

Telogen Effluvium as Sequela of COVID-19 in Patients from Central India: A Retrospective Observational Study

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Abstract

Introduction: Corona virus disease has several dermatological symptoms. Telogen effluvium is one of them. The present study presents a case series of post COVID Telogen effluvium from Central India region.

Material and Method: This retrospective observational study included 72 patients (61 females & 11males), aged 29 to 62 years (median 49 yrs). The patient's demography, history of hair fall, signs and symptoms, co morbidities and the treatment received for COVID-19 infection, Psychological perceived stress score, triggering factors for Telogen effluvium, Vitamin B12, Vitamin D and Ferritin levels were recorded & analysed.

Result: The included patients were suffering from at least one co morbidity. Thirty patients had severe COVID-19 infection and were hospitalized. Psychological perceived stress score was low (12) in two, moderate (16-24) in twenty and high (29-38) in fifty patients. Vitamin B12 was low in twelve and Ferritin in ten patients. Seventy patients (97.2%) had positive hair pull test and 69 (95.8 %) had diffuse loss of hair.

Discussion: Post covid Telogen effluvium was seen generally in females, and in middle aged. Most, 70/72 had moderate to severe psychological stress, Psychological perceived stress score was more than 16. Patients reported 2.2 to 6 months (median 3.5 months) after COVID-19 infection. Most 69 (95.8%) had diffuse hair loss. Post Covid patients may have several triggering factors for Telogen effluvium like psychological stress, nutritional deficiency or the drugs (heparin).

Conclusion: Post Covid Telogen effluvium could be triggered by psychological stress, nutritional deficiencies (Vitamin B12, Iron) or drugs (heparin). Such cases could be managed by identification of triggering factors, proper counselling, high protein diet with vitamin supplementation.

Keywords: Telogen effluvium, COVID 19

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Introduction

Corona Virus Disease 2019 (COVID-19) presents with mild to severe signs & symptoms in the patients, some of which can be life threatening like pulmonary and

cardiovascular thrombosis. [1] Studies have described numerous early & late dermatological signs and symptoms. [2] One such is late dermatological sequel of

Covid 19 infection is Telogen effluvium (TE). It is one of the most common causes for hair loss in females. [3] It presents as nonscarring alopecia, abnormal change in follicular cycle, diffuse synchronisation and shedding of Telogen hairs. Normally less than 50% hairs are involved. [3]

Significant systemic stress may trigger TE and cause premature follicular transition from active growth phase (anagen) to the resting phase (telogen). Telogen generally lasts for 3 months after which excessive hair loss takes place. [4]

This retrospective observational study presents a case series on Telogen effluvium (TE), a late dermatological sequel of Covid 19 infection from central India region.

Materials and method

This is retrospective observational study included 72 patients (61 females & 11 males) in age range of 29 to 62 years (median 49 years) presenting with recent onset alopecia following SARS-COVID 19 infection, who did not have any previous history of hair fall and presented at Department of Dermatology, Pacific Institute of Medical Science, Udaipur and Luminosity skin clinic, Bhopal during the period 1st April 2021 to 30th September 2021.

The patient's demographic characteristics, history of hair fall, signs and symptoms, co morbidities and treatment received for COVID 19 infection, Psychological perceived stress score, triggering factors for Telogen effluvium, Vitamin B12, Vitamin D and Ferritin levels were recorded & analysed.

Parameters assessed:

1. Psychological stress – assessed by Perceived Stress scale (PSS) .⁴ The

Scoring were noted as low (0-13), moderate (14-26) and high (27-40).

2. Vitamin B12 - 187-883 pg/ml was taken as normal range
3. Vitamin D level < 30 ng/ml was considered low
4. Ferritin levels - 20-250ng/ml in males & 10-120 ng/ml in female were taken as normal range
5. TE – was diagnosed by clinical evaluation & hair pull method.
6. Medication management for COVID 19 infection was also analysed.

Statistical analysis

The recorded data was put in excel & analysed.

Results

There were 11 males with M: F (1:5.5) ratio, aged between 29-62 years (median 49 yrs), Twenty-four (33%) were more than 50 years of age. (Table 1) Nine (12.5%) patients were smokers. All had one or more co morbidities (Table 2).

All the patients were detected positive for Covid 19 RT PCR out of which 48 patients (66%) were hospitalized. The treatment received for COVID 19 infection is shown in Table 3.

Two patients had low PSS score (12), twenty had moderate PSS scores (16-24) & fifty had high score (29-38) (Table 4). Vitamin B12 score was low in 2 patients (Table 4). Vitamin D was in normal range in all the patients. Ferritin was low in 10 patients (Table 4).

None of the patient had history of hair loss and 70 patients (97.2%) had positive hair pull test. Sixty-nine patients had diffuse loss of hair while rest three had patchy hair loss. Duration to report to dermatology clinic after COVID -19 infection varied 2.2 to 6 months with median of 3.5 months (Table 5)

Table 1: Demographic Characteristics

Demographic Characteristics	Values
Age in years(range)	49(29-62) yrs
Age> 50yrs (%)	24/72(33%)
M:F	11:61
Smoker	9/72(12.5%)

Table 2: Medical Comorbidities

Comorbidities	N (%)
Diabetes Mellitus	24(33.33%)
Dyslipidaemia	29(40%)
PCOD	5(6.9%)
Obesity	20(27.7%)
Hypothyroid	10(13.8%)

Table 3: Medical Management of COVID -19 infection

Management	N (%)
Hospitalization	48(66.6%)
Azithromycin	22(30.5%)
Doxycycline	50(69.4%)
Favipiravir	72(100%)
Hydroxychloroquine	10(13.8%)
Steroids	72(100%)
Antibodies	14(19.4%)
Remdesivir	48(66.6%)
Heparin	48(66.6%)

Table 4: PSS, Vit B12, Vit D and Ferritin level

	Values	N (%)
PSS Score		
Low	0-13	2(2.7%)
Moderate	14-24	20(27.7%)
High	29-38	50(69.4%)
Vitamin B12	<187pg/ml	12(16.6%)
Vitamin D	<30ng/ml	0
Ferritin	<20 ng/mL	10(13.8%)

Table 5: Other Recorded Parameters

Global loss of hair volume	69(95.8%)
Time after COVID -19 to derma Clinic	3.5 (2.2 to 6) months
Positive Hair pull test	70(97.2%)
Patchy areas of hair loss	3(4%)
Complaint of hair loss	72(100%)
Medicated Shampoo Use	8(11.11%)
History of hair loss	0
Hair Dye	6(8.3%)
Other Cosmetic hair treatment	1(1.3%)



Fig.1. Diffuse hair loss in 45 years female



Fig.2 Diffuse hair loss in 40 years male



Fig.3 Diffuse hair loss in 53 years female



Fig.4. Diffuse hair loss in 42 years male

Discussion

There were more female patients than male. This is generally expected and was also reported by previous studies. [5,6] Most patients were middle aged with only twenty four patients above 50 years and youngest was 29 years old female. Most of the patients 70/72 had moderate to severe degree of stress PSS score >16. During COVID 19 pandemic there were lot of movement restrictions and lockdown. It had significant negative psychological and economical effects. Anxiety, anger, depression and exhaustion were reported commonly. [7] Psychological stress release various neurotransmitter, neuropeptide and hormones which has effect on hair growth cycle and shifts anagen phase to telogen phase. [8] Thus stress following Covid 19 could be triggering event which generally resolves after 6-12 months.

Several triggering factors have been described including drugs (heparin, vitamin A, anti-depressant), nutritional

deficiency (Vitamin D, Vitamin B12, Iron), autoimmunity, postpartum, infection, trauma, physical or emotional stress. [9] Twelve of our patients had Vitamin B12 deficiency. [10] Ten patients had low ferritin level (<20ng/ml). Low ferritin levels in hair follicle could weaken the hair and lead to hair loss. Iron deficiencies, if any, were corrected. All patients had one or more comorbidities. Most common comorbidities were dyslipidemia, diabetes mellitus and obesity. It is also known fact that reduced physical activities during COVID 19 pandemic and use of steroids for the treatment of COVID 19 infection also contribute or worsen these co morbidities. Many of our patients received low molecular weight heparin 48/72(66%), when hospitalised for treatment of covid-19 infection.

Most of our patients had moderate to severe COVID 19 infections as 48 patients (66%) required hospitalization. All the patients received Favipravir and steroids

while 30 patients received Injection Remdesivir.

TE generally happens 2-4 months after the initial triggering factor and resolves approximately 6-12 months after the activating factor is eliminated [3]. Our patients reported to dermatology clinic 2.2 to 6 months (median 3.5 months), after COVID 19 infection. This is reported in previous studies. [6]

No patient had previous history of hair loss. The diagnosis of TE was made clinically and by hair pull method. Most patients, 70/72 had positive hair pull test. Diffuse loss of hair was seen in 69/72(95.8%) compared to patchy hair loss 3/72. The therapeutic approach to TE is to identify and eliminate triggering factor (Stress, nutritional deficiencies and /or drug in our cases). Reassure the patients and educate that hair fall can continue for upto 6 months and then will slowly recover. Nutritional deficiencies if any, should be replaced. Proper counselling for diet with high protein and vitamins should be advised.

Conclusion

Post Covid Telogen effluvium is generally seen in middle aged Females. Patients present with diffuse hair loss 2 to 4 months post Covid. Numerous triggering factors for the disease are psychological stress, nutritional deficiencies (Vitamin B12, Ferritin) or drugs (heparin) The treatment is to identify and eliminate triggering factor, reassurance, proper counselling with high protein diet & vitamin supplementation.

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