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Telogen Effluvium After COVID-19 Infection: A Case Report

COVID-19 Enfeksiyonu Sonrası Gelişen Telogen Effluvium: Vaka Sunumu

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Abstract

Information on the period after COVID-19 infection has not yet been clarified. Every day, a new one is added to the post-COVID-19 symptoms. Hair loss can be seen in the clinical symptoms of many diseases, as well as after the disease has passed. Telogen effluvium (TE) is a condition characterized by widespread hair loss that occurs approximately 3-4 months after a stressor. In this article, a case who applied with the complaint of hair loss three months after suffering from COVID-19 infection is presented.

Keywords COVID-19, SARS-CoV-2, Telogen Effluvium

Özet

COVID-19 enfeksiyonu sonrası döneme ilişkin bilgiler henüz netlik kazanmadı. COVID-19 sonrası belirtilere her gün bir yenisi ekleniyor. Saç dökülmesi birçok hastalığın klinik semptomlarında görülebildiği gibi hastalık geçtikten sonra da görülebilmektedir. Telogen effluvium (TE), bir stres etkeninden yaklaşık 3-4 ay sonra ortaya çıkan yaygın saç dökülmesi ile karakterize bir durumdur. Bu yazıda COVID-19 enfeksiyonu geçirdikten üç ay sonra saç dökülmesi şikayeti ile başvuran bir olgu sunulmaktadır.

Anahtar Kelimeler *COVID-19, SARS-CoV-2, Telogen Effluvium*

GİRİŞ

COVID-19 infection caused by the SARS-CoV-2 is a life-threatening clinical situation, the data on the processes after it has not reached saturation yet. Every day, a new one is added to the post-COVID-19 symptoms.

Hair loss can be a clinical symptom of many diseases, but it can also occur after the disease has passed[1]. The hair follicle changes in three phases: the anagen (growth) phase, the catagen (regression leading to apoptosis) phase, and the telogen (resting) phase. It has been stated that there are an average of 100,000 hairs on the human scalp, and 10-15% of them are in the telogen phase and 85-90% in the anagen phase. The anagen phase lasts 2-6 years, while the catagen phase lasts 4-6 weeks and the telogen phase 3-4 months. Each hair follicle is independent of each other and can be in different phases. The hair follicle may enter the catagen phase and then the telogen phase with various factors[2].

Telogen effluvium (TE) has been defined as a condition characterized by widespread hair loss that occurs approximately 3-4 months after a stressor factor[3]. This condition, which is one of the common causes of diffuse hair loss, is characterized by the loss of hair in the telogen phase. The hair follicle is completely normal, only the change cycle of the hair is disrupted. It has been shown that TE is the most common form of hair loss with systemic diseases[1].

In this article, a case who presented with the complaint of hair loss three months after COVID-19 infection is presented.

CASE REPORT

A 49-year-old female patient applied to the family medicine outpatient clinic with the complaint of hair loss. The patient stated that this hair loss has been happening for two weeks, and as she pulls her hair, hair clumps come in pieces. In the patient's history, it was learned that she was diagnosed with COVID-19 infection three months ago after complaints of fever and cough, she was treated with favipiravir, and he was not hospitalized.

In the vital signs of the patient whose general condition was good, oriented and cooperative; fever was 36.5 degrees Celsius, arterial blood pressure was 110/70 mmHg, heart rate was 90 beats/minute, respiratory rate was 18/minute, and oxygen saturation (in room air) was 97%.

There was no feature in her medical history. In the physical examination, diffuse hair loss areas were detected on the scalp, other system examinations were normal. (Figure-1,2) Hair pulling test was positive. (>50 hairs)

Figure 1. Hair thinning and decreased hair density

Figure 2. Diffuse reduction in hair density

Laboratory examination results of the patient are presented in the table.

No abnormal finding was detected in the thorax computed tomography and abdominal ultrasonography evaluation.

In the differential diagnosis of hair loss; iron deficiency anemia, thyroid dysfunction, vitamin B12 deficiency, 25-Hydroxy vitamin D deficiency, hyperprolactinemia, diabetes mellitus, folate deficiency, malignancy, hypomagnesemia, sudden weight loss, drug use were excluded as a result of anamnesis, examination, tests and imaging. TE was considered in the patient because he had a history of COVID-19 infection, which could be a stressor, 3 months ago. For this diagnosis, minoxidil 2% skin spray treatment was started on the scalp and the patient was called for control.

Table. Patient's Laboratory Examination Results	
White Blood Cell (WBC)	9.7 (4.60-10.20) K/uL
Hemoglobin	12.8 (12.20-18.10) g/dl
Mean Corpuscular Volume (MCV)	91.3 (80- 100) Fl
Lymphocyte (LYM)	2.72 (0.60-3.40) K/uL
Eosinophil (EOS)	0.35 (0.0-0.7) K/uL
Platelet (PLT)	224000 (100000-450000) K/uL
Glucose	80 (74-118) mg/dL
Sodium (Na)	140 (136-146) mmol/L
Potassium (K)	4.0 (3.5-5.1) mmol/L
Calcium (Ca)	9.6 (8 .8-10.6) mg/dL
Urea	33 (17-43) mg/dL
Creatinine	0.65 (0.67-1.17) mg/dL
D-dimer	50 (0-500)) µg FEU/L
C-reactive protein (CRP)	17.6 (0-5) mg/dL
Iron (Fe)	107 (37-158) µg/dL
Ferritin	74 (4.63-204)) ug/L
Thyroid Stimulating Hormone (TSH)	2.18 (0.35-4.94) uIU/mL
Free T4	1.03 (0.7-1.48) ng/dL
Vitamin B12	380 (187-883) pg/mL
25-Hydroxy vitamin D	35.2 ng/mL
Magnesium	2.4 (1.9-2.5) mg/dL
Prolactin	12.06 (1.2) -29.93) ng/mL
CA 125	6 (0-35) U/ml
CA 15-3	4 (0-31.3) U/ml
CA 19-9	7 (0-37) U/ml
HgA1c	4.7 (4-6) % NGSP
Folate	5.9 (3.1-20.5) ng/mL

DISCUSSION

TE was first reported by Kligman in 1961, it was defined as a non-cicatricial alopecia disease characterized by the simultaneous loss of many telogen hairs. TE is seen on the entire scalp and manifests as a sudden increase in hair loss[3]. The onset and progression of hair loss is rapid, and the hair pull test is usually positive[4].

It has been stated that TE is usually seen as an indicator

of an underlying condition and usually 3-4 months after the triggering factors. It has been shown to date that many bacterial and viral diseases can cause TE. However, it has not been revealed exactly how these factors change the biorhythm of the hair[5].

Studies have reported that TE occurs after dengue virus and Rickettsia conorii infection[6,7]. Xiong et al. stated in their study that hair loss developed after SARS-CoV-2 infection[8]. Moreno-Arrones et al. showed that they included 214 patients with acute TE in their prospective study and that 191 (89.7%) of these patients had a previously confirmed SARS-CoV-2 infection[9]. Lv et al. stated in their case report that a 38-year-old female patient had a diagnosis of TE and that one of the factors that could lead to this situation was SARS-CoV-2 infection[5]. In current case, the detection of TE 3 months after COVID-19 infection suggests that the likely cause may be SARS-CoV-2.

Studies have reported that people with severe COVID-19 have higher levels of proinflammatory cytokines, which may be associated with a higher risk of TE. Jose et al. stated that the coagulation cascade was activated in response to COVID-19 infection, and the concentration of anticoagulant protein decreased due to decreased production and increased consumption[10]. Olds et al. reported that these factors may lead to the formation of microthrombus, which may prevent the feeding of the hair follicle. The presence of microthrombus formation and high levels of proinflammatory cytokines have been presented as two possible mechanisms to explain how SARS-CoV-2 infection may trigger TE[11].

Lv et al. stated that the COVID-19 pandemic creates various negative effects on people's social life, causes stress, anxiety and depression, and that some of these effects may pave the way for the emergence of TE[5].

It has been reported that the basis of the treatment of TE is to eliminate the underlying causes and stressor factors[11]. Although minoxidil is used in the treatment of most cases in the literature, the effectiveness of this treatment has not been fully demonstrated[12].

In this case report, it is emphasized that TE can be seen after COVID-19 infection, and systemic interrogation should be done in control examinations after COVID-19. Future studies and case series will contribute to clarify the relationship between COVID-19 and TE.

Informed consent was taken from the patient.

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Author Contributions

Concept – EE, MRA; Design – EE, MRA ; Supervision – EE, MRA ; Resource – EE, MRA ; Materials – EE, MRA ; Data Collection and/or Processing – EE, MRA ; Analysis and/or Interpretation – EE, MRA ; Literature Search – EE, MRA ; Writing – EE, MRA ; Critical Reviews – EE, MRA .

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