

# Coronavirus Presenting With an Urticarial Rash: A Case Report and Literature Review

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**Abstract** In December 2019 reports from Wuhan showed the emergence of a form of acute respiratory illness caused by a new strain of coronavirus subsequently named Severe acute respiratory distress syndrome coronavirus 2 (SARS CoV-2, 2019-nCoV) due to its close homology (80%) to SARS COV, responsible for a series of Acute Respiratory Distress syndrome between 2002–2003. Since the onset of the pandemic there has been an interest in the cutaneous manifestations of the viral infection. A 35 year old staff nurse presented with fever, dry cough, malaise and myalgia. She tested positive for SARS CoV2. She developed an urticarial rash which was red, itchy and macular affecting both forearms sparing the hands on day 10 of the onset of symptoms. The rash lasted for 72 hours and resolved spontaneously. She had not been started on any new medications prior to the onset of illness. She made a good recovery after three weeks of symptoms with itching controlled by chlorphenamine maleate. Physicians should remember that even though SARS-CoV2 presents with mainly respiratory symptoms which could become life threatening, cutaneous manifestations do occur and can vary in distribution and morphology.

**Keywords:** coronavirus, urticarial rash, Wuhan

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## 1. Introduction

In December 2019 reports from Wuhan showed the emergence of a form of acute respiratory illness caused by a new strain of coronavirus subsequently named Severe acute respiratory distress syndrome coronavirus 2 (2019-nCoV) due to its close homology (80%) to SARS COV, responsible for a series of Acute Respiratory Distress syndrome between 2002 - 2003. [1]

Since its inception there has been few reports of the cutaneous manifestations of the SARS CoV-2. [2] This paper describes a case of SARS-CoV-2 infection presenting with an urticarial rash.

A thirty-five year old lady presented with headaches, fatigue, dry cough and fever. She was tested and confirmed to have SARS-CoV2 by a PCR (Polymerase chain reaction) test, other routine blood tests and a chest Xray were normal. She developed a rash in the second week of symptoms which was raised, red, itchy, with wheals and papules. It was localised to both forearms sparing the hands. However there were no other clinical signs.

She was on regular fluoxetine for Irritable Bowel syndrome and had commenced any medication or changed her diet in the two weeks prior to presentation. She had no allergies. We have not included pictures as the infection

prevention control practice of our hospital had prevented this.

She was discharged home on the same day she was assessed, meanwhile the rash persisted for 72 hours and resolved leaving normal skin with no treatments. The itching was relieved with chlorphenamine maleate and resolved on the same day as the rash. However the respiratory symptoms, malaise and fatigue resolved 21 days after the onset of the illness.



Figure 1. An Urticarial rash (Source: DermNet NZ)

## 2. Discussion

Urticaria is used to describe a group of skin conditions characterised by itchy wheals and flares. It can be classified as acute urticaria if symptoms last less than 6 weeks or chronic urticaria if they lasted more than 6 weeks. The most common causes of acute urticaria in adulthood are acute infections and medication intolerance. The wheals and the itch arise through the activation of mast cells in the subepidermal layer of the skin, resulting in mast cell degranulation with the release of histamine and other inflammatory mediators. This produces an initial vasodilatation and thereby increased perfusion of the skin, causing erythema; there follows an increase in vascular permeability that leads to intracutaneous edema and wheal formation. The itch is also caused by the activation of local nerves by these inflammatory mediators leading to a release of neuropeptides that cause another area of erythema around the wheal called a reflex erythema. In the case of coronavirus, a possible mechanism will be a coronavirus antigen inducing mast cell degranulation leading to the above cascade as in other non specific viral illnesses. [3]

Since the onset of the coronavirus pandemic there has been a significant interest in the cutaneous manifestations of the virus. In the first 2 months of the outbreak in China, Guan and his colleagues, reported that only 2 (0.2%) out of 1,099 patients with confirmed coronavirus infection had a cutaneous manifestation while the majority had fever, dry cough but they did not characterise the rash. [4]

Another study amongst SARS-CoV2 patients in Lombardy, Italy found that 18 (20.4%) out of 88 patients in a cohort had developed a rash with the illness. Eight patients had developed the rash at the onset of the illness while 10 developed it while on admission. The lesions identified were an erythematous rash, widespread urticaria and vesicular rash with a chicken pox appearance. These cutaneous manifestations primarily affected the trunk, with little or no itching and resolved after a few days. There was however no correlation with the severity of the illness. [2]

Manalo and his colleagues also reported two cases of transient livedo reticularis presenting in patients with

confirmed SARS-CoV2 infection in California, USA. Both cases had the usual symptoms of fever and had developed a netlike rash in the lower limbs, this lasted 24 hours in one of the cases and about 20 minutes in the other case with complete resolution without treatments. This presentation was thought to be due to a mild and transient form of microthrombosis and disseminated intravascular coagulopathy (DIC), which is common amongst patients critically ill with Coronavirus. [5]

An international database was set up by the American Academy of Dermatology (AAD) and recorded the cutaneous manifestations of SARS-CoV2 worldwide from the 8th of April to the 17th of May 2020. The most common cutaneous morphologies they encountered in the 171 SARS-CoV2 confirmed cases from 31 countries included, morbilliform, pernio-like, urticarial, macular erythema, vesicular, papulosquamous, and retiform purpura. [6]

In conclusion, physicians should be aware that even though SARS-CoV2 presents with mainly respiratory symptoms, cutaneous manifestations do occur and can vary significantly in morphology.

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