

Development of Henoch-Schonlein Purpura Post COVID-19 Vaccination: A Case Report

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Received: 03 Feb 2022

Accepted: 15 Mar 2022

Published: 21 Mar 2022

J Short Name: JCFMI

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Citation:

Bryon Frankie Hon Khi Chong, Development of Henoch-Schonlein Purpura Post COVID-19 Vaccination: A Case Report. J Clin Med Img. 2022; V6(4): 1-3

Keywords:

Vaccination; COVID-19; Henoch-Schonlein Purpura

1. Abstract

This is a case involving the development of fever, joint pain, and bilateral lower limb rashes an hour after COVID-19 vaccination, and subsequently diagnosed with Henoch-Schonlein Purpura (HSP).

A 15-year-old girl visited the Emergency Department (ED) after the development of fever, right ankle pain and bilateral lower limb rashes an hour after receiving her second dose of Pfizer-BioNTech/Comirnaty mRNA vaccine. She was well and asymptomatic before her vaccination. She received her first dose of vaccine 4 weeks before without complications. Physical examination showed palpable non-blanchable purpura over-bilateral lower limbs. She also had a swollen right ankle. She did not complain of abdominal pain or hematuria.

She was reviewed by both rheumatologist and dermatologist with a diagnosis of cutaneous small-vessel vasculitis, clinically consistent with Henoch-Schonlein Purpura post-vaccination. Her skin biopsy showed leukocytoclastic vasculitis, confirming small vessel vasculitis. She was treated with etoricoxib for her ankle pain and discharged after 2 days. On follow up 1 week later, her purpura had resolved, and she remained well.

Henoch Schonlein Purpura is the commonest form of childhood vasculitis in the West. However, reports of the development of Henoch Schonlein Purpura post-COVID-19 mRNA vaccine is rare. Emergency physicians should be aware of this complication as COVID-19 vaccination increases worldwide. However, vaccination should still be encouraged given the well-documented safety and efficacy of the Pfizer mRNA vaccine.

2. Background

Henoch Schonlein Purpura (HSP) is the commonest form of childhood vasculitis in the West, with an incidence of 20 per 100,000 in children < 17 years of age [1]. However, development of Henoch Schonlein Purpura (HSP) post-COVID-19 mRNA vaccine is rare [2]. The etiology of HSP is not well understood. Environmental, genetic, and antigenic factors appear to contribute [3]. The clinical presentation of HSP is usually variable and characterized by a tetrad of clinical manifestations that include palpable purpura, gastrointestinal complaints, arthralgias, and renal involvement [3]. This case report describes a young patient with the development of HSP an hour after receiving her second dose of Pfizer-BioNTech/Comirnaty mRNA vaccine. She was previously well and asymptomatic.

3. Case Report

A 15-year-old girl presented to the Emergency Department (ED) after the development of fever (38.5°C) and bilateral lower limb rashes an hour after receiving her second dose of Pfizer-BioNTech/Comirnaty mRNA vaccine. She was asymptomatic and well before her vaccination. She also did not have any new medications or contact and exposure to COVID-19. She received her first dose of Pfizer-BioNTech/Comirnaty mRNA vaccine 4 weeks before without complications. She had a past medical history of asthma and adjustment disorder. Physical examination showed extensive palpable non-blanchable purpura over both her lower limbs (Figure 1). There was no abdominal tenderness. Laboratory tests were unremarkable including hematological index, renal panel, liver panel, coagulation profile, and dengue screen. Her urine pregnancy test was negative, and her chest x-ray was normal. Urine dipstick showed microscopic hematuria and proteinuria. She was admitted under General Medicine for further workup.

The following day, she developed right ankle pain consistent with right ankle synovitis. There was no other joint involvement. She was reviewed by both rheumatologist and dermatologist with a diagnosis of cutaneous small-vessel vasculitis, clinically consistent with Henoch-Schonlein Purpura, that was triggered by Pfizer-BioNTech/Comirnaty mRNA vaccine. Additional laboratory tests showed mildly raised ESR at 48 mm/hr and Complement

C3 at 1.74g/L (normal range 0.80 - 1.60g/L). Other autoimmune markers including Complement C4, ANA-IFA, Anti ds-DNA, ANCA, and cryoglobulin were normal. Her SARS-CoV-2 PCR combined nasal and throat swabs were negative. Her hepatitis screen was negative. Her skin biopsy showed leukocytoclastic vasculitis, confirming small vessel vasculitis. She was treated with etoricoxib for her ankle pain. She was discharged after 2 days. On follow up 1 week later, her purpura had resolved, and she remained well.



Figure 1: Palpable non-blanchable purpura on both lower limbs on admission.

4. Discussion

Although Henoch Schonlein Purpura (HSP) is the commonest form of childhood vasculitis in the West, the etiology of HSP is not well understood¹. The clinical presentation is also variable. There are no definitive tests. The diagnosis of HSP can be made based on the presence of petechiae or palpable purpura that predominantly affects the lower limbs plus at least one of the following: abdominal pain, arthralgia or arthritis, renal involvement (proteinuria, red blood cell casts, or hematuria), proliferative glomerulonephritis or leukocytoclastic vasculitis with predominant deposition of IgA on histology [3].

Common post-vaccine reactions after vaccination for COVID-19 include soreness at the injection site, fatigue, malaise, and fever [5]. HSP has been reported as adverse events following immunization for various vaccines [4]. However, development of HSP post-Pfizer-BioNTech/Comirnaty mRNA vaccine is rare [2]. There were no cases of HSP reported in the Pfizer-BioNTech BNT16B2b2 mRNA vaccine trial which had 43,448 participants [6]. There are reports on skin lesions with vasculitis features in patients with COVID-19 infection that could range from asymptomatic to fatal [7]. The patient in the case report presented with fever and lower limb rash. The decision was made to admit her for further workup. The initial concern was either vasculitis associated with COVID-19 infection or an adverse reaction to COVID-19 vaccine as her symptoms started one hour after she received her second dose of Pfizer-BioNTech/Comirnaty mRNA vaccine. Her development of ankle synovitis and skin biopsy confirmed the diagnosis of HSP.

This case report highlights the potential association of HSP with

COVID-19 vaccinations. Although it is a rare adverse event, given the increasing mass vaccinations worldwide, emergency physicians should be aware of this potential complication of post-COVID-19 vaccination vasculitis.

5. Why Should an Emergency Physician be Aware of this?

Henoch Schonlein Purpura in children < 17 years of age is not uncommon. However, the development of Henoch Schonlein Purpura post COVID-19 vaccination is rare. Emergency physicians should be aware of potential post COVID-19 vaccination complications given increasing mass vaccinations worldwide. COVID-19 vaccination should continue to be encouraged in view of the benefits, efficacy, and safety profile of the Pfizer-BioNTech/Comirnaty mRNA vaccine.

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