Case Report
Olgu Sunumu

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Pityriasis lichenoides chronica following SARS-CoV-2 infection: A case report and brief report of the literature

SARS-CoV-2 enfeksiyonuyla tetiklenen pitriyazis likenoides kronika: Bir olgu sunumu ve literatürün gözden geçirilmesi

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Abstract

Severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) is a newly identified type of coronavirus that causes coronavirus disease-2019 (COVID-19) and has been associated with numerous skin manifestations. Although COVID-19 primarily affects the respiratory system, it can also involve many systems, such as the cardiovascular, gastrointestinal, and urogenital systems, in the course of the disease. Skin findings can be observed frequently in the course of the disease. Pityriasis lichenoides (PL) is an inflammatory skin disease that includes pityriasis lichenoides et varioliformis acuta (PLEVA) and pityriasis lichenoides chronica (PLC). PLEVA is characterized by erythematous papules, vesicles, ulcers, and hemorrhagic crust formation, which can be observed in the lesions over time. PLC is characterized by red-brown papules and plaques with mica-like scales. Extrinsic antigens such as drugs, infections, and vaccines can trigger the immune system and cause disease development. In addition, immune complex-mediated hypersensitivity reactions due to etiological factors and clonal T-lymphocyte proliferation are also involved in the etiopathogenesis of the disease. Viral infectious agents in etiology include Epstein-Barr virus, cytomegalovirus, varicella-zoster virus, and parvovirus-B19. SARS-CoV-2 may play an important role in the etiopathogenesis of dermatological diseases. Although the apparent relationship between PL and SARS-CoV-2 is not fully understood, cases of SARS-CoV-2-triggered PL have been reported. This case report presents a rare case of PLC triggered by SARS-CoV-2 infection.
Keywords: COVID-19, pityriasis lichenoides chronica, SARS-CoV-2

Öz

Şiddetli akut solunum yolu sendromu-koronavirüs-2 (SARS-CoV-2), koronavirüs hastalığı-2019'a (COVID-19) neden olan ve çok sayıda deri bulgusuyla ilişkilendirilmiş yeni tanımlanmış bir koronavirüs tipidir. COVID-19, primer olarak solunum sistemini etkilemekle birlikte hastalık seyrinde kardiyovasküler, gastrointestinal, ürogenital sistem gibi çok sayıda sistemin tutulumu da olabilmektedir. Deri bulguları hastalığın seyrinde sık olarak saptanabilmektedir. Pitriyazis likenoides (PL), pitriyazis likenoides varioliformis akuta (PLEVA) ve pitriyazis likenoides kronika (PLK) hastalıklarını içeren enflamatuvar bir deri hastalığıdır. PLEVA, eritemli papüllerle karakterizedir, lezyonlarda zamanla vezikül, ülser, hemorajik krut oluşumu gözlenebilmektedir. PLK, mika benzeri skuamların gözlendiği kırmızı-kahverengi papül ve plaklarla karakterize olur. İlaçlar, enfeksiyonlar, aşılar gibi ekstrensek antijenler immün sistemi tetikleyip hastalığın gelişimine neden olabilmektedir. Ek olarak, etiyolojik faktörlere bağlı gelişen immün kompleks aracılıklı hipersensitivite reaksiyonu ve klonal T-lenfosit proliferasyonu da hastalığın etiyopatogenezinde yer almaktadır. Etiyolojideki viral enfeksiyöz ajanlar arasında Epstein-Barr virüsü, sitomegalovirüs, varisella-zoster virüs, parvovirüs-B19 yer almaktadır. SARS-CoV-2'de dermatolojik hastalıklarının etiyopatogenezinde önemli rol oynayabilmektedir. PL ile SARS-CoV-2 arasındaki net ilişki tam olarak anlaşılamamış olsa da SARS-CoV-2 ile tetiklenmiş PL olguları bildirilmiştir. Bu olgu sunumunda SARS-CoV-2 enfeksiyonu ile tetiklenen nadir bir PLK olgusu sunulmuştur.
Anahtar Kelimeler: COVID-19, pitriyazis likenoides kronika, SARS-CoV-2

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Introduction

Severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) is a coronavirus type associated with coronavirus disease-2019 (COVID-19) and may have a range of clinical symptoms. One of the most common manifestations of COVID-19 is skin lesions. Maculopapular, urticarial, vesicular, and chilblain-like skin findings can be observed during COVID-19[1,2]. Here, we present a man who got pityriasis lichenoides chronica (PLC) following SARS-CoV-2 infection.

Case Report

An 80-year-old man presented to our clinic due to pruritic rashes on his arms and legs with a 15-day history. His past medical history revealed he had hypertension and hyperlipidemia but no dermatological disease. The patient stated that he had a positive nasopharyngeal swab for SARS-CoV-2 polymerase chain reaction twenty days earlier. The patient's symptoms started with fever, sore throat, and myalgia; he was treated with hydroxychloroquine at home without hospitalization. Pruritic skin lesions appeared on his arms and legs five days after the COVID-19 diagnosis, and he was referred to our dermatology outpatient clinic after recovering from COVID-19. He reported that he applied only a topical emollient to lesions, which was ineffective. Dermatological examinations revealed scaly erythematous papules and plaques on the extremities (Figure 1). There were no signs of mucosa, scalp, or nail involvement. Histopathological examination of the erythematous papule on the arm revealed hyperkeratosis, acanthosis, and necrotic keratinocytes in the basal layer of the epidermis, perivascular lymphocytic infiltration in the dermis, confirming the diagnosis of PLC (Figure 2). The results of the complete blood count, liver/kidney function tests, and acute phase reactants were all within normal limits. Based on the timing of lesions, clinical examination, and histopathological analysis, the patient was diagnosed with PLC secondary to SARS-CoV-2 infection. The lesions were regressed in the first week after treatment with oral prednisolone (0.5 mg/kg/day) and clobetasol propionate ointment. Informed consent was obtained.

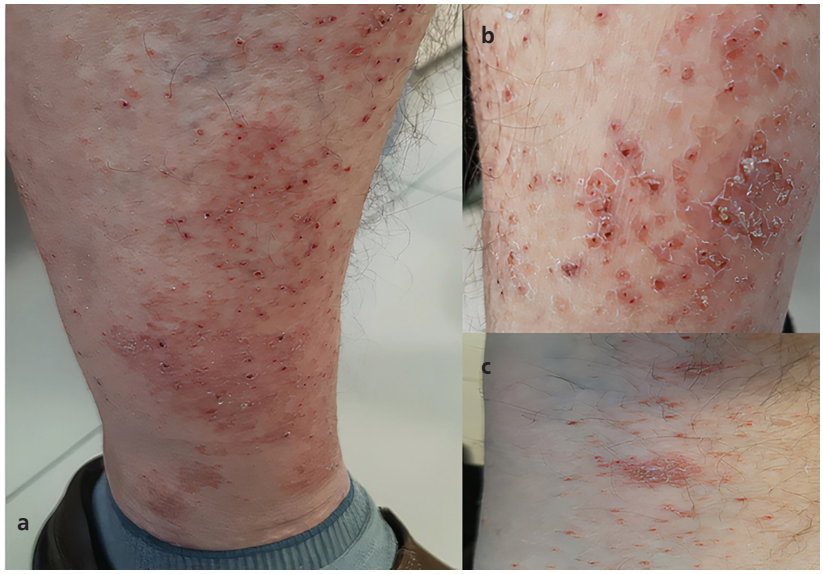

Figure 1. Clinical images **(a-c)** scaly erythematous papules and plaques on the legs

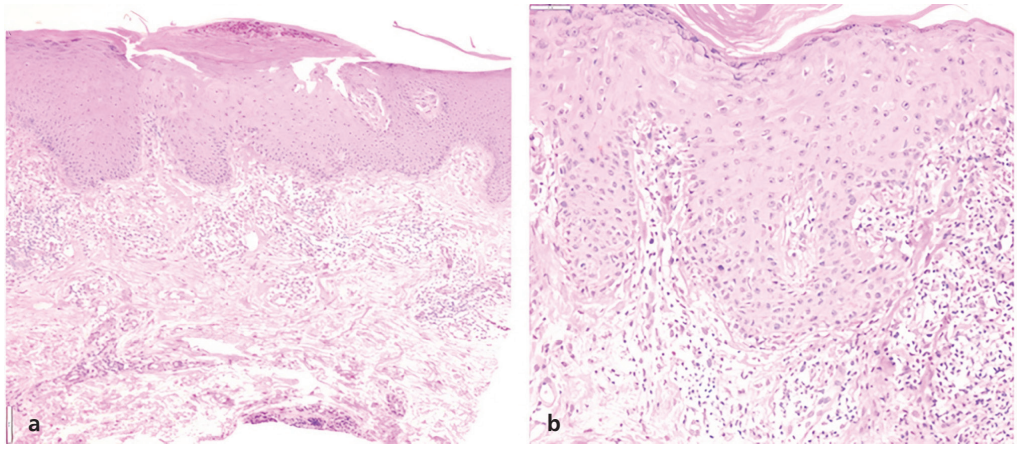

Figure 2. Histopathological images **(a, b)** hyperkeratosis, acanthosis, and necrotic keratinocytes in the basal layer of the epidermis, perivascular lymphocytic infiltration in the dermis (hematoxylin and eosin, x100 - x200)

Discussion

Pityriasis lichenoides (PL) refers to inflammatory skin diseases that include pityriasis lichenoides et varioliformis acuta (PLEVA) and PLC. PLEVA causes erythematous papules that progress into vesicles, ulcers, and hemorrhagic crust, whereas PLC causes red to brown erythematous papules with mica-like scales on the lesions. Extrinsic antigens, such as drugs, infections, and vaccines, can trigger an immune response important in PL pathogenesis. Additionally, etiological factors may have a role in the pathogenesis of PL by inducing immune complex-related hypersensitivity reactions and clonal T-cell proliferation[3].

SARS-CoV-2 can be a significant factor in the pathogenesis of dermatological disorders[2]. Although the etiology of the link between PL and SARS-CoV-2 is still unknown, SARS-CoV-2-induced PL cases have recently been reported (Table 1)[4,5,8,9]. Gianotti et al.[4] described 10 pediatric cases with PLEVA-like eruption after COVID-19 and performed an immunohistochemistry investigation on the skin biopsy with the nucleocapsid antibody of SARS-CoV-2 to detect the disease-SARS-CoV-2 connection. Mäkilä et al.[5] reported a 21-year-old woman who got PLEVA following COVID-19 and relapsed after the second dose of COVID-19 vaccination. Furthermore, the roles of SARS-CoV-2 vaccines in the etiology of PL have been discussed. Immune dysregulation caused by viral components and adjuvants of the vaccines can play a role in the pathogenesis of the disease[6]. Sechi et al.[7] presented a 70-year-old man with acute lymphocytic leukemia who developed PLEVA after the Pfizer-BioNTech vaccine.

Recently, Durusu et al.[8] described a 42-year-old patient who had PLC 10 days after SARS-CoV-2 infection, similar to our case. To the best of our knowledge, our patient is one of the rare SARS-CoV-2-induced PLC cases in the literature. Future reports can help us detect the relationship between PLC and COVID-19.

Table 1. SARS-CoV-2 induced new onset pityriasis lichenoides cases in the literature

Case	Age-sex	Clinical presentation	New-onset disease	Localization	SARS-CoV-2 PCR	H & E staining	Treatment	Outcome
Gianotti et al.[4]	14-F	PLEVA-like	+	Trunk, limbs	-	+	NA	Improvement
Gianotti et al.[4]	7-F	PLEVA-like	+	Trunk, limbs	-	+	NA	Improvement
Gianotti et al.[4]	10-M	PLEVA-like	+	Trunk, limbs, and palm	-	+	NA	Improvement
Gianotti et al.[4]	14-M	PLEVA-like	+	Trunk	NP	+	NA	Improvement
Gianotti et al.[4]	6-M	PLEVA-like	+	Trunk, limbs	+	+	NA	Improvement
Gianotti et al.[4]	13-M	PLEVA-like	+	Trunk, limbs	+	NP	NA	Improvement
Gianotti et al.[4]	9-M	PLEVA-like	+	Trunk, limbs	NP	+	NA	Improvement
Gianotti et al.[4]	5-M	PLEVA-like	+	Groin, limbs	+	NP	NA	Improvement
Gianotti et al.[4]	13-M	PLEVA-like	+	Trunk, limbs	-	+	NA	Improvement
Gianotti et al.[4]	11-M	PLEVA-like	+	Trunk, limbs	-	+	NA	Improvement
Mäkilä et al.[5]	21-F	PLEVA	+*	Trunk, limbs	+	+	TCS, OCS, nbUVB	Improvement
Durusu et al.[8]	42-F	PLC	+	Trunk, limbs	+	+	DCN, TCS, nbUVB	Improvement
De La Garza et al.[9]	40-F	PLEVA	+	Trunk, limbs, face	+	+	TCS, AZN	Improvement
Current case	80-M	PLC	+	Limbs	+	+	TCS, OCS	Improvement

*New-onset disease after SARS-CoV-2 infection, and flared up after SARS-CoV-2 vaccine (Pfizer-BioNTech), H & E: Hematoxylin and eosin, F: Female, M: Male, PLEVA: Pityriasis lichenoides et varioliformis acuta, PLC: Pityriasis lichenoides chronica, NP: Not performed, NA: Not available, TCS: Topical corticosteroid, OCS: Oral corticosteroid, nbUVB: Narrowband UVB, DCN: Doxycycline, AZN: Azithromycin

Ethics

Informed Consent: It was obtained.

Footnotes

Authorship Contributions

Surgical and Medical Practices: Y.C.E., F.S.G., N.İ., Concept: Y.C.E., N.İ., Design: Y.C.E., N.İ., Data Collection or Processing: Y.C.E., F.S.G., N.İ., Analysis or Interpretation: Y.C.E., F.S.G., N.İ., Literature Search: Y.C.E., N.İ., Writing: Y.C.E., N.İ.

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