

Case Report: Pityriasis Rosea like Adverse Reaction Following DPT Vaccination, a Result of Medication Error

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ABSTRACT

The DPT vaccine is a combination of vaccines useful against three infectious diseases, diphtheria, pertussis, and tetanus. Ingredients of the vaccine include toxoids of diphtheria and tetanus, and antigens or killed whole cells of bacteria that causes pertussis.

Several adverse effects of DPT vaccine have been reported which include fever, mild crankiness, tiredness, redness or swelling at the site of injection. Pityriasis Rosea is a rare cutaneous adverse effect after vaccination.

Here we describe case of a 24 year-old-male patient diagnosed with Pityriasis Rosea that developed after 1 week of DPT vaccination and consumption of Erythromycin 500mg BD orally for 5 days.

The exact reason for the presence of side effect here is not found out as the dosage of vaccination was inaccurate here and dose related medication error was present. But however, literature suggests the side effect here is a rare complication of Vaccination.

Key words: Vaccination, Diphtheria, Pertussis, Tetanus, Pityriasis Rosea, Adverse effect, Case Report.

I. INTRODUCTION

Pityriasis rosea (PR) is a papulosquamous disorder first described by Robert Willan in 1798 but under another terminology.¹ Subsequently, various names have been given to this disorder such as Pityriasis Circinata, Roseola Annulata, and Herpes Tonsurans Maculosus.²

It typically starts with the development of a large erythematous scaly plaque also called the herald patch or mother patch on trunk or neck, which is followed by an eruption of multiple secondary small erythematous scaly lesions located predominantly on the trunk and following the lines of cleavage on the back (Christmas tree or inverted fir tree appearance). Collarette scaling is seen typically. The eruption is usually preceded by a prodrome of sore throat, gastrointestinal disturbance, fever, and arthralgia. However, since

the prodrome maybe mild and the eruption may occur sometime after the prodrome, the patient may not give a proper history unless elicited. The approximate incidence of Pityriasis Rosea is 0.5-2% and affects people of both sexes in 15-30 years age group although also seen commonly in elderly and children.²

Pityriasis rosea (PR)-like eruption is a cutaneous complication associated with several medications and vaccination.³

The DPT vaccine is very safe. Like any vaccine or medication, there can be side effects, but they are usually mild and go away on their own. Common and mild side effects include: fever, redness and swelling and/or soreness and tenderness where the shot was given, fussiness and tiredness or poor appetite. Uncommon, moderate side effects can include: Seizures, fever higher than 105°F/40.5°C. Serious side effects are extremely rare including allergic reactions. Signs of allergic reaction symptoms include hives, face or throat swelling, difficulty breathing, and fast heartbeat. Allergic reactions start quickly after vaccination, within minutes to a few hours. Other serious but very rare side effects include long-term seizures, coma, and brain damage.⁴

II. CASE DESCRIPTION

A 24-year-old male patient visited dermatology outpatient department of Basaweshwar Teaching and General Hospital, Kalaburagi. Having a 1 week long history of skin lesions on his trunk region. The patient was healthy and had history of getting injected with 0.5 ml of DPT vaccine and patient also had a history of taking Erythromycin 500mg BD orally for 5 days as he was encountered with Diphtheria positive patient. During his physical examination, "Christmas tree" like appearance were observed on his back, abdomen, and arms (figure 1).

The patient also came up with the history that he had taken 0.2ml of DTP vaccine initially due to less-availability of prescribed dose and later on he was given with 0.5ml of same vaccine the

next day, that is the patient was given with 0.7ml of dose in total whereas the prescribed dose was 0.5ml injection intramuscularly.

In the Histopathological study reports, Epidermis of the patient shows Acanthosis, Parakeratosis, Spongiosis and Dermis showing extravasated

erythrocytes, perivascular infiltrate that consists predominantly of lymphocytes and was diagnosed with Pityriasis Rosea (PR). The patient was then prescribed with topical Acyclovir cream 5% w/w, Levocetirizine 5mg BD orally for 10 days and oral Acyclovir 400mg QID for 1 week.

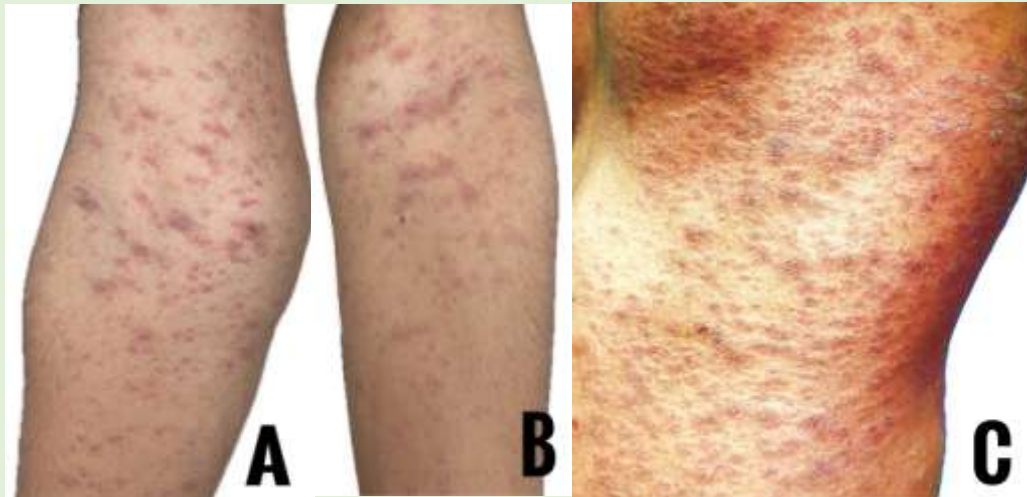


Figure 1: Pityriasis rosea-like eruptions presenting as multiple discrete erythematous oval patches and plaques on the Right arm (A); Left arm (B) and Trunk region (C).

III. DISCUSSION

Pityriasis Rosea is a self-limiting papulosquamous dermatosis that has a prevalence of 1–3%, and mainly occurs in individuals 15–30 years of age. This disease is almost equally prevalent in both sexes.^{5,6}

The condition is also seen commonly in children and elders.

PR initially manifests with the appearance of a herald patch, which is a pink or erythematous oval patch with a diameter of 2–4 cm. Several smaller eruptions appear during a few days, with their longitudinal axes parallel to cleavage lines, resulting in the characteristic “Christmas tree” like appearance.⁵

Various atypical forms of PR have been reported with a prevalence rate of 20%. These variants may manifest with different morphologies (vesicular, purpuric, follicular, or target), distributions (reverse, unilateral, acral, or localized), natural courses, and symptoms.⁶

Vaccine-induced pityriasis rosea and pityriasis rosea-like eruptions have been linked with vaccinations for smallpox, tuberculosis, influenza, papillomavirus, polio, tetanus,

diphtheria, pneumococcal, diphtheria-pertussis-tetanus, hepatitis B, and yellow fever, and more recently with the Moderna mRNA-1273 and other COVID-19 vaccines.^{7,8}

The report concludes that the patient experienced a very rare side effect of DTP vaccine which is Pityriasis Rosea. Since the patient also had a history of taking Erythromycin 500mg BD orally, drug interaction was checked between the vaccine and drug which rules out the presence of drug interaction as there were no possible interactions seen. The interactions were assessed by using proper channels.

Since the patient also had the history of improper dosing of the vaccine, this could be the result of side effect in the patient but the exact reason cannot be found out. However, The literature suggests that the side effect discussed here is a rare but serious side effect of Vaccination.

Data Availability Statement

The original contributions presented in the case report are included in the article, further queries can be directed to the corresponding author/s.

Ethics Statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent was obtained from the individual(s) for the publication of any images or data included in this article. The patient understands that their names and initials will not be published and due efforts will be made to hide their identity.

Conflict Of Interest

The authors declare that they have no conflict of interest.

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