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Case report

IgA Vasculitis following AstraZeneca/Oxford COVID-19, case report

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Abstract. Immunoglobulin A (IgA) vasculitis, also known as Henoch–Schönlein purpura, is an immune-mediated vasculitis that affects small vessels. IgA vasculitis could be triggered by numerous conditions including infectious and non-infectious conditions. So far, few reported cases of Covid-19 vaccines related vasculitis. We report a case of IgA vasculitis after AstraZeneca/Oxford COVID-19 vaccine. A 29-year-old healthy man who developed purpuric skin lesions one week after his second AstraZeneca/Oxford COVID-19 vaccine which complicated by glomerulonephritis and gastrointestinal involvement. Skin biopsy revealed fibrinoid necrosis and leukocytoclasia consistent with small vessel vasculitis. Due to the temporal association, AstraZeneca/Oxford COVID-19 vaccine-related IgA vasculitis would be the most likely explanation. (www.actabiomedica.it)

Key words: IgA vasculitis, AstraZeneca/Oxford COVID-19 vaccine, skin biopsy

Background

In February 2022 more 400 million were infected with COVID-19 worldwide with more than 5.8 million deaths (1). In December 2020, the US Food and Drug Administration (FDA) approved two COVID-19 vaccines (Pfizer-BioNTech and Moderna) and another one (Janssen/Johnson & Johnson) was approved in February 2021. All the vaccines showed a safe and efficacious profile with minimal side effects which include mild to moderate soreness at the injection site, fever, exhaustion, body aches, and headache (2,3). Some cases of anaphylaxis were also reported shortly after the introduction of the vaccine (4,5).

Immunoglobulin A (IgA) vasculitis, also known as Henoch–Schönlein purpura, is an immune-mediated vasculitis that affects small vessels. Cutaneous purpura, arthralgia and/or arthritis, acute enteritis, and glomerulonephritis are the most common clinical symptoms. In adults, gastrointestinal and renal problems are the leading causes of morbidity and mortality (6). Few reported cases of Covid-19 vaccines related vasculitis. one case of reactivation IgA vasculitis following COVID-19 vaccine has been reported. Herein, we report a case of IgA vasculitis after AstraZeneca/Oxford COVID-19 vaccine.

Case presentation

A 29-year-old Saudi male, not known to have any medical diseases, presented to the Emergency department (ER) one week after his second AstraZeneca/Oxford COVID-19 vaccine dose complaining of skin eruption that started on the lower limbs and progressed upward sparing the face and neck, associated

with severe colicky epigastric pain, accompanied with nausea, vomiting and watery diarrhea. Patient reported change in the urine color to dark brown. No history of arthralgia or morning stiffness.

He denied having started any new medications or experienced any allergic reactions. No personal or family history of autoimmune diseases.

On examination: vital signs were normal. The cutaneous examination showed palpable non-blanchable purpura involving lower and upper extremities with no mucosal membrane involvement (Figure 1).

Abdominal examination revealed defuse abdominal tenderness with no detectable organomegaly. The remaining systemic examinations were unremarkable. His initial laboratory result gave a picture of glomerulonephritis (Table 1) with +2 for blood and +3 for protein of urinalysis.

The patient was admitted to the medical ward for further investigation. During the first two days of his hospital stay, he suffered from feet, knee, and hip pain bilaterally. Abdominal Computed tomography with Intravenous contrast showed active bowel inflammation with mural thickening and hyper-enhancement involving the terminal ileum, cecum, and ascending colon. Two punch biopsies were taken from the upper thigh showed moderate perivascular mixed inflammatory cellular infiltrates, consisting mainly of neutrophils and lymphocytes with few scattered eosinophils with foci of fibrinoid necrosis and leukocytoclasia consistent with small vessel vasculitis (Figure 2). Patient underwent renal biopsy which demonstrate positive direct immunofluorescent of IgA deposition on granular capillary loops and mesangial staining in fluorescent microscopy. During the patient's hospital stay, Intravenous Methylprednisolone was started for 3 days with marked improvement of the cutaneous lesions and

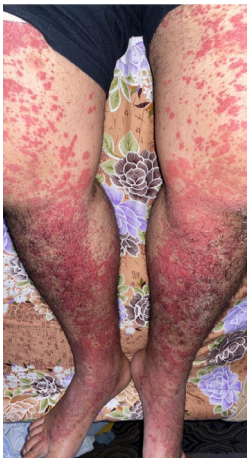

Figure 1. Purpuric skin lesions involving lower extremities.

Table 1. Laboratory results.

Laboratory test	Normal range	Result
ESR (mm/hr)	0 - 20	35
CRP (mg/dL)	0.10 - 0.5	3.96
Hemoglobin (g/dl)	13.6 - 17.7	12
White blood count (µL)	4500 - 11000	16200
Platelets(µL)	150000 - 450000	366000
Albumin	6.4 - 8.3	2.8
Fibrinogen	200 - 400	436
Fibrinogen degradation product (ug/ml)	-	44.57
Rheumatoid Factor	0 - 20	< 7
ANA	-	40 (speckled)
ANCA	-	Negative
Anti-GBM	-	Negative
Urine		
Ketones	Negative	Trace
Protein	Negative	Positive +++
Blood	Negative	Positive ++

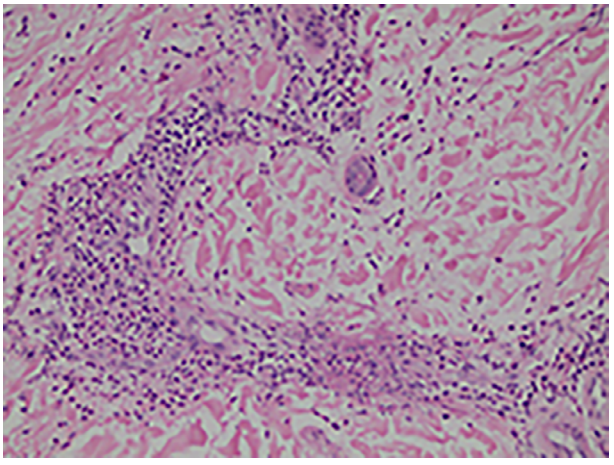

Figure 2. The dermis showed moderate perivascular mixed inflammatory cellular infiltrate, consisting mainly of neutrophils and lymphocytes with few scattered eosinophils. In addition, the vessel wall showed foci of fibrinoid necrosis and leukocytoclasia. (H & E X200)

abdominal symptoms. The patient was discharged on tapering doses of oral prednisone for 2 months with complete recovery after 3 months of regular follow up.

Discussion

Vaccines contribute substantially to the resistance against COVID-19. Little is known about their long-term side effects and their ability to trigger immune-mediated diseases (7).

Local injection site reactions, urticaria, morbilliform eruption, and erythromelalgia are among the reported cutaneous side effects of mRNA COVID-19 vaccine (8). Recent observations also showed that infections with COVID-19 may present with mild to fulminant dermal diseases (9). Vasculitides are a group of diseases that may have serious consequences for the patient if not managed appropriately (10). There was one case reported that COVID-19 vaccine has a contributory in the development of vasculitis in their patient's, and it is possible that it was triggered in an already immunologically predisposed individual (11).

Kohei Sugita et al reported case from Japan that Developed IgA vasculitis with severe glomerulonephritis after the second dose of the Pfzer-BioNTech COVID-19 vaccine and they did review of literature for 11 cases of IgA vasculitis after COVID-19 vaccination, 7 of them were of new onset vasculitis while the remaining cases were relapsed (12).

There have been only two cases reported with AstraZeneca/Oxford COVID-19 induced cutaneous vasculitis. The first case is a healthy 77-year-old woman suffered from progressive abrupt maculopapular eruptions starting with petechia at the lower extremities progressing in a 24-hour interval towards the shins and calves after the first dose of AstraZeneca/Oxford COVID-19. Pathology showed no vascular deposit of IgG, IgM, IgA, or C3 with direct immunofluorescence (10). The second case is a 62-year-old Asian female presented to the ER with a bilateral lower limb non-blanchable petechial rash 7 days after the first dose of the Astra-Zeneca COVID-19 vaccination. Laboratory investigations showed elevated Rheumatoid factor (RF) (169 IU/ mL [< 20]) and low C4 complement (< 0.07 g/L) only with no underlying systemic autoimmune disease (11). In our patient, direct immunofluorescence confirmed IgA deposition on the tissue in addition to raised inflammatory markers, and increased fibrinogen degradation product; his findings met the American College of Rheumatology criteria for the classification of Henoch-schonlein purpura as he had palpable purpura, diffuse abdominal pain and skin biopsy showed granulocytes in the walls of small cutaneous vasculature (13).

Conclusion

To the best of our knowledge this is the first reported case of IgA vasculitis with systemic involvement following AstraZeneca/Oxford COVID 19 vaccine. The mechanism of such association is unknown and probably will take several years of conducting sophisticated research. Dermatologist should meticulously observe any emerging cutaneous reactions to tackle these unpredictable cutaneous side effects.

Consent and Ethical Statement: Written informed consent was provided by the patient for publication of images and information. Institutional approval was not required for this case report.

Conflict of Interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

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