

Urticaria as the First Presentation of COVID-19 Infection

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Introduction

Although, coronavirus disease 2019 (COVID-19) is often known as an agent that affects the respiratory system, skin rash may be only symptom in some of cases. The rashes may present in various forms, at any part of the body, and at different stages of viral disease. Skin rashes in form of small, itchy red eruptions, particularly affect the extremities and extensors areas and may

be early onset or last long time [1].

Case Presentation

A 50-year-old woman referred to emergency ward because of severe muscle pain, fatigue, skin rash and pruritus, concomitantly, from one week ago. She had no history of fever, allergic reactions, new drug consumption, heavy exercise, trauma, any co-morbidity or recent vaccination (including COVID-19 vaccine). In physical examinations, vital signs were stable and scattered skin rashes, resembling urticaria, particularly in arms and acral parts, accompanied with muscle tenderness were found. Because of pruritus, some lesions were impetiginized. Examination of other organs was unremarkable. Laboratory findings revealed increased levels of CPK, Aldolase, ALT, AST, ESR and white blood cells count (2611, 36, 77, 131 U/L and 65 mm/hr, 10200/ μ l, respectively), while serum creatinine, urine analysis and blood count were normal (Table-1). Covid-19 antibody assay showed high IGM level and PCR test of nasopharyngeal secretions was also positive for Covid-19. X-ray (including chest CT scan) and sonographic findings were unremarkable. A punch biopsy of arm rash

Table 1. Laboratory Findings

Lab tests	values
AST	131 U/L
ALT	77 U/L
Aldolase	36 U/L
BUN	12 mg/dl
CPK	2611 U/L
CRP	2 mg/l
Creatinine	0.9 mg/dl
GFR	100 ml/min
Hemoglobin	14.1 g/dl
ESR	65 mm/hr
HBSAG	negative
HCVAB	negative
HIVAB	negative
U/A	normal
WBC	10200/ μ l
Lymphocytes	20%
Eosinophil	3%
Platelets	387000/ μ l

showed mild superficial and deep lymphocytic infiltration, compatible with common urticaria.

Discussion

At first, this case with myalgia, skin rash, high ESR and muscle enzyme levels without fever brought this idea to our minds that we may be encountered with a connective tissue disease or vasculitis for example polymyositis-dermatomyositis. We didn't find heliotrope rash or any rash on her face but there was severe muscle tenderness in all extremities. Laboratory tests revealed no rhabdomyolysis or myoglobinuria and renal function was normal. In addition, common urticaria, allergy, drug eruptions and viral infections particularly regarding to rising titer of liver and muscle enzymes were considered in differential diagnosis. As, patient was otherwise healthy

and didn't take any medication the diagnosis of drug induced rashes was excluded. Hepatitis B, C and HIV infections were ruled out by specific tests. At the next step, COVID-19 antibodies and nasopharyngeal swab test for COVID-19 RNA amplification were requested that resulted positive (high IGM level). On the other hand, histologic examination of skin rash revealed mild superficial and deep lymphocytic infiltration, compatible with common urticaria. Finally, Covid-19 infection was confirmed as the cause of patient's symptoms.

In literature, COVID-19 may show various cutaneous manifestations including: maculopapular exanthema, papulovesicular rash, urticaria, painful acral red purple papules, livedo reticularis lesions and petechiae, predominantly in trunk and with less

prevalence in acral parts [1]. Skin lesions may present before the onset of respiratory symptoms or as the first or only symptom of the disease (17% and 21%, respectively). However, there is no correlation between disease severity and cutaneous involvement. There are some theories for explanation of skin lesions including: virus particle induced vasculitis, immune complex mediated vasculitis and Langerhans cell activation following immune complex mediated cytokine release resulting in vasodilation [1,2,3,4].

Conclusion

Many viral infections including COVID-19 can affect the skin and it is important to know that skin involvement may be the first or only symptom of the disease. Self-isolation and conservative therapy with acetaminophen and anti-histamines were recommended for this patient. In follow-up examinations, 10 days later, all enzyme and ESR levels decreased to near normal and patient declared relative symptomatic relief.

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