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Clinical Case

Herpes Zoster in a Young Cameroonian Triggered by the COVID-19 Vaccine

Un cas de zona déclenché par la vaccination anti-COVID-19 chez un jeune Camerounais

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ABSTRACT

With the COVID-19 pandemic, vaccination appeared to be the only way to overcome the virus. Different pharmaceutical firms raced to find a vaccine. At the same time, there are worries about possible reactions to vaccines. A 30-years old male patient consulted on November 09, 2021 for the appearance of the tender skin rash on the right flank 10 days after receiving the COVID-19 Johnson & Johnson vaccine. On dermatological examination, a confluence of papules and vesicles laying down on erythematous base was observed over the right dorsolumbar area following a dermatomal distribution. Based on clinical finding, and biological examinations returned normal, the diagnosis of right dorsolumbar herpes zoster triggered by anti-COVID-19 vaccination was made. Our case illustrates reactivation of herpes zoster in a young person without any comorbidity after COVID-19 vaccination. If the causal link between anti COVID-19 vaccination and reactivation of VZV was until suspected because of the presence of risk factors in much of the published cases, ours has just been confirmed. This allows us to retain anti-COVID vaccination as trigger factor of herpes zoster.

RÉSUMÉ

Avec la pandémie à COVID-19, la vaccination a semblée être le seul moyen de vaincre le virus; d'où la course des firmes pharmaceutiques afin de trouver un vaccin, et l'émergence des effets secondaires liés à celui-ci. Un patient de 30 ans ayant un antécédent de varicelle dans l'enfance, a consulté pour une éruption cutanée du flanc droit 10 jours après avoir reçu le vaccin anti- COVID-19 Johnson & Johnson. L'examen cutanée a permis d'objectivé des vésicules confluentes, reposant sur une base érythémateuse siégeant de façon dermatomique sur la région dorso-lombaire droit. Le diagnostic de zona dorso-lombaire droit déclenché par la vaccination anti-COVID 19 a été posé sur la base de l'examen clinique et des examens biologiques revenus normaux.

INTRODUCTION

The spreading on coronavirus disease-19(COVID-19) pandemic, responsible of the dramatic worldwide health emergency and economic crisis, has confirmed the importance of vaccination as one of the most effective public health tools that medical science is able to provide[1] to date. In February 4 2022, Cameroon has recorded 116,718 cases of contamination and 1,880 deaths linked to the coronavirus since the start of the spread[2].
Anti-COVID vaccination began in Cameroon on 12 April 2021; until 3rd February 2022, 66300 people were completely vaccinated, that is 2.5% of the population[3]. The country opted for vaccines AstraZeneca (Adenoviral Vector Vaccines: ChAdOx1 nCoV-19) and Sinopharm (Inactivated whole-virus vaccines: BBIBP-CorV) [4, 5]. Thereafter, Janssen vaccine also called, Johnson & Johnson (Ad26.COV2.S) also entered in the batch of doses administered to the Cameroonian population since 26 July 2021[4, 5]
As the vaccination campaign grows, surveillance of side effects needs to be monitored closely. Possible side effects range from minor events such as sore arm and swelling at the injection site to more prominent manifestations such as fever and chills, headache, nausea, and anaphylactic

reactions. Many cutaneous reactions after vaccines ranging from local injection site reactions to urticarial and morbilliform eruptions, pernio/chilblains and zoster flares have been reported in literature[6]. Here, a case of varicella zoster virus (VZV) reactivation occurring after Johnson & Johnson vaccination is described.

CASE REPORT

A 30-year-old male patient with a history of chickenpox in the childhood consulted on 09 November, 2021 following the appearance the tender skin rash on the right flank a day before.

He received a dose of COVID-19 Johnson & Johnson vaccine on 30 October, followed 3 days after the injection by fatigue headaches, fever and a beginning of burning back pain radiating to the abdomen. On 5 November 2021, after the persistence of symptoms, he consulted attending physician who carried out biological examinations (blood count, serum urea, serum creatinine, malaria test, high C-reactine protein, transaminases, HIV test, and fasting blood sugar) which all returned normal. The patient was nevertheless put on B complex vitamin. On 9 November 2021 (i.e. 10 days after the vaccination) the appearance of skin lesions will motivate him to consult in dermatology.

On clinical examination, good general state, colored conjunctiva and no icterus, temperature at 36.6°C, and blood pressure at 120/70 mmhg is observed. On dermatological examination, a confluence of vesicles laying down on erythematous base was observed over the right dorsolumbar area in a dermatomal distribution, painful (pictures1, 2). The rest of the clinical examination was unremarkable.

Based on clinical findings, a part of any other cause found the diagnosis of right dorsolumbar herpes zoster triggered by anti-COVID-19 vaccination was made. The patient was treated with an antiviral, Acyclovir 800mg five time a day orally associated with an analgesic (Paracetamol) and local care (cleaning with an antiseptic). A week later, at the follow-up consultation, a drying of the lesions was noted.

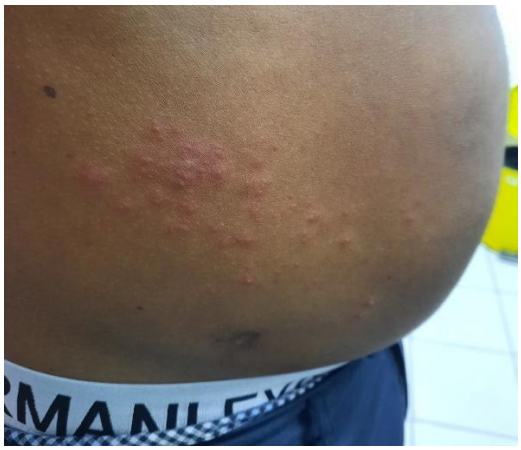

Figure 1: Papules and vesicles laying down on erythematous base was observed over the right dorsolumbar area

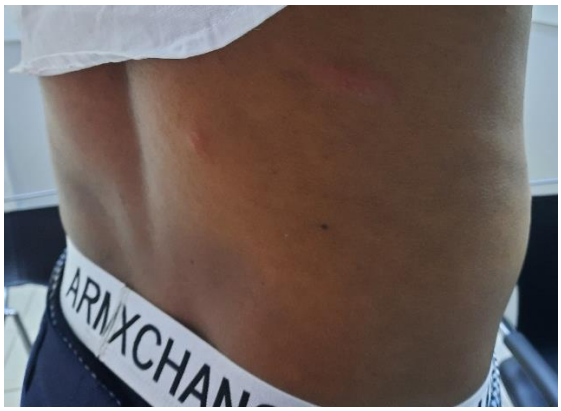

Figure 2: Papules and vesicles laying down on erythematous base was observed over the right dorsolumbar area

DISCUSSION

The spreading COVID-19 pandemic, responsible for the dramatic worldwide health emergency and economic crisis, has confirmed the importance of vaccination as one of the most effective public health tools that medical science is able to provide[1] to date. So far, there are three main types of COVID-19 vaccines in use around the world[5]:

- Messenger ribonucleic acid (mRNA) vaccines: BNT162b2 (Pfizer-BioNTech, New York, New York) and mRNA-1273 (Moderna, Inc., Cambridge, Massachusetts)
- Adenoviral vector vaccines: ChAdOx1 nCoV-19 (AstraZeneca-Oxford), Gam-COVID-Vac (Gamaleya National Centre of Epidemiology and Microbiology), Ad26.COV2.S (Janssen Pharmaceuticals, Inc/Johnson & Johnson), and Ad5-nCoV (CanSinoBIO)
- Inactivated whole-virus vaccines: BBIBP-CorV (Sinopharm) and CoronaVac (Sinovac Life Sciences)

In the mRNA vaccines, short-lived synthetically produced molecules of the RNA sequence transfected (infected by transformation) by COVID-19 are injected into the subject[5]. The adenoviral vector vaccines use adenoviruses from chimpanzees or gorillas to deliver a DNA gene unique to the virus which encodes the spike protein[5]. The inactivated whole-virus vaccines are based on a living virus that has been killed or inactivated, and thus, is not able to cause clinical disease[5].

Although the mechanism of action among all vaccines varies, they share numerous commonly reported adverse events including pain at the injection site, pyrexia, headache, nausea and vomiting, all of which can develop after the first and/or second dose[7]. Less frequently observed adverse reactions include dermatological complications, such as lime maculopapular eruptions, morbilliform rashes, urticaria, chickenpox-like lesions and reactivation of varicella zoster virus (VZV) [7].

Eid *et al.* first reported herpes zoster reactivation following mRNA COVID-19 vaccine, while Bostan et al. first reported the resurfacing of herpes zoster after the employment of inactivated COVID-19 vaccine[6]. Until September 2021, a total of 91 cases of VZV reactivation following vaccination against COVID-19 was identified. All those cases were found out of Africa[8].

In our case, infection started 10 days after the vaccination, Maranini found 7 days after the vaccination[6] and in a systemic review of case report Katsikes *et al*[8] found on average, of symptoms developed 5.8 days after the administration of the vaccine irrespective of the dose.

In the same systemic review of case reports, Katsikes *et al*[8] found that the majority of the patients were older than 60 years of age and with a mean age of 62 years, more than a fifth of patients suffered from an autoimmune disorder and/or were receiving immunosuppressants. This agrees with the literature but contrary to our case where VZV reactivation occured in a young subject without commorbidity and in whom all the paraclinique examinations (blood count, serum urea, serum creatinine, malaria test, high C-reactive protein, transaminases, and HIV test, fasting blood sugar) were normal.

VZV is a DNA virus, primary infection with varicella-zoster virus (VZV) results in chickenpox[9, 10]. Herpes zoster is caused by reactivation of latent VZV from cranial nerve or dorsal root ganglia with spread of virus along the sensory nerve to the dermatome[10]. Reactivation occurs when the immunological mechanisms that suppress VZV replication fail to contain the virus. VZV reactivation is influenced by the immune status and age of the patients, with altered immunocompromised state and ageing being major risk factors[8, 11]. Herpes zoster is characterized by multiple, painful, and/or itching unilateral vesicles and ulcerations, typically occurring in a single dermatome. The average duration of the rash ranges from 7 to 10 days, and is a self-limiting condition. Although usually a limited disease, it can progress to disseminated cutaneous eruptions, encephalomyelitis, and pneumonia, especially in immunocompromised individual[11].

Like our case, most cases of herpes zoster are diagnosed clinically, although direct mmunofluorescence for VZV antigen or PCR for VZV DNA in cells from the base of lesions after they are unroofed may be needed for atypical rashes[10]. About the treatment, antiviral therapy is recommended for herpes zoster for certain non-immunocompromised patients and all immunocompromised patients[10]. Three guanosine analogs- acyclovir, valacyclovir, and famciclovir- have been licensed by the Food and Drug Administration (FDA) for treatment of herpes zoster[10].

CONCLUSION

Main risk factors for herpes zoster include advanced age, use of immunosuppressant medication, immunocompromising conditions.

We report a reactivation of herpes zoster in a young person after COVID-19 Johnson & Johnson vaccine, without any comorbidity. If the causal link between anti COVID-19 vaccination and reactivation of VZV was until suspected because of the presence of risk factors in much of the published cases, ours has just been confirmed. This allows us to retain anti-COVID vaccination as trigger factor of herpes zoster.

Herpes zoster is possibly a condition physicians and other healthcare professionals may expect to see in patients receiving COVID-19 vaccines. The increased awareness of clinicians and the early recognition of the disorder is important for the optimal management of these patients.

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Authors contributions

Odette Berline Sigha : writing of the initial manuscript, writing - review & editing Grace Anita Nkoro : writing - review & editing.
Ekambi Kotto Rose : writing - review & editing.
Benjamin Bertrand Kelbaba : writing - review & editing
Emmannuel Armand Kouotou : supervision, writing - review & editing.

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