



Vaccine Granuloma

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Abstract

Childhood vaccination against preventable infectious diseases has substantially reduced morbidity and mortality. Though Vaccine regimens are adopted only after rigorous safety and efficacy studies, vaccine-related adverse events, however rare are still of significant consequences.

We present a case of a toddler presenting with recurrent swelling at the site of MR (measles- rubella) vaccination which was diagnosed as foreign body giant cell granuloma, which has not been previously reported.

Keywords: Measles Rubella (MR) vaccine, delayed hypersensitivity (DTH), granuloma.

Introduction

Childhood vaccination against preventable infectious diseases has substantially reduced morbidity and mortality. Though vaccine regimens are adopted only after rigorous safety and efficacy studies, vaccine-related adverse events, however rare are still of significant consequences.^[1] Health Ministry launched Measles Rubella (MR) vaccination campaign in India, 2017 as a member state of the United Nations and to fulfil zero deaths by 2030.^[2] MR vaccine has been studied and reported to have only minor Adverse Effect Following Immunization (AEFI)^[3] Granuloma formation with MR vaccine has not been reported.

Case Report

A one year old healthy infant presented with history of persistent swelling in the right arm

following vaccination at 10 months of age with MR vaccine. It had been excised earlier but recurred. Child was otherwise healthy, first born to non- consanguineous parents with no significant illness. Immunization schedule was done to the age. She did not have history of hives, respiratory distress, mucosal swelling, fever, Tuberculosis (TB) contact.

General examination: Active, afebrile, stable, no pallor, no axillary or generalized lymphadenopathy, normal Bacillus Calmette Guerin (BCG) scar left arm, development – appropriate for age, anthropometry – normal. Chest – clear, abdomen – no hepatosplenomegaly. Local examination: 1cm x 1 cm single, firm, non tender, indurated swelling over upper lateral aspect of right arm with no redness or local rise of temperature.

Investigations: Complete blood count, Erythrocyte Sediment Rate (ESR), Peripheral Blood Smear, Random Blood Sugar, Renal function tests, Liver function tests, Chest X ray, Serum levels of IgG, IgM and IgA: within normal limits, Mantoux test, HIV rapid – negative.

Ultrasound: 8.8 *6.4 mm cystic lesion with internal echogenic areas in the subcutis. No obvious internal or peripheral vascularity. Underlying muscles and vessels normal.

Fine Needle Aspiration Cytology (FNAC) yielded hemorrhagic aspirate which showed polymorphs in singles which is negative for Acid Fast Bacilli (AFB).

Gram stain, Zeil Neilson (ZN) stain, aerobic culture – No pus/ organisms seen, no growth

Treatment: Wide local excision + Biopsy

Histopathological examination: Granulomatous lesion with foreign body giant cells in fibrocollagenous stroma. ZN stain negative.

CB NAAT (Cartridge Based Nucleic Acid Amplification Test) for TB: Negative

On follow up, no recurrence till date and further course was uneventful.

Discussion

Vaccine-related adverse events, albeit rare, can be of significant consequence.^[1] Although anaphylaxis, or type I hypersensitivity, is recognized as a potential reaction after vaccination, delayed type hypersensitivity (DTH) or type IV reactions are less so.

Granulomas after subcutaneous injection is rare and may be a delayed hypersensitivity (DTH) reaction.^[4,5] Granulomas have been reported after rubella vaccination, specifically in primary immunodeficient children.^[6]

Aluminum has been reported to be responsible for 77% to 85% of all DTH to vaccinations. Other reported ingredients include polysorbate, thimerosal, phenoxyethanol, formaldehyde and polymyxin B.^[1,4]

MR vaccine is a sterile lyophilized preparation of attenuated live virus. The measles component is derived from Edmonston strain and rubella from

Wistar strain. Sorbitol and hydrolyzed gelatin are stabilizers, with no preservative. The vaccine may contain traces of neomycin, residual antibiotic.^[7]

Till date there have been no reports of granuloma formation with MR vaccine.

Lauren CT, et al 2016 mention that although neomycin is known cause of DTH, there have been no reports of vaccine DTH to date.^[1]

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