

## LETTERS TO THE EDITOR

# 20 Post-COVID-19 vaccine-related shingles cases seen at the Las Vegas Dermatology clinic and sent to us via social media

To the Editor,

On March 11, 2020, the World Health Organization declared COVID-19 a global pandemic. COVID-19 is a novel coronavirus with high infectivity and severe morbidity and mortality, especially for those over 70 years old and also for those with comorbid medical conditions such as lung disease and obesity.<sup>1</sup> The entire world has been gripped with fear and practiced social distancing, masking, and quarantine of exposed or infected individuals in an effort to curtail the spread of the disease.<sup>2,3</sup> The new virus is characterized primarily by respiratory-related disease, but also may involve multiple organ systems; COVID-19 has caught the medical community by surprise due to its myriad of clinical manifestations. Additionally, COVID-19 has been associated with various cutaneous manifestations; associated cutaneous skin eruptions from natural COVID-19 infection are described as diffuse erythematous eruptions, widespread urticaria, and chickenpox-like vesicles.<sup>4,5</sup> Two vaccines were approved for use by the FDA on December 11<sup>th</sup> (Pfizer) and December 18<sup>th</sup> (Moderna) of 2020 to prevent COVID-19 infection and change the tide against this deadly pandemic.<sup>6,7</sup>

At the time of our observation, two vaccines were authorized in the United States to prevent COVID-19: Moderna (94.5% effective) and Pfizer (95% effective).<sup>8,9</sup> Two doses of the aforementioned vaccines are required to reach optimal effectiveness. Side effects may emerge after the first and/or second dose, with common side effects including injection site pain and flu-like symptoms.<sup>10</sup> Recently, a third vaccine by J&J has been approved for use, requiring only one dose; to our knowledge, there are no reported cases of shingles reaction to the J&J COVID-19 approved vaccine.<sup>11</sup> In clinical trials, it was noted that the Moderna vaccine was associated with swelling in the area of facial filler injections in some patients.<sup>7</sup> A suggested pathophysiologic mechanism involving angiotensin-signaling pathways has been posited as the etiology of filler-associated swelling; in fact, these patients have been successfully treated with angiotensin inhibitors.<sup>12</sup> The initial Pfizer vaccine application mentioned no reported adverse facial filler reactions with vaccination.<sup>6</sup>

On 2/5/2021, the 1st case of Post-COVID-19 vaccine-related varicella-zoster virus (VZV) (Herpes Zoster (HZ) aka shingles) eruptions was seen in the Las Vegas Dermatology clinic and posted on our social media.<sup>13</sup> Indeed on 2/16/2021, one of the authors was on local television and discussed a 2<sup>nd</sup> case of Post-COVID-19 vaccine-related HZ seen in the clinic.<sup>14</sup> Since those initial patients, there have

been a total of 5 other Post-COVID-19 vaccine-related cases seen in the Las Vegas Dermatology clinic. An additional 14 cases have been reported to us and confirmed with medical history and photographs via social media with a mean time of 6.85 days to the first signs/symptoms of shingles. (Table 1). However, in the literature, there has been only one other reported case of Post-COVID-19 vaccine shingles in Turkey.<sup>15</sup>

## 1 | DEMONSTRATIVE CASES

### 1.1 | Case 1

A 77-year-old man with a history of Psoriasis treated with Methotrexate, Crohn's Disease, and treated Aspergilloma presented to the clinic for evaluation of a severely painful, unilateral dermatomal herpetiform eruption in a T11 distribution from the right mid-abdomen, right flank, and right mid-back. (Figure 1) two days post his 1<sup>st</sup> dose of the Moderna COVID-19 vaccine—the patient initially developed pain in the area of what would become his shingles eruption. Per the natural course of his disease, the initial pain worsened to become severely painful 4 days post-vaccine with a classic HZ eruption seen in accompanying photographs. The patient was clinically diagnosed with Herpes Zoster and treated with a course of Valacyclovir for the virus; oral Gabapentin, Oxycodone, and topical Lidocaine 4% for the pain. Despite the shingles outbreak post-initial vaccination, the patient was still recommended to receive his second dose of the Moderna COVID-19 vaccine.

### 1.2 | Case 2

A 65-year-old man with a history of shingles 35 years prior to presentation and long-standing hypertension was consulted for painful, erythematous, and clustered skin eruptions. Symptoms first began after his 2<sup>nd</sup> dose of the Pfizer COVID-19 vaccine, with pruritus 14 days post-vaccination, followed by increasing chest and back pain 3 days post-pruritus. The patient was diagnosed with HZ, later confirmed via VZV PCR, and was treated with a course of Valacyclovir for the virus, oral Gabapentin, and topical Lidocaine 4% for pain. He was the 4<sup>th</sup> patient seen in our clinic for HZ related to COVID-19 vaccination. Several other individuals contacted us via social media

to share their experience, contributing to our list of Post-COVID-19 vaccine HZ eruptions (Table 1).

HZ is attributed to reactivation of VZV. Primary infection with VZV results in chickenpox; once resolved, VZV establishes lifelong dormancy in multiple sensory ganglia and may re-emerge due to risk factors including increasing age, immunocompromised condition, and/or stress.<sup>16</sup> Cases of shingles have also been seen in patients vaccinated to VZV.<sup>17</sup> VZV and herpes viruses in general are distinguished by their ability to form latent infections. Kaposi's varicelliform eruption (KVE), also known as eczema herpetiformis, is a rare and potentially fatal reactivation of herpes virus in individuals with a history of atopic dermatitis; outbreaks of KVE have historically been seen when atopic patients were vaccinated for smallpox.<sup>18</sup> Underlying skin conditions such as atopic dermatitis and psoriasis have also been associated with Kaposi's varicelliform eruption.<sup>18,19</sup> Two of our post-COVID-19 vaccinated patients have a chronic history of psoriasis and presented with earlier onset of shingles eruption compared to most other reported cases (Table 1).

There have been a number of natural COVID-19 reported infections with HZ coinfection, including cases with ophthalmic involvement.<sup>20,21</sup> Several cases of vesicular eruptions in middle-aged patients have also been reported earlier in the course of COVID-19 infection.<sup>4</sup> COVID-19 is associated with decreased number of lymphocytes throughout the course of infection including a decreased number of monocytes, eosinophils, and CD4/CD8 T cells.<sup>22</sup> VZV has been shown to reduce the number of T cells, B cells, natural killer (NK) cells, and monocytes.<sup>23</sup> It is still early in the course of vaccine distribution; besides personal experiences, delayed reactions of COVID-19 vaccination are incompletely understood. It is hypothesized that immunomodulation

related to COVID-19 vaccination is associated with VZV reactivation seen in our patients. Recently, the University of Birmingham announced they will be investigating vaccine effectiveness in individuals with significant underlying diseases, transplant patients, people with liver or kidney disease, cancer, and inflammatory arthritis.<sup>24</sup> Because of the associated morbidity and mortality seen in patients with COVID-19, and the high infectivity rate, society must be weary of misinformation by professional anti-vaccine activists that would increase vaccine hesitancy.<sup>1</sup> Pre-clinical studies demonstrate mRNA vaccines elicit strong CD8/CD4 T-cell responses, with favorable safety profile in animals, and are rapid to design for emerging infectious diseases.<sup>25</sup> Mass vaccination is the paramount goal, and the United States is anticipated to have enough vaccines available for all adults by the end of May 2021.<sup>26</sup> It is likely that emerging epidemiological studies are underway. With a promising end to the pandemic, perhaps then we can better understand the relationship of COVID-19 vaccination and VZV reactivation. COVID-19 vaccination is the highest priority. Although there are no current recommendations from the CDC or other regulatory bodies, it is the authors' recommendation that at-risk patients (ie, patients over 50 years of age) obtain the shingles vaccine prior to COVID-19 vaccination.

#### ETHICS STATEMENT

This article does not contain any studies with human or animal subjects performed by any of the authors. The authors are in compliance with the ethical standards of this journal.

#### CONFLICT OF INTEREST

There is no conflict of interest of all authors. Medical images used in this publication were granted by the patient after informed consent.



**FIGURE 1** First patient to present with Post-COVID-19 vaccine shingles (Moderna 1<sup>st</sup> dose). Dermatological examination demonstrates unilateral dermatomal herpesiform eruption in a T11 distribution from the (a) mid-abdomen, (b) right flank, and (c) right mid-back.


TABLE 1 Post-COVID-19 vaccine HZ cases seen at the Las Vegas Dermatology clinic and cases reported via social media.

Age at time of initial vaccination (years old)	Sex	Presentation	Vaccine Type	Days until symptom onset post-vaccination (PV)	Days until unilateral dermatomal herpetiform skin eruption post-vaccination (PV) & Location
77	M	Evaluated in clinic	Moderna, 1st dose	2 days PV: "odd feeling" and pain	4 days PV: mid-ABD, R flank, R mid-back
56	M	Evaluated in clinic	Moderna, 1st dose	None	4 days PV: R chest
54	F	Evaluated in clinic	Moderna, 1st dose	4 days PV: itchiness and deep pain	5 days PV: L back, L shoulder, L triceps
65	M	Evaluated in clinic	Pfizer, 2nd dose	14 days PV: itchiness, 17 days post-vaccine: pain	38 days PV: L axilla, L shoulder, L triceps
43	F	Social media	Pfizer, 2nd dose	1 day PV: severe pain at injection site and body aches	4 days PV: "bump" on R neck; 8 days PV: R collarbone & R lower jaw
69	F	Social media	Moderna, 1st dose	4 days PV: severe pain in upper L back	4-7 days PV: worsening blistering of L axilla and L upper breast
42	M	Social media	Moderna, 1st dose	14 days PV: tingling, mild "skin irritation sensation" radiating from R lower chest to mid-ABD. 21 days: burning and itchiness	21 days PV: scattered blistering
47	F	Social media	Moderna, 1st dose	12 days PV: burning pain to R axilla and R chest	15 days PV: T1 dermatome
39	F	Social media	Moderna, 1st dose	2 days PV: itchiness	5 days PV: R back and R flank
74	M	Evaluated in clinic	Pfizer, 2nd dose	None	3 days PV: Mid-chest, R arm
48	M	Evaluated in clinic	Pfizer, 1st dose	Arm Soreness from Vaccine	12 days PV: Unilateral Dermatoma L Flank and altered skin sensation
68	F	Social media	Moderna, dose, 1 <sup>st</sup> dose	L shoulder injection site pain; 8-9 days PV: CP & tachycardia	12 days PV: "red blotches erupted" L axilla, L triceps, L scapula
46	M	Social media	Pfizer, 1st dose	Within 7 days PV: Pain at site of future skin eruption	9 days PV: Unilateral Dermatoma R Flank
60	F	Social media	Moderna, 2nd dose	24-26 days PV: itching and burning at site of future skin eruption	26-28 days PV: R forehead along hairline
43	M	Social media	Moderna, 1st dose	2 days PV: hotness and altered skin sensation at site of future skin eruption	3 days PV: Unilateral Dermatoma R Flank and back
65	F	Social media	Moderna, 1st shot	2 days PV: injection site pain	11 days PV: tingling, itching, burning, and eruption around and under right eye
44	M	Social media	Pfizer, 1st dose	3 days PV: itchiness	5 days PV: L eyebrow
37	F	Social media	Moderna, 1st dose	2 days PV: nerve pain	4-5 days PV: L back and L ABD
69	M	Social media	Moderna, 1st dose	None	14 days PV: Unilateral R back and R arm
72	F	Social media	Moderna, 2nd dose	3-4 days PV: 2 in raised, red spot at injection site with accompanying pain; 4-5 days PV: itching and burning at site of future skin eruption	5-6 days PV: L arm, L upper back, L breast

Note: Vaccine Used→Shingles: 14 Moderna & 6 Pfizer-; Mean 6.85 Days Post-Vaccine→Shingles; Median 4 Days Post-Vaccine→Shingles; Mode 2 Days Post-Vaccine→Shingles; Mean 10.2 days→Eruption.

<sup>a</sup>Unknown information.

Comorbid conditions	Comorbid dermatologic conditions	Treatment	Confirmatory Tests
Crohn's Disease, h/o treated Aspergilloma	Psoriasis	Valacyclovir, Gabapentin, LMX	Clinically diagnosed
None	Atopic Eczema	Valacyclovir, Gabapentin, LMX	VZV IgG (+), IgM (-)
Thyroidectomy, Hysterectomy, Cholecystectomy	Melanoma x3: Tx Wide Local Excision	Valacyclovir, Gabapentin, LMX	VZV PCR (+)
HTN	History of Shingles, no previous shingles vaccination	Valacyclovir, Gabapentin, LMX	VZV PCR (+)
HTN	None	Valacyclovir & Terrasil Shingles cream	Clinically diagnosed
Polycythemia Vera treated with Jakfi, HTN, Dyslipidemia, Osteopenia	Psoriasis, Actinic keratosis, BCC, SCC, previously vaccinated with Zostavax and Shingrix,	Antiviral	Clinically diagnosed
None	Childhood chickenpox, No history of shingles		Clinically diagnosed
"Vascular issues to my extremities"	No history of Shingles	Valacyclovir, Gabapentin, Prednisone	Clinically diagnosed
DM, HTN	None	Valacyclovir	Clinically diagnosed
Kidney failure, Anemia, HTN, Gout, Heart failure, A-Fib.	None	Valacyclovir & Mupirocin	Clinically diagnosed
None	Chickenpox at 8 y/o	Valacyclovir, Gabapentin, LMX	VZV PCR (+)
Hypothyroidism, HTN, adrenal fatigue	Chickenpox in 2nd grade, "hives from stress", no previous shingles vaccination, childhood rubella, measles at 47 y/o	Valacyclovir, Tramadol	Clinically diagnosed
None	None	Valacyclovir, Gabapentin, Hydrocodone/acetaminophen	Clinically diagnosed
Treated thyroid cancer, Gout	None	Valacyclovir	Clinically diagnosed
None	Chickenpox 4-5 y/o, no previous shingles vaccination	Valacyclovir and Gabapentin	Clinically diagnosed
None	Shingles 10 years prior to current episode, vaccinated for shingles in 2015 and 2019	Valacyclovir	Clinically diagnosed
None	None	Acyclovir, Desonide cream	Clinically diagnosed
None	None	Valacyclovir	Clinically diagnosed
Hypercholesterolemia	"Susceptible to poison ivy," vaccinated for shingles in July 2020	Valacyclovir	Clinically diagnosed
HTN, treated R breast cancer	"no, but am often itchy"	Valacyclovir	Clinically diagnosed

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