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Post-covid Henoch-schonlein Purpura: A Pediatric Case Report

Nadia Mebrouk [a*], Boutaina Halimi [a], Najlae El Attari [a], Youssra Abdeljalil [a], Chtouki Loubna [a] and Abdelali Bentahila [a]

[a] *Pédiatrie IV de l'Hôpital d'Enfants, Rabat Children's Hospital , CHU Ibn Sina, Rabat, Morocco.*

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

We report the case of a 28-month-old boy who displayed symptoms of Henoch-Schonlein purpura (HSP), a type of small-vessel vasculitis that affects multiple systems in childhood and is caused by IgA. The symptoms include dermatological, abdominal, articular, and renal manifestations. HSP can occur due to several factors, such as upper respiratory tract infections, medications, vaccinations, and malignancies. The patient had positive COVID-19 serology but no other trigger factor for HSP, indicating a possible correlation between the two. The boy received oral prednisolone, leading to a swift clinical improvement. Our findings align with other research that suggests a link between the SARS-CoV-2 coronavirus and infantile HSP.

Keywords: COVID-19; henoch-schonleinpurpura; pediatric.

**Corresponding author: Email: nadia.mebrouk@hotmail.com;*

1. INTRODUCTION

Henoch-Schonlein purpura (HSP is a condition that affects the small blood vessels in childhood [1,2] and is mediated by IgA. It can damage multiple organs [3], and its diagnosis is made based on clinical observations. The presence of palpable purpura in the absence of thrombocytopenia is a required criterion for diagnosis, while supportive criteria include acute-onset symptoms such as abdominal pain, joint pain, kidney problems, or signs of vasculitis or leukocytoclastic proliferation. Additionally, active glomerulonephritis with IgA deposits is also considered a supportive criterion [3].

“The cause of HSP is not yet fully understood, although it is believed to be linked to previous upper respiratory tract infections caused by streptococci, parainflenza virus, and human parvovirus B19, as well as medications, vaccinations, or malignancies” [3]. “COVID-19, caused by SARS-CoV-2, is a single-stranded RNA virus that mainly affects the respiratory system, but can also result in non-respiratory symptoms such as cardiac, thrombotic, and dermatological complications” [4,5]. There have been cases where COVID-19 infection has resulted in unexpected complications such as HSP vasculitis. This report aims to describe a case where a previously healthy child developed HSP after contracting COVID-19.

2. CASE REPORT

Our patient is a 28-month-old boy, with no particular medical history prior to the Covid-19 infection. Five days before his admission to our service, he presented abdominal pain, diarrhea with melena, all of which evolved in a context of apyrexia. Two days later, the patient presented with a rash consisting of purpuric lesions of varying sizes distributed over his lower limbs bilaterally (Fig. 1), extending from the soles of the feet to the knees. The rash was associated with mild edema of the ankles with pain in both knees. On admission, the patient was conscious but irritable. His neurological examination was unremarkable. He was well hydrated and showed no signs of respiratory distress or jaundice. His vital signs were as follows: temperature of 37^{o}C (measured underarm), heart rate of 105 beats per minute, respiratory rate of 22 breaths per minute, normal blood pressure, and oxygen saturation of 98% on ambient air.

Examination of the lower extremities showed a purpuric rash made up of raised purpuric lesions on both lower extremities with some maculopapular lesions extending from the soles of the feet to the knees. Mild edema was present in the ankles bilaterally. Examination of the joints triggered pain on active mobilization of the knees, without inflammatory signs. No enlarged lymph nodes were noted. The cardiovascular exam was unremarkable, with normal heart sounds heard, no added noises or murmurs. The chest examination was normal, although the abdomen was tender to palpation. An abdominal ultrasound was performed urgently due to the abdominal pain with melena, which allowed us to eliminate a possible intestinal intussusception. Complete blood count showed increased white blood cell count (22.2 × 109/L), microcytic anemia (hemoglobin 11.2 g/dL) and mild thrombocytosis (4.9 × 109/L). He had normal hepatic, renal, and electrolyte function. He had no proteinuria or hematuria on urinalysis. Anti-streptolysin-O (ASLO) titer and coagulation profile were normal. Antinuclear antibodies as well as anti DNA antibodies were negative. C-reactive protein was elevated to 160mg/l. Serology for SARS-CoV-2 was positive with an IgG level of 255 AU/ml. The rest of the viral serologies were negative.

The patient was diagnosed with HSP, complicating SARS-CoV-2 infection, fulfilling 3 clinical criteria (palpable purpura and abdominal pain and arthralgia), without renal involvement. The absence of all other usual causes of HSP suggests that this case of HSP is associated with Covid-19 infection [6,7,8,9]. The patient was put on parenteral nutrition and treated with prednisolone, and showed good improvement.

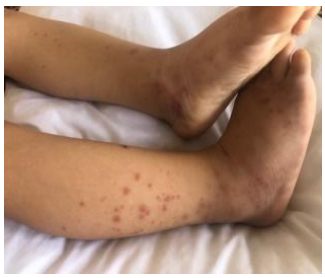

Fig. 1. Purpuric lesions of varying sizes distributed over lower limbs bilaterally

3. DISCUSSION

HSP is a condition where the immune system attacks the blood vessels by depositing IgA in

their walls, primarily affecting children aged 3-15. “The most frequent cause of HSP is a previous upper respiratory infection, with streptococcal and viral infections from parainfluenza virus or human parvovirus B19 being the most common triggers” [6].

“The differential diagnoses included group A beta-hemolytic streptococcal infection, thrombotic thrombocytopenic purpura (TTP), systemic lupus erythematosus (SLE), juvenile idiopathic arthritis (JIA), Kawasaki disease, and multisystem inflammatory syndrome in child (MIS-C). To diagnose Kawasaki disease, fever must be present for at least 5 days, along with four of the other five criteria” [10]. “To diagnose MIS-C, according to the criteria of the Centers for Disease Control and Prevention and WHO, fever must be present, and a number of other criteria must be met” [11]. Our patient, however, did not present with fever or multisystem involvement; therefore, Kawasaki disease and MIS-C were excluded.

The patient's condition was assessed by ruling out possible causes such as Group A beta-hemolytic streptococcal infection, PTT, SLE, JIA, Kawasaki disease, and MIS-C, based on various diagnostic criteria (ASLO titer, normal platelet count, negative ANA and anti-dsDNA antibody screen, etc..). SLE requires the patient to meet at least four American College of Rheumatology (ACR) criteria, while JIA and Kawasaki disease have specific criteria related to the duration of symptoms and the presence of fever (6 weeks) [6]. The patient did not meet the diagnostic criteria for these conditions. Instead, the patient presented with clinical signs and symptoms of HSP, which was diagnosed based on the obligatory criterion of palpable purpura in the absence of thrombocytopenia and two secondary criteria of abdominal pain and arthralgia of acute onset. There is no specific diagnostic test to prove the association between HSP and COVID-19 infection, but some studies have suggested a possible link between the two [12,13]. The patient had positive COVID-19 serology and no history of previous infections with the suspected causative organisms. “Previous case reports have shown a possible causal relationship between COVID-19 and post-infectious vasculitis in children, suggesting that COVID-19 may have triggered HSP in this patient. It should be noted that IgA is the first immunoglobulin to increase after infection, reinforcing the possible association between IgA vasculitis and COVID-19 infection” [6].

“This observation aligns with a review by AbdelMassih et al [11] who reported a link between COVID-19 and Kawasaki disease, another childhood vasculitis”. “Another case report by Chesser et al [14] reported a link between COVID-19 and acute hemorrhagic edema of infancy in an 8-month-old girl”.

4. CONCLUSION

Our findings are consistent with previous studies [6-9,14] indicating a potential link between Henoch-Schonlein purpura (HSP), a type of vasculitis in children, and the novel coronavirus SARS-CoV-2. It is possible that SARS-CoV-2 infection may serve as a trigger for HSP development. Therefore, it is important to consider ruling out prior SARS-CoV-2 infection in pediatric patients who exhibit clinical symptoms of HSP.

CONSENT

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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