Case Report
Geriatrics and Family Medicine
DOI: 110.56016/dahudermj.1201319

DAHUDER
Medical Journal
e-ISSN: 2791-9250

Sudden Hairloss and COVID-19

Hilal Heybeli[1], Ozden Gokdemir[2]

[1]*Department of Geriatrics, Ankara City Hospital, Ankara, Turkey*
[2]*Department of Family Medicine, İzmir University of Economics Faculty of Medicine, İzmir, Turkey*

ABSTRACT

A woman, 51 years old with known hypothyroidism, was admitted to the emergency service because of postoperative complaints of nausea, vomiting, and jaundice. The patient's imaging revealed pleural effusion, compression atelectasis in the right lung, and lesions compatible with type 2 hydatid cysts in the liver; therefore, PAIR (Puncture, Aspiration, Injection, Reaspiration) was planned, and she was admitted to the internal medicine service. After this, the routine COVID PCR, taken before the interventional procedure, was found positive. During the patient's follow-up, there were no indications of respiratory failure brought on by a COVID infection. Although her vitals were steady, it was noted that she had an intense headache, and frequent and severe hair loss from night to morning on the third day of hospitalisation due to a contagious infection. There are few photos about similar cases. This case also important to be recognized as a symptom/complication of COVID-19 to be managed.

Keywords: COVID-19, sudden hair-loss, symptom

A common type of hair loss known as telogen effluvium (TE) is defined by diffuse hair shedding and is brought on by the hair's early transition into the telogen phase. Triggering factors include systemic chronic conditions, stressors, treatments, dietary deficiencies, and surgical intervention. Hair loss begins 3 months after the triggering event and typically lasts for six months (acute TE). When the time frame for hair loss exceeds 6 months, there is also a chronic form of TE.[1] Wise recently reported that *"The cohort consisted of 486 149 confirmed SARS-CoV-2 infected individuals who were not hospitalised, matched with a control group of 1.9 million individuals who had no known coronavirus infection. Twelve weeks after their initial SARS-CoV-2 infection, those who tested positive for the virus reported at least one of 62 symptoms more frequently than those who had not. Anosmia (6.49 (95% confidence interval 5.02 to 8.39), hair loss (3.99 (3.63 to 4.39), sneezing (2.77 (1.40 to 5.50), ejaculation difficulty (2.63 (1.61 to 4.28), decreased libido (2.36 (1.61 to 3.47), and shortness of breath (2.20 (1.57 to 3.08) were the symptoms with the highest adjusted hazard ratios. A hoarse voice, fever, and chest pain were additional typical symptoms".*[2] In Turkey, Aksoy *et al* also revealed that in 3 months duration "COVID-19 associated TE (CATE)" was an average of 53.76 (± 23.772) days after COVID-19 RT-PCR positivity. In this study, the three risk factors for CATE were: being a woman, being diagnosed with hypertension, and having respiratory symptoms during COVID-19.[3]

Received: *November 9, 2022;* ***Accepted:*** *January 8, 2023;* ***Published Online:*** *January 29, 2023*

How to cite this article: *Heybeli H., Gokdemir O. Sudden Hairloss and COVID-19. DAHUDER M J 2023,3(1):26-31. DOI: 10.56016/dahudermj.1201319*

Address for correspondence: *Ozden GOKDEMİR, M.D., Department of Family Medicine, İzmir University of Economics Faculty of Medicine, İzmir, Turkey. E-mail: gokdemirozden@gmail.com*

Table 1.

	April 08.2021	April 26.2021
HGB: Hemoglobin(g/dl)	9,4 (12-15,6)	9,2
HCT: Hematocrit(%)	30,7 (35,5-45,5)	31,6
WBC: White Blood Cell (µ/mm^3)	3600(3900-10200)	5290
Ne: Neutrophil (10^3/mm^3)	2330 (1500-7700)	2440
LY: Lymphocyte (10^3/mm^3)	890 (1100-4500)	1940
PLT: Platelet (%)	409000 (150000-400000)	364000
Glucose (mg/dl)	134 (70-99)	143
HbA1c(%)	5,4 (10.04.2021)	
Urea (mg/dl)	9 (19-49)	17
Creatinine (mg/dl)	0,43 (0,5-1,1)	0,57
eGFR(ml/min/1.73m^2)	120 (> 90)	109
t.protein (g/l)	69 (57-82)	65
Albümin (g/l)	37 (32-48)	35
CK (U/L)	34 (33-211)	22
AST (U/L)	827 (< 35)	270
ALT (U/L)	721 (< 50)	232
ALP (U/L)	166 (42-98)	153
GGT (U/L)	141 (< 38)	220
LDH (U/L)	318 (120-246)	251
Amylase (U/L)	59 (30-118)	53
Lipase (U/L)	50 (12-53)	47
Total bilirubin (mg/dl)	12,6 (0,3-1,2)	1,8
Direct bilirubin (mg/dl)	8,4 (< 0,3)	1,3
Calcium (mg/dl)	9,2 (8,7-10,4)	9,3
Magnesium (mg/dl)	1,8 (1,3-2,7)	1,7
Phosphorus (mg/dl)	3,5 (2,4-5,1)	4,8
Sodium (mEq/L)	137 (132-146)	138
Potasium (mEq/L)	4,4 (3,5-5,5)	4,2
Procalsitonine (µg/L)	0,47 (< 0,16)	0,13
CRP (g/L)	0,01 (0-0,005)	0,00
Covid-19 reverse transkriptaz PCR	Positive (April 09.2021)	
PT (sn)	12,4 (9,8-14)	11,5
Protrombin activity (%)	85,5 (70-130)	109
INR	1,1 (0,8-1,2)	1
Aptt (sn)	24 (21-32)	24,2
Fibrinogen (g/L)	1,9 (1,7-4,2)	3,41
d-dimer (mg/L)	1,14 (< 0,55)	0,41
Free T4 (ng/dl)	1,13 (0,89-1,76)	
TSH (mU/L)	4,61 (0,55-4,78)	
Ferritin (µg/L)	1264 (10-291)	107
Sedimentation (ESR) (mm/hour)	39 (0-20)	
Pheripheric smear	Leukocyte compatible, leukopenic, hypochromic, atypical cells absent, anisopoikikilocytosis, platellet compatible is the formula.	
HbsAg	0,1 (negative) (0-0,99)	
AntiHbs	< 3,1 (negative) (0-10)	
AntiHCV	0,05 (negative) (0-0,8)	
AntiHIV	0,05 (non reactive) (0-0,999)	
IL-6 (pg/ml)	7,4 (0-4,4)	
Troponine I H (ng/L)	< 2,5 (< 45)	
Miyoglobine (µg/L)	21 (<110)	
Haptoglobine (g/L)	0,843 (0,3-2)	

Fig. 1. The amount of hair loss till morning

CASE REPORT

Our case is a 51-year-old with known hypothyroidism (the only drug she uses regularly is levothyroxine 100 mcg for 4 days, 75 mcg for 3 days) and liver cyst hydatid (she was treated with albendazole 3 weeks earlier, but this discontinued due to gastrointestinal symptoms and intolerance 1.5 months ago). The operated patient applied to the emergency department with complaints of nausea, vomiting, and jaundice. PAIR (Puncture, Aspiration, Injection, Reaspiration) was planned after the patient's imaging revealed pleural effusion, compression atelectasis in the right lung, and lesions compatible with type 2 hydatid cysts in the liver, and she was admitted to the internal medicine service.

She was admitted to the COVID service non-symptomatically in terms of COVID on April 10, 2021, after a positive result was found for the routine COVID PCR taken before the interventional procedure During the patient's follow-up, no indications of respiratory failure brought on by a COVID infection were seen. Her vitals remained steady (the labaratuary results are shown in Table 1). An intense headache, frequent, and severe hair loss from night to morning were noted on the third day of the patient's hospitalisation due to a contagious infection. (Figs. 1, 2, 3 and 4) After ruling out other potential causes, and the possibility of a e COVID infection causing telogen effluvium was considered (for example, through vitamin deficiencies). A dermatologist was consulted, and further testing was advised. The patient provided her fully informed consent.

DISCUSSION

Not only in Turkey, but across all countries, whether developed or not, it is confirmed that COVID-19 cases represent a challenge among the whole population range. A limitation of the study is the use of routinely coded healthcare data, which may understate the true burden of symptoms endured by people with long COVID. Due to the extremely limited community testing for SARS-CoV-2 during the pandemic's initial surge, there is also the possibility of classification bias. [2]

As COVID 19, in December 2019, the ongoing COVID-19 pandemic added to these difficulties.

Fig. 2. **The inspection for the first day of sudden hairloss**

Fig. 3. **Inspection of scalp (left side)**

As a result, it must be presumed that every patient admitted has come into contact with COVID-19, whether child or adult. 4 According to D'Amico and colleagues' research, between 2% and 50% of patients with COVID-19 have diarrhea. Protein is used by COVID-19, ACE2 (angiotensin-converting enzyme 2), and TMPRSS2 (a serine protease)., It is known that ACE2, and the small intestine and the lungs both contain, the epithelium also expresses it. ACE2 is expressed in the upper portions of the oesophagus and the large intestine. [5] Low frequencies of skin conditions were reported in the early studies from COVID-19 patients in Central China. Only 0.2% of the 1099 confirmed cases in Wuhan had cutaneous symptoms. The fight against the most recent outbreaks of the pandemic has increased dermatologist involvement, and interest in the cutaneous symptoms of SARS-CoV-2 infection. [6] An example is the effort to understand "hair loss", and alopecia and COVID-19 tract. Androgens are involved in COVID-19 through a variety of pathways. Cellular coreceptor androgen-regulated TMPRSS2 protease is necessary for SARS-CoV-2 infection, as this enzyme primes the viral spike protein. [7] Given that androgens suppress the immune system, another connection is the androgen-driven immune modulation. Males predominate among adult COVID-19 patients, in fact. [8] Geographic COVID-19 distribution may be determined by genetic factors. 3-hydroxysteroid dehydrogenase-1, which is responsible for converting dehydroepiandrosterone into active and potent androgens, is encoded by the HSD3B1 gene's adrenal-permissive phenotype. According to the 1000 Genomes Project, the populations of Italy and Spain have the highest frequencies of the HSD3B1 allele. [9] These differences may be responsible for "hairloss" being observed in some cases but not others. [10]

Ohyama *et al* revelaed that "…using PubMed to conduct a narrative review on the prevalence, associated comorbidities, disease characteristics, and therapies for hair loss following SARS-CoV-2 infection (HLASCI). 28 articles were found using two search strings. It should be noted that the majority of the literature found on COVID-19 sequelae mentioned the emergence or occurrence of hair loss. The onset or exacerbation of telogen effluvium (TE), anagen effluvium, androgenetic alopecia (AGA), and alopecia areata (AA) have all been reported as potential underlying mechanisms for HLASCI, which is thought to consist of a heterogeneous population. Acute TE is one of these and is thought to be the main contributor to HLASCI, with COVID-19 therapy and TE improvement being important for

Fig. 4. Inspection of scalp (right side)

HLASCI management. It has also been suggested that COVID-19 and AA exacerbation are related.". 11

CONCLUSION

In conclusion, COVID-19 may be linked to CATE and other types of alopecia. Because COVID-19 hair loss typically begins a few months after infection, SARS-CoV2 may occasionally be incorrectly identified as the cause. Patients may experience excessive anxiety as a result of this misdiagnosis and may undergo unnecessary tests or treatments. It is important that the COVID-19 spectrum that affects the hair is clearly understood by physicians.

Authors' Contribution

Study Conception: OG, HH,; Study Design: OG, HH,; Supervision: OG,; Materials: HH,; Data Collection and/or Processing: HH,; Statistical Analysis and/or Data Interpretation: OG, HH,; Literature Review: OG, HH,; Manuscript Preparation: OG, HH and Critical Review: OG.

Conflict of interest

No potential conflicts of interest relevant to this article were reported.

Ethical approval statement

Patient' consent has been taken.

Acknowledgements

All the authors would like to thank Simon Mumford for English Language editing.

REFERENCES

1. Rivetti N, Barruscotti S. Management of telogen effluvium during the COVID-19 emergency: Psychological implications. Dermatol Ther. 2020;33(4):19–20.
2. Wise J. Long covid: Hair loss and sexual dysfunction are among wider symptoms, study finds. BMJ. 2022;378:o1887.
3. Aksoy H, Yıldırım UM, Ergen P, Gürel MS. COVID-19 induced telogen effluvium. Dermatol Ther. 2021;34(6):2–6.
4. Gokdemir O, Kavlakci M. Acute Diarrhea and Dehydration at Childhood During Pandemic. Turkish J Fam Med Prim Care. 2021;15(1):194–201.
5. D'Amico F, Baumgart DC, Danese S, Peyrin-Biroulet L. Diarrhea During COVID-19 Infection: Pathogenesis, Epidemiology, Prevention, and Management. Clin Gastroenterol Hepatol. 2020 Jul;18(8):1663-1672. doi: 10.1016/j.cgh.2020.04.001.
6. Wollina U, Karadağ AS, Rowland-Payne C, Chiriac A, Lotti T. Cutaneous signs in COVID-19 patients: A review. Dermatol Ther. 2020 Sep;33(5):e13549. doi: 10.1111/dth.13549.