

Vesiculopapular Eruptions Seen In two COVID-19 children: A Case Report

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INTRODUCTION

The COVID-19 pandemic which has ravaged the entire world since December of 2019 is still ongoing across all the continents. The African and Oceania continents seem to have been spared the worst of the disease but new cases are still being recorded in South Africa and Nigeria at the time of writing this report in September 2020. Children and adolescents have been relatively less affected than the elderly and young population, though the paediatric age groups are able to transmit infections whilst being asymptomatic. There are also fewer deaths reported in children with COVID 19 when compared to adults. Children are therefore an important demographic to observe for clues to disease transmission and remission. Mucocutaneous manifestations of COVID-19 have been reported across most European and Asian countries; with the adult population mostly reviewed. Few findings in children worldwide and fewer in the African continent have been published. The chronology of skin rashes and their evolution provide a non-invasive diagnostic tool to a disease process as noted in most viral exanthems. We report cutaneous findings in two siblings in a family of 4 who developed skin rashes before and after a positive COVID-19 test result.

CASE REPORTS

The first is an 8-year old boy who developed symptoms of mild fever and anosmia about three days before the onset of rashes on the trunk, which then spread to the upper limbs. The rashes were itchy and mildly tense with production of minimal fluid when scratched. There was no history of

rhinorrhoea or cough. He had no history of allergies and no personal or family history of atopy. There was no history of trauma to the nose or a foreign body obstructing the nostrils, neither had he any surgery to the nasal cavity. He had no other systemic symptoms and had a normal healthy appetite. His history was significant for living with COVID-19 suspected parents who turned out to be positive. The parents were healthcare workers who prior to the son's rash were only mildly unwell before being tested. Examination by virtual consult (teledermatology) showed few flesh coloured vesiculo-papules with no background erythema on the anterior trunk and the ventral surface of both forearms. The face and lower limbs were spared. There was no obstruction in the anterior nares. A diagnosis of viral exanthem was made. The patient and his younger sister were later tested and found to be positive. He tested negative 6 days after initial positive result.

The younger sister, a 5-year-old was generally asymptomatic, except for ageusia for the period her parents and brother were in Isolation for COVID-19 but developed what initially looked like similar rashes on the upper limbs. These were not itchy and were only of concern because they developed when the brother's rashes had begun to resolve after 10 days on admission. She had been hitherto well and not on any medication which may have altered her taste buds. On examination, she had targetoid papules with minimal background erythema on the limbs and trunk, sparing the face. There was no oral or genital mucosal involvement, no lesions on the palms or soles of feet. There were no vasculitic or urticarial rashes observed and a diagnosis of

Erythema Multiforme with a background of Viral exanthem was made. She also tested positive for COVID-19 with RT-PCR assay and was admitted in the LUTH Isolation Centre along with her parents and brother for a 2- week period, during which she was placed on Lopinavir/ritonavir as well as Azithromycin as was the standard of care at the beginning of the pandemic. Antihistamines were given for the pruritus and the parents were encouraged to keep the children well hydrated and

moisturized whilst on admission as the humid environment in Lagos, Nigeria, worsens the itch sensation. The papules and targetoid lesions resolved in the same way they appeared, from the trunk, then the limbs, leaving no residual dyspigmentation. She tested negative after 9 days from initial test.

All other laboratory tests including the complete blood counts were essentially normal.



Figure 1A: Vesiculo-papules on the upper limb and hands in the 8-year-old boy.



Figure 1B: Vesiculo-papules on the upper limb and hands in the 8-year old boy.



Figure 2: Flesh coloured papules on the acral surfaces of the 8-year old boy



Figure 3: Targetoid papules of Erythema multiforme on the forearm of the 5-year old girl.

DISCUSSION

These cases are interesting in that though the children were exposed to their infected symptomatic parents at the same time, they had different presentations- tagged mild COVID-19. Most viral exanthems in children tend to have the prodromal flu-like illness with a cough, catarrh, low grade fever preceding the expected skin rashes. Whilst the older child presented in such manner with the more significant anosmia which has been documented in COVID-19 patients, the younger child had ageusia, but no other systemic symptoms and developed a rash after the 14-day incubation period had elapsed. It is worth noting that there were additional targetoid papules reminiscent of Erythema multiforme (EM) in the younger child who was pauci-symptomatic (Fig 3). The EM may have been due to the viral infection as typically seen in children or due to drugs as more commonly seen in adults. Erythema multiforme in COVID-19

patients has been reported in literature as either due to a hypersensitivity lymphocyte cell-mediated reaction to the SARS CoV-2 antigens in skin or hydroxychloroquine drug reaction. Familial clusters of vesiculo-papular eruptions was described by Galvan Casas et al in a nationwide Spanish review of 375 cases. Erythema multiforme was also identified as one of the more significant cutaneous findings in COVID-19 patients. The ages and race of the patients were however not specified, and they included suspected cases of COVID -19 in their review.

Cutaneous eruptions of infectious origins are sometimes typical; a few viruses affect people in a recognised manner. For instance, the appearance of vesicles in crops or clusters in a dermatomal distribution is typical of Herpes zoster, and the fine morbilliform-blanching erythematous rash in a characteristic cephalocaudal progression is seen in early measles infection. The rash patterns may

however be altered in the setting of HIV/AIDS which the index cases did not have. It is uncommon to have polymorphic lesions from one aetiology in the same immunocompetent person. This brings the suspicion of empirical self-prescribed medicaments to bear.

Some authors in the West have shown chilblains and livedo reticularis as more characteristic of COVID-19,⁵ but there may be other probable explanations to the development of these now “infamous COVID toes”. This phenomenon has not been reported in the African subcontinent probably because chilblains are historically associated with the cold and in wintry weather.

The cases described both have vesiculo-papular rashes in common though at different times of exposure to the virus. The added erythema multiforme rash may have been in response to the antiviral medication given. Drug induced EM resolves when the implicated drug is withdrawn and that was seen in the second case. One could however make a case for resolution of the lesions due to the child's immune system coping adequately, and successfully fighting off the virus.

The problem of who cares for children when their symptomatic parents go to the hospital for isolation during the pandemic is of concern. A significant number of affected patients in Nigeria are middle class families living strictly nuclear with perhaps a paid housekeeper who does not live-in. Hospital admission becomes a problem because the asymptomatic or pauci symptomatic children may have to be brought into the wards; thereby exposing them to more dangers. It is hoped that providing care for mild-moderate COVID-19 patients in a home-based care setting will ameliorate some of these challenges, even though that still poses the risk of ongoing exposure to other family members.

Due to the highly infective nature of the SARS-CoV-2 virus, the need to manage patients virtually (with the use of cell phones) has increased to previously unrecorded proportions.⁶ The field of dermatology has benefited from telemedicine review as it can be used to triage patients who eventually need to be followed up physically either for a skin biopsy or dermoscopy. The cases presented were reviewed

virtually with WhatsApp® videos and pictures taken as directed by the dermatologist. The merits of this mode of consultation can be increased with clearly elicited clinical history, videos/photos taken in natural light (daytime) and simple clear instructions for effective communication between patient and doctor. Poorly taken personal photographs sent for review will lead to poor diagnosis and management failure.

In conclusion, skin rashes may serve as an important marker of asymptomatic COVID-19 infection among children who have been exposed. Though the pattern and timing of lesions may differ, skin rashes may serve as a pointer in offering targeted testing among children, to forestall transmission to at-risk populations and also marking the pattern of disease spread in the population. The cost effectiveness of targeted testing will also be a welcome development for most countries who have suffered severe economic losses in this pandemic.

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REFERENCES

- 1 [https://www.who.int/health-topics/coronavirus/global-research-on-Coronavirus-Disease-\(COVID-19\)](https://www.who.int/health-topics/coronavirus/global-research-on-coronavirus-disease-(covid-19))
- 2 [https://covid19.ncdc.gov.ng/progression of COVID 19 cases in Nigeria](https://covid19.ncdc.gov.ng/progression-of-COVID-19-cases-in-Nigeria). Accessed September 26th 2020
- 3 [https://data.unicef.org/topic/covid-19-and-children/UNICEF and DATA](https://data.unicef.org/topic/covid-19-and-children/UNICEF-and-DATA). Accessed September, 26th 2020
- 4 Janah H, Zinebi A, Elbenaye J. Atypical erythema multiforme palmar plaques lesions due to Sars-Cov-2. *J Eur Acad Dermatol Venereol*. 2020 Aug;34(8):e373-e375. doi: 10.1111/jdv.16623. Epub 2020 Jun 4. PMID: 32386446; PMCID: PMC7273085.
- 5 Galván Casas C, Catala AC, Carretero Hernández G, Rodríguez-Jiménez P, Fernández-Nieto D, Rodríguez-Villa Lario A,

- Navarro Fernández I, Ruiz-Villaverde R, Falkenhain-López D, Llamas Velasco M, García-Gavín J. Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *British Journal of Dermatology*. 2020 Jul;183(1):71-7.
- 6 Duong TA, Velter C, Rybojad M, Comte C, Bagot M, Sulimovic L, Bouaziz JD. Did Whatsapp® reveal a new cutaneous COVID-19 manifestation? *Journal of the European Academy of Dermatology and Venereology*. 2020 Apr 24.
 - 7 Massey PR, Jones KM. Going viral: A brief history of Chilblain-like skin lesions (“COVID toes”) amidst the COVID-19 pandemic. *In Seminars in Oncology* 2020 May 23. WB Saunders.
 - 8 Darlenski R, Tsankov N. Covid-19 pandemic, and the skin-What should dermatologists know? *Clinics in Dermatology*. 2020 Mar 24.
 - 9 Skayem C, Cassius C, Ben Kahla M, Fiani C, Frumholtz L, Mrad M, Petit A, Zuelgaray E, Bagot M, Bouaziz JD, Duong TA. Tele dermatology for COVID-19 cutaneous lesions: substitute or supplement? *Journal of the European Academy of Dermatology and Venereology*. 2020 Jan 1.