8%), anemia (7%), autoimmune diseases (7%), androgenetic alopecia (6%), and allergic rhinitis (6%). Among the autoimmune diseases, two patients had vitiligo, two had alopecia areata, two had thyroiditis, and one had psoriatic arthritis. Acne vulgaris was observed in 26.3% of male patients and in a significantly higher proportion of female patients (53.1%, p=0.036).

The distribution of lesions was as follows: 83% of patients had ala nasi involvement, 40% had nasal tip involvement, 17% had malar area involvement, 7% had forehead involvement, and 7% had chin involvement. No significant sex differences were observed in the lesion distribution.

Dermoscopy revealed vellus hairs surrounded by keratotic plugs in 68% of patients and black comedone-like structures in 58% of patients, along with hair tufts (Figures 2, 3). In 33% of the patients, researchers

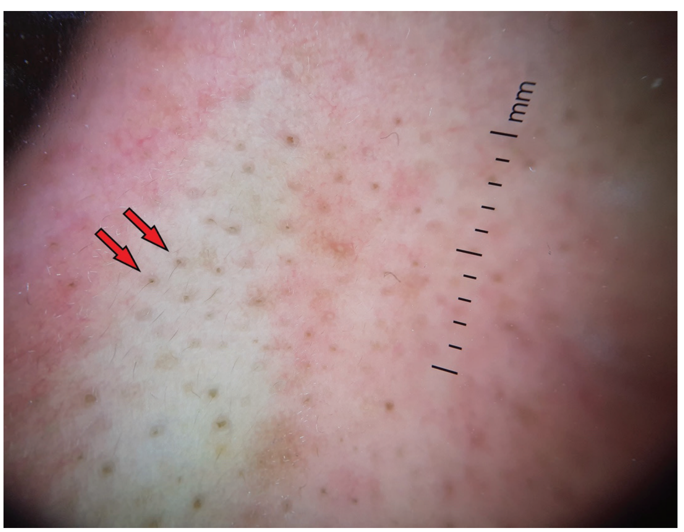

Figure 2. Dermoscopy revealed fine pigmented vellus hairs surrounded by yellowish keratotic plugs (red arrows) (x10)

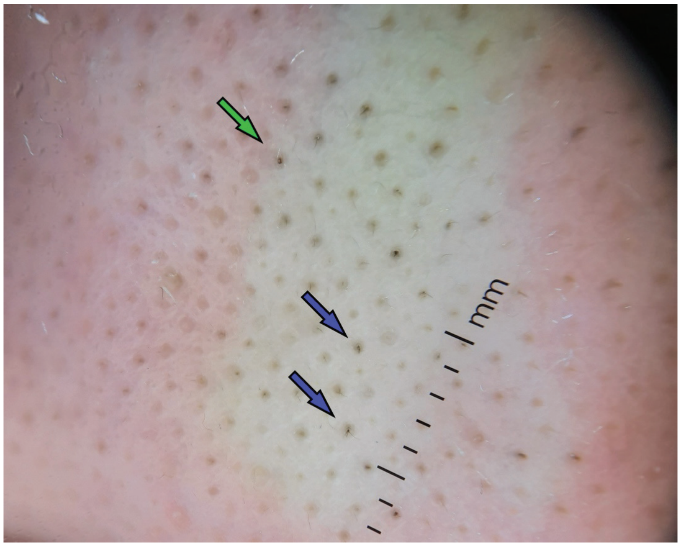

Figure 3. Dermoscopy revealed black comedone-like structures (green arrow). Hair tufts are characterized by multiple vellus hairs protruding from a single follicular opening (blue arrows) (x10)

observed the combined presence of hair tufts, vellus hairs surrounded by keratotic plugs, and black comedone-like structures. No significant sex differences were found in the dermoscopic findings, and the mean age did not differ significantly.

Discussion

We aimed to identify the demographic, clinical, and dermoscopic features of facial TS, as well as the patients' perspectives. We analyzed the data for 100 adults with facial TS.

TS is a neglected but relatively common condition. In the literature, its prevalence was reported as 11.9% among all patients presenting to a dermatology clinic for any skin disease[8].

Although TS is generally reported to affect men and women equally, the majority of our patients were women[9]. TS can occur at any age after adolescence and is most commonly observed in middle-aged and older adults[9,10]. In our study, the most frequent age group was 18-25 years old. The mean age of our patients was 32.5±14.3 years, which is younger than that reported in the literature (41.6 years)[7]. We believe that one reason for this difference is that younger individuals are more likely to seek medical care. In addition, cosmetic concerns are more prominent among young people in our society, leading them to recognize skin changes earlier than older adults. A study conducted in Yemen reported that TS is diagnosed more frequently in younger women. As the first symptoms of TS appear in adolescence and the highest prevalence is observed in young women, a possible association with hormonal factors has been suggested. Similarly, a study from Morocco demonstrated a female predominance (68.9% vs. 31.1%), whereas a Korean study reported a higher prevalence in men (20 men vs. 10 women)[7,11]. These differences indicate that the influence of ethnic and genetic backgrounds warrants further investigation.

Acne vulgaris was the most common comorbidity, followed by rosacea and seborrheic dermatitis in our study. The co-occurrence of TS and acne vulgaris indicates common etiopathogenetic factors. Endogenous factors such as follicular hyperkeratosis, Propionibacterium acnes, and endocrine and metabolic disorders, as well as exogenous factors such as fatty products, heat, ultraviolet radiation, and irritating substances, have been suggested in the pathogenesis of TS and represent common etiopathogenetic elements with acne vulgaris[2,4,11]. Pityrosporum (Malassezia) yeast was detected in 82.6% of the TS biopsy samples in the literature. It has been suggested that yeast may contribute to pathogenesis by inducing follicular hyperkeratosis[11]. Pityrosporum is also known to play a key role in the pathogenesis of seborrheic dermatitis[12]. In this context, the presence of seborrheic dermatitis in 8% of our patients was unsurprising. In another study, seborrheic dermatitis was observed in six of 30 patients (20%)[11].

Similar to our study, previous studies have also found that lesions are mainly located on the middle to lower central face (tip of the nose, ala nasi, cheeks)[1,3,7,8].

Dermoscopy has been reported as the most practical and useful non-invasive tool for diagnosing TS[3], as lesions may not be clinically visible to the naked eye[10]. In a study of 306 patients, vellus hairs were observed in 81.6% of cases, hair tufts in 48.7%, dermoscopic blackhead-like structures in 53.9%, and follicular keratosis in 92.7%[7]. We observed vellus hairs surrounded by keratotic plugs in 68% of patients and black comedone-like structures in 58% of patients, along with the presence of hair tufts. In 33% of patients, we observed a combination of vellus hairs, keratotic plugs, black comedone-like structures, and hair tufts.

Patients commonly seek treatment for TS due to aesthetic concerns. Nonetheless, therapeutic options remain limited, comprising keratolytics, depilatory agents, topical tretinoin, and laser-based interventions[1]. While topical therapies generally offer only transient improvement, definitive results can be achieved through the permanent removal of abnormal follicles using hair removal lasers[13,14]. In our cohort, 37% of patients reported a history of prior TS treatment. In comparison, a previous study noted that only 13.3% of individuals had received any form of treatment[8]. Most of our patients either failed to respond to previous interventions or experienced recurrence, aligning with the existing literature that characterizes TS as a chronic and relapsing condition[15]. Among the previously described treatment modalities, adhesive tape application was identified as the most frequently employed method, which appears to correspond with the nose being the most commonly affected anatomical site. Although laser therapy has the potential to provide a definitive treatment option, none of the patients in our cohort underwent this intervention. This observation suggests that the medical community, and the existing literature, have not sufficiently recognized the condition. Notably, 15.8% of male patients reported a history of prior treatment, a proportion significantly higher among female patients (42%). Consistent with our findings, previous studies have also demonstrated that women are more likely than men to report a history of treatment (10.5% vs. 2.8%)[7].

Interestingly, although 99% of the patients presented to our outpatient clinic with other dermatological complaints, more than half reported being aware of the TS findings, were bothered by the lesions, and requested treatment for them. In another study, six out of 30 patients (20%) recognized the presence of TS[11]. Prior awareness of the disease and reported discomfort were significantly higher in women. In the literature, treatment use for TS, dermatology clinic visits, and treatment requests have been reported to be significantly associated with the female sex[7,8]. Cosmetic concerns may have influenced these findings. However, a more severe clinical course in women cannot be excluded based on our observations. Further studies are needed to objectively assess disease severity according to sex. In our study, the mean age of patients who were aware of the condition, reported discomfort, and sought treatment was younger, consistent with previous literature[8,15].

The strength of our study lies in the opportunity to investigate a disease that is largely reported through case studies in the literature, within a larger patient population. Furthermore, emphasizing dermoscopic features contributes to an updated perspective on clinical evaluation.

Study Limitations

Our study's primary limitation was the use of retrospective patient-reported questions, which could potentially lead to recall bias.

Conclusion

TS can cause significant cosmetic distress, particularly in young adults. Accordingly, it should be considered in the differential diagnosis of patients presenting with treatment-resistant comedone-like facial lesions. In most cases, dermoscopy allows for practical and accurate diagnosis. The frequent coexistence of TS with acne vulgaris, rosacea, and seborrheic dermatitis underscores the likelihood of shared etiopathogenetic pathways between these conditions. It can be inferred that further investigations into the pathogenesis of TS may benefit from focusing on these comorbid conditions, which are comparatively better characterized in the literature.

Ethics

Ethics Committee Approval: Our study was conducted in accordance with the Declaration of Helsinki and was approved by the local ethics committee of Ege University Medical Research Ethics Committee (decision no: 21-10T/10, dated: 07.10.2021).

Informed Consent: All patients provided their written informed consent.

Footnotes

Authorship Contributions

Concept: E.B., A.A., I.K., İ.Ü., Design: E.B., A.A., I.K., İ.Ü., Data Collection or Processing: E.B., I.K., Analysis or Interpretation: E.B., A.A., I.K., İ.Ü., Literature Search: E.B., A.A., İ.Ü., Writing: E.B., A.A., I.K., İ.Ü.

Conflict of Interest: No conflict of interest was declared by the authors.

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