

## Case Letters

## Pityriasis lichenoides et varioliformis acuta following measles rubella vaccine

Pityriasis lichenoides represents a unique group of inflammatory skin disorders that include pityriasis lichenoides et varioliformis acuta, febrile ulceronecrotic Mucha–Habermann disease (a severe variant of pityriasis lichenoides et varioliformis acuta) and pityriasis lichenoides chronica.<sup>1</sup> Pityriasis lichenoides et varioliformis acuta is a cutaneous disorder characterized by crops of erythematous macules and papules on the trunk and flexural areas of the extremities. Reddish-brown crusted areas gradually develop and result in varioliform scarring. The etiology remains unknown. It is speculated to be an inflammatory reaction triggered by certain infectious agents, an inflammatory response secondary to T-cell dyscrasia or an immune complex-mediated hypersensitivity.<sup>2</sup> Few reports of pityriasis lichenoides et varioliformis acuta secondary to measles, mumps and rubella, influenza, tetanus and measles rubella vaccine have been described.<sup>3–6</sup> Here, we describe a case of pityriasis lichenoides et varioliformis acuta following measles rubella vaccine.

A 6-year-old boy presented to the dermatology department of JSS Medical college, Mysuru with a history of reddish raised lesions over the trunk and extremities for 8 days. Initially, the lesions were asymptomatic, subsequently becoming itchy. There was no fever or constitutional symptoms. He had received measles rubella vaccine 7 days prior to the onset of lesions. He was not on any medications, and his previous vaccinations were uneventful.

On cutaneous examination, multiple, discrete erythematous papules, some with crusting, were seen bilaterally over the trunk, limbs and face. There were a few erosions over the abdomen and legs [Figures 1 and 2]. There were no mucosal lesions or lymphadenopathy. Systemic examination was normal.

Based on the above findings a differential diagnosis of pityriasis lichenoides et varioliformis acuta, atypical pityriasis rosea, papulonecrotic tuberculid, varicella and lymphomatoid papulosis was considered.

Routine blood investigations were normal. Skin biopsy from an erythematous papule on the trunk showed epidermis displaying parakeratosis, necrosis of keratinocytes and basal cell vacuolar degeneration. Superficial dermis revealed perivascular and interstitial lymphocytic infiltrate. Pigment incontinence was present [Figure 3]. Based on the clinical and

histopathological features we made a diagnosis of pityriasis lichenoides et varioliformis acuta following measles rubella vaccination.

The child was started on oral azithromycin 250 mg daily and a short course of low-dose systemic steroids mention the dose of steroid for 2 weeks. Narrow-band ultraviolet-B phototherapy at 200 mJ/cm<sup>2</sup> thrice weekly was also given, which was gradually increased by 50 mJ/cm<sup>2</sup> every third session until a final dose of 800 mJ/cm<sup>2</sup>. New lesions stopped appearing within 2–3 weeks of therapy and resolution was seen by 2 months. Narrow-band ultraviolet-B was continued for another 2 weeks and then stopped. The lesions healed with pigmentation along with atrophic scarring [Figure 4].

Pityriasis lichenoides was first described by Neisser and Jadassohn.<sup>5</sup> The underlying pathogenic mechanism in



**Figure 1:** Multiple erythematous papules with central crusting seen over the trunk

pityriasis lichenoides is unknown. High antibody titres to various infectious agents such as HIV, hepatitis C, cytomegalovirus, Epstein–Barr virus, *Toxoplasma gondii* and Herpes simplex virus have been observed concurrently with the disease, but no definitive relation has been established.<sup>5</sup> Pityriasis lichenoides et varioliformis acuta following vaccination is rare. Isolated cases with tetanus, measles, measles, mumps, and rubella, measles rubella, influenza and H1N1 vaccination have been described previously.<sup>6</sup>

The measles rubella vaccine currently used in the immunization program is a live attenuated vaccine. The

Ministry of Health and Family Welfare of India has initiated this mass vaccination campaign in the age group of 9 months to 15 years in a phased manner across the nation on February 2017. Adverse effects reported are minor and transient (local reaction, fever, rash) with no long-term sequelae. One serious but extremely rare adverse effect of measles rubella vaccine is anaphylaxis following vaccination.<sup>7</sup>

History of recent vaccination and typical clinical and histopathological features aided the diagnosis. Naranjo adverse drug reaction probability scale was used for causality assessment and showed a possible correlation with measles rubella vaccine and the adverse event. Measles rubella vaccine as a cause of pityriasis lichenoides et varioliformis acuta in our case was based on temporal correlation and previous similar reports of association with vaccination. Rechallenge could not be done. Some authors have proposed that the measles component of measles, mumps and rubella vaccine triggers a lymphoproliferative reaction in the skin presenting as pityriasis lichenoides et varioliformis acuta, with the virus acting as an epidermal antigenic target.<sup>3</sup> Whether measles or rubella component of the vaccine triggered the eruption in our case is difficult to confirm.

There are only few reports of vaccination triggered pityriasis lichenoides et varioliformis acuta worldwide. Measles rubella vaccine induced pityriasis lichenoides et varioliformis acuta has been reported from Japan.<sup>6</sup> Dermatologists and physicians should be aware of this rare complication associated with measles rubella vaccination.



Figure 2: Multiple erythematous papules with central crusting over the legs

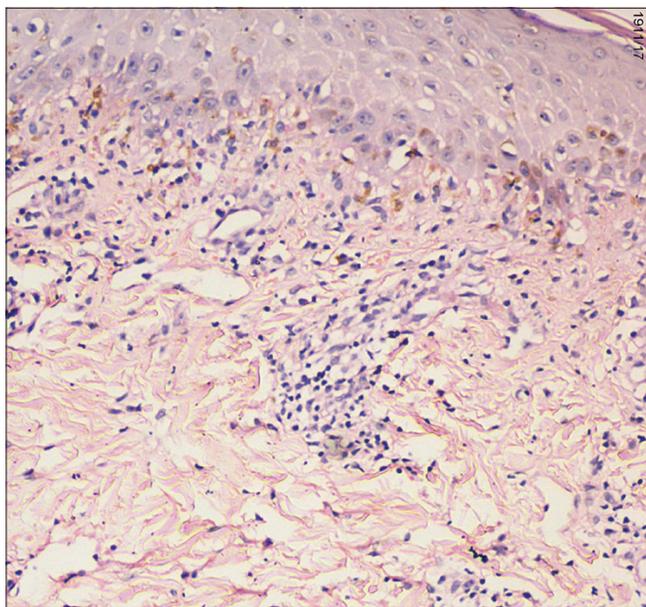


Figure 3: Epidermis showing basal cell vacuolar degeneration with pigment incontinence in the dermis (hematoxylin and eosin, ×400)

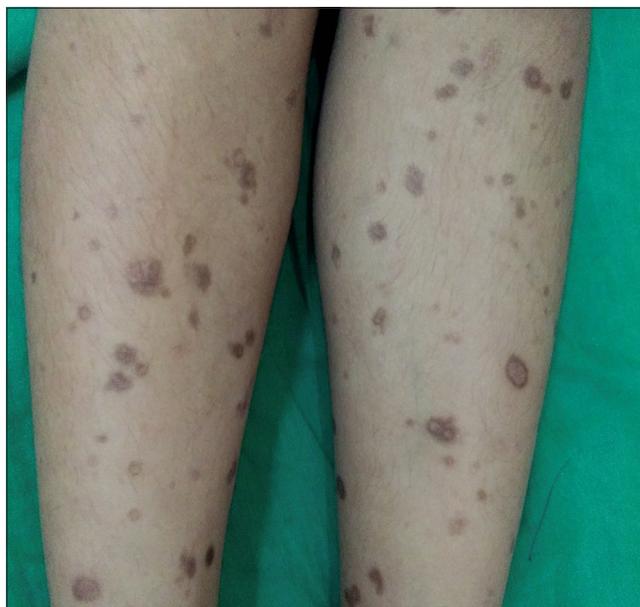


Figure 4: Pigmented atrophic scarring over the legs

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understand that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

***Veeranna Shastry, P. S. S. Ranugha,  
Vinutha Rangappa, P. Sanjaykumar***

Department of Dermatology, Venereology and Leprosy, JSS Medical College, Mysore, Karnataka, India

**Correspondence:** Dr. Veeranna Shastry,  
Department of Dermatology, Venereology and Leprosy, JSS Medical College, Mysore - 570 004, Karnataka, India.  
E-mail: veerannashastry9@gmail.com

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