

Emergence of Hair dye allergy during COVID Period: A Case Report.

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Abstract

Background: Coronavirus disease 2019 (COVID-19) pandemic occur due to severe acute respiratory syndrome (SARS) coronavirus-2 (CoV-2) infection. COVID-19 Vaccination is essential against SARS-CoV-2 pandemic.

Case Presentation: Present case report presents a case of the development of hair dye allergy during the COVID period after receiving a booster dose.

Conclusion: Increase the number of populations who receive complete vaccination in the whole world but limit booster dose to immunocompromised people.

Keywords: Case report, Coronavirus disease, vaccination, Severe acute respiratory syndrome, Hair dye allergy. Paraphenylenediamine (PPD).

Introduction

Background

Coronavirus disease 2019 (COVID-19) pandemic occur due to severe acute respiratory syndrome (SARS) coronavirus-2 (CoV-2) infection [1]. In the whole world; to control this pandemic, vaccination is done against COVID-19 and emerging variants. Actually, to date evidence shows that the vaccines protect us against severe disease, hospitalization, or even death. However, various adverse effects following immunization (AEFI) were reported. Most of the reported AEFIs were not serious and not immunologically mediated or reproducible on re-exposure [2]. In a study done on 144 medical clerkship students, the most common AEFI of the first dose of SARS-CoV-2 vaccination were 25 reports of injection site pain and 20

reports of malaise. During the booster dose, 34 reports were of injection site pain and 21 reports of malaise. Headache, fever, shivering, sleepiness, nausea, dysphagia, and cold were also reported. Severe allergic reactions, such as anaphylaxis were uncommonly reported [3]. Clients of many hairdressers reported the development of allergic reactions in the form of painful burns, rashes, and peeling skin to previously familiar hair dye during the COVID-19 pandemic [4].

The present case report also reports the development of hair dye allergy manifested after the booster dose of the COVID-19 vaccine (COVISHIELD).

Case Presentation

A forty-nine years old female developed a complaint of severe itching in the eyes followed by severe headache associated with nausea and vomiting about 16 hours after application of hair dye. Headache relief occurs after an episode of vomiting and by taking analgesics and sleep. Headache and vomiting were not associated with fever, sore throat, cold, cough, respiratory problems, or elevated or decreased blood pressure. She received a booster dose (COVISHIELD) of COVID-19 two days before this episode of headache. After this episode itching in the eyes persists with redness of conjunctiva and swelling of the eyelid with watering. For this, she frequently washes her eyes with fresh clear water and puts antibiotic drops. By washing and putting antibiotic eye drops slight relief occurs but itching persists in the form of episodes.

For this complaint, she consults an ophthalmologist who diagnose this as an allergic reaction and advised her not to use the hair dye and prescribed oral antihistamine with eye ointment containing antibiotics with steroids. Through the treatment, she got relief from her symptoms.

She again developed a complaint of severe itching on the scalp 3-4 hours after hair washing when she again applied the hair dye after a gap of 3 months. The dye was a natural hair colouring dye containing Paraphenylenediamine (PPD). For the complaint of severe itching, she took an oral mast cell stabilizer (montelukast) and antihistamine (levocetirizine). With this treatment, she got relief from itching but boggy swelling developed all over the scalp. On the next day morning, the swelling increases and also comes down to the forehead

and temple region. Due to swelling the skin of the forehead shines and she felt tightness and difficulty during specks wearing.

On the next day forehead and temporal region swelling start regressing but the swelling is present over the eyelids, around the eyes, and root of the nose. No complaints of throat swelling, breathing problems, tachycardia, or bradycardia. She took a mast cell stabilizer and antihistamine for about 5 days.

Discussion

COVISHIELD COVID-19 Vaccine is a recombinant, replication-deficient chimpanzee adenovirus vector encoding the SARS-CoV-2 spikes (S) glycoprotein. It contains the genetic material of the part of coronavirus and L-Histidine, L-Histidine hydrochloride monohydrate, Magnesium chloride hexahydrate, polysorbate 80, ethanol, sucrose, sodium chloride, disodium edetate dihydrate (EDTA), and water for injection are the excipients. Its two doses (1st and 2nd dose) of 0.5 ml each; have the same viral particle content and are administered intramuscularly (I/M) at an interval of 12-16 weeks [5,6].

The third dose (booster shot) of a vaccine is given to immunocompromised people, to someone who did not respond adequately to the first two doses, if over time the immunity against infection starts to wane if the performance of the vaccine is inadequate against some of the variants of concern that have emerged [7].

The majority of AEFIs are protective immune responses stimulated by vaccines. Excipients present in the vaccine such as residual non-human protein, preservatives, and stabilizers may produce allergic reactions to vaccines. In COVID-19 vaccines; there are 2 main potential allergenic/immunogenic excipients; polyethylene glycol (PEG) or macrogol and polysorbate 80 [2].

Many permanent and semi-permanent hair dyes contain a chemical called paraphenylenediamine (PPD). PPD is a known allergen and irritant responsible for most reactions to hair dye such as mild irritation on the scalp, neck, forehead, ears, or eyelids. These areas

Declaration of Conflicting interests: The authors declare that there is no conflict of interest regarding the publication of this case report.

Ethical Approval: Not required.

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She has a history of complete Vaccination (two doses) of the COVID-19 vaccine (COVISHIELD). she developed fever, chills, and rigor after the first dose of COVISHIELD.

No such history previously. No history of COVID infection.

History of allergy from dust in the form of frequent sneezing and bronchoconstriction after dust exposure. History of psoriasis present.

No history of hypertension, or diabetes.

Non-alcoholic, non-smoker.

become irritated (itching) and inflamed (red, swollen, blistered, dry, thickened, cracked, feel burning, and stinging sensations) after using hair dye. PPD may also trigger symptoms throughout the body, such as itching, nettle rash and generally feeling ill. Symptoms will usually appear within 48 hours. People who are prone to a skin reaction may react immediately [8].

Dr. Ahmed El Muntaser said that “Coronavirus affects our immune system”. “COVID-19 (and any other infections) put our body in an inflammatory state”; “this means our body reacts exaggeratedly to a very small irritant and also might react to something for which might not have reacted to previously”. This could explain why people suddenly experience a reaction to using the same hair dye for years [8].

Conclusion

Following immunization such kinds of allergic reactions can cause fear and loss of confidence in the safety of vaccines. By risk stratification, COVID-19 vaccine-associated allergic reactions could be prevented.

Nobody is safe until completely vaccinated. Complete vaccination will reduce transmission as well as reduce emerging variants. Our main focus remains to increase vaccine coverage now to those parts of the world that have not had adequate. There is no strong evidence to provide a third dose for people who have already been vaccinated. Giving a third dose needs to be monitored for safety issues.

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