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Urticarial Vasculitis Following Exposure to Holi Colors : A Rarity

Sonia Jain¹, Preeti Jakhar¹, Neha Pandey¹, V.B.Shivkumar².

1 Dept. of Skin & V.D., MGIMS, Sewagram

2 Dept. of Pathology, MGIMS, Sewagram.

Corresponding author: Dr. Sonia P. Jain

E-mail: soniapjain@rediffmail.com

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Abstract

Holi is a festival of colours, traditionally celebrated by greeting others and applying various colours. These colours are synthetic dyes which may have harmful side-effects on the skin and mucocutaneous areas like the conjunctiva and oral mucosa. In India, these colours are prepared on a small scale and lack any quality checks. Here we present a case of a 43 years old female who developed angioedema with urticaria progressing into urticarial vasculitis after playing with the colours in the festival of Holi. This case report highlights the need to put manufacturing of Holi colours under the guidelines of the Food and Drug Cosmetic Act and the Bureau of Indian Standards

Key words: Holi colours, female, angioedema, urticarial vasculitis.

Introduction

Cultural and religious practices may have significant impact on the health of people. Holi, an annual festival celebrated all over India since ancient times is one of the most popular annual events in India, observed with great festivity. On this day people gather together in a common place and celebrate this festival by applying colours in different forms on friends and family. Originally, the bright flowers that blossomed during spring were used as raw materials from which the different shades of Holi colours were made. Most of these trees were supposed to have medicinal properties beneficial to the skin. Lately with the spread of industrialization and urbanization, natural colours have been replaced by inexpensive industrial dyes manufactured through different chemical processes. Many patients consult dermatologists over the few days immediately following Holi for skin problems resulting from playing with these colours.

Case report

A 43 years old female presented with chief complaints of the swelling over the face, eyes and multiple red coloured lesions all over the body, associated with itching and burning sensation. She gave a history of playing with colours on her body which entered her eyes and oral cavity followed by the appearance of these lesions on the very next day. These lesions were gradually progressive in nature. She had a past history of similar episode in the form of generalised pruritus after exposure to the Holi colours. She gave no history of any drug intake, hair dye application, atopic diathesis, local irritant application, joint pains, dyspnoea, fever,

chest pain or vomiting.

On examination there were multiple erythematous urticarial wheals and papules. Plaques were of varying sizes ranging from 0.3x0.5 cm and 1x1 cm to 1x3 cm and 2x4 cm over the face, both upper and lower limbs, back, chest, abdomen, thighs, legs and buttocks (**Fig. 1**). There was oedema of facial skin with angioedema of the upper lip and eyes with congestion and watering of both eyes (**Fig. 1**).



Fig 1: Erythematous urticarial wheals, papules, plaques of the face and neck with congestion and angioedema of right eye and upper lip.

Lesions present on the thighs, back, abdomen were purpuric and non-tender (**Fig. 2**). Further these lesions progressed over both palms and soles. The patient also developed congestion and erosions of the oral mucosa. Her systemic examination revealed no abnormality.



Fig 2: Multiple purpuric patches of both thighs and legs posteriorly.

The complete blood counts were normal. Eosinophil count was 4% with absolute eosinophil count of 392 cells/mm³. Blood sugar, renal and liver profile were within normal limits. ELISA for HIV was non reactive and RA factor, Antinuclear antibodies (ANA) level and thyroid profile were normal. Skin biopsy revealed urticarial vasculitis showing dermal oedema with perivascular infiltrate consisting of inflammatory cells in the dermis (**Fig. 3&4**).

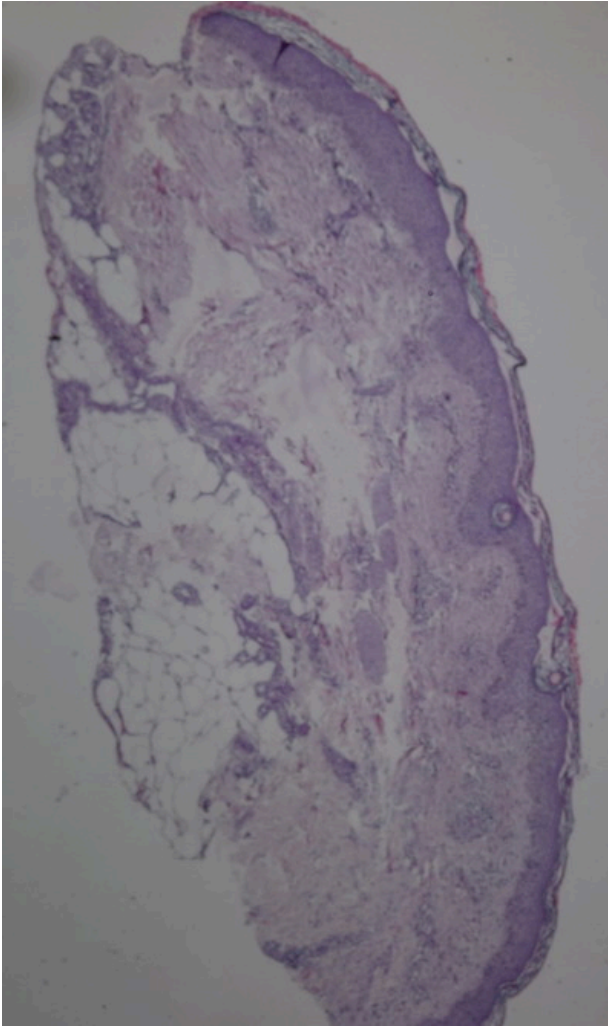


Fig 3: Photomicrograph of urticarial vasculitis showing inflammatory cells around the dermal vessels (H&Ex400).

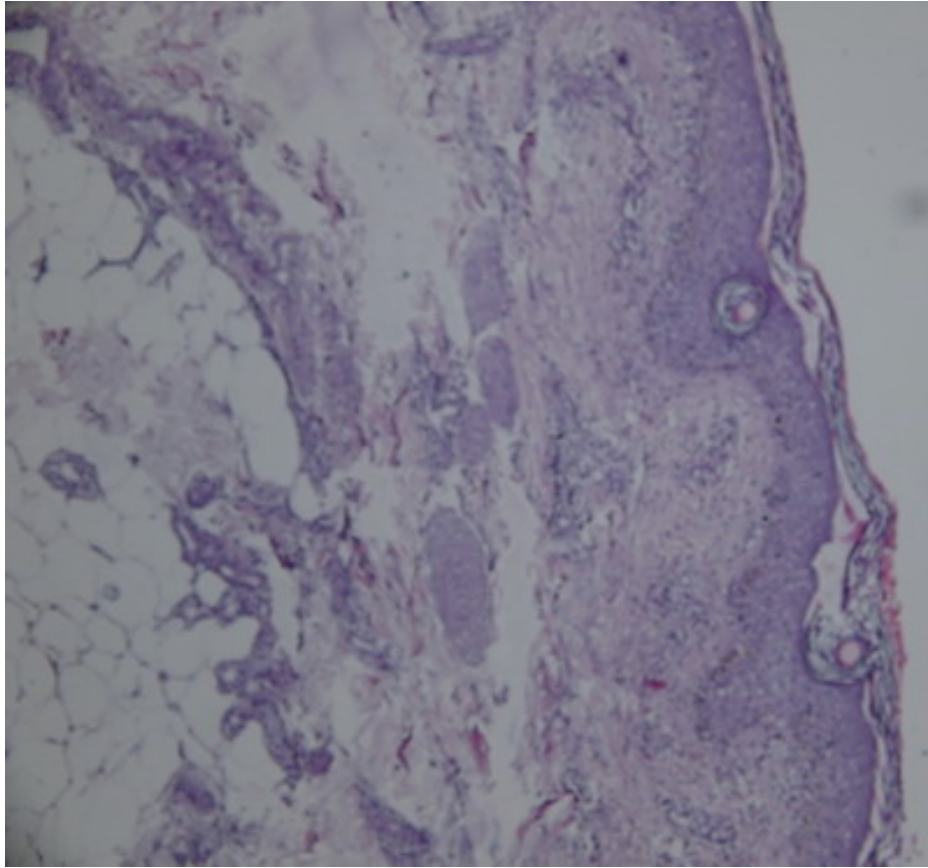


Fig 4: Photomicrograph of urticarial vasculitis showing dermal oedema with perivascular inflammatory cells (H&E).

The patient was treated with intravenous dexamethasone 8 mg a day over two days which was tapered reducing the dose 8 mg daily for two days. It was then followed by shifting to tablet Prednisolone 20mg which was tapered over two days by reducing the dose to 10 mg and was then stopped. Her blood sugar level was also monitored while she was on steroids and it remained normal. The patient was also given injectable and oral antihistamines with local care for the eyes and oral mucosa. She was completely asymptomatic after three days of treatment. **Fig.5&6** show complete resolution of facial and ocular lesions with clearance of purpuric lesions of thighs and legs.



Fig 5: Post-treatment photograph showing complete clearance of lesions of face and eyes.



Fig 6: Post-treatment photograph showing complete resolution of purpuric patches of the thighs and legs on posterior aspect.

Discussion

Religious activities are involved in the celebration and the ritual of Holi involves throwing of various forms of colours on one another. The colours used during the festival come in different forms including pastes, coloured powders and watercolours. The colours mainly include synthetic dyes like malachite green, auramine, methyl violet, rhodamine and orange II. Some of the commonly used colours and their ingredients are black (lead oxide), green (copper sulfate and malachite green), silver (aluminium bromide), blue (Prussian blue), and red (mercury sulfate). The dry colours, commonly known as 'gulals' or 'abeer', have two components; a colourant and a base, both of which may cause cutaneous problems. Mica dust which is often added as a sparkling agent to the dry powders, can lead to multiple micro- traumas of skin and predisposition to infections. The use of contaminated starch or wheat flour can further increase the chances of skin or ocular infections. Most of these chemicals are phototoxic and may incite skin allergies. Dada et al [1] have reported ocular injuries due to Holi colours. In another case report, the patient suffered from bilateral periorbital necrotizing fasciitis, following exposure to Holi colours [1]. Periorbital necrotizing fasciitis carries a high rate of mortality of up to 12.5% [1]. According to a study,

malachite green was the main component of the Holi colours used that caused the severe ocular irritation with epithelial defect upon exposure [2]. According to a study, skin problems occurred quite frequently following the celebration with colours, in which approximately 54.1% of the patients complained of pruritus, burning sensation and eczematous reaction pattern as the commonest clinical findings [3]. There is paucity of data with respect to these incidences and enough data were not available to support our findings. In our case report the skin as well as mucosal involvement in the form of angioedema with urticaria were the main clinical features and the presentation as urticarial vasculitis in itself is a rarity. A limitation of this case report has been the inability to perform an appropriate patch test to detect the precise etiology because the colorants were not available with the patient at the time of presentation and the reactions could have been due to unknown industrial dyes. The patient was also apprehensive for the test as she had the fear of aggravation of lesions on contact with the chemical.

Holi colours are produced in India without any quality checks and are sold freely in the market. Packets of these colours do not provide any information to the consumer about the source of the colours, contents, and side effects. Several non-governmental organizations have started campaigning for safe practices like colours derived from natural sources such as vegetables and flowers as colours in Holi. We believe that extensive efforts to increase public awareness regarding the health hazards of harmful colours, availability of safer alternatives at affordable prices with control on the production and selling of hazardous chemicals by the government will help in prevention of cutaneous and ocular diseases resulting from the celebration of this colourful festival

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