Section: DVL

Case Series

POSITIONAL SITTING CONTACT DERMATITIS: A CASE SERIES EMPHASIZING A NOVEL PHOTOGRAPHIC DIAGNOSTIC APPROACH TO IDENTIFY AN ALLERGEN

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ABSTRACT

Background: Contact dermatitis is an inflammatory reaction of the skin caused by exogenous irritants acting on the skin. Despite Industrial advancement and particular attention to patient safety, contact dermatitis is one of the common occupational diseases with a large socio-economic impact. People living in developing countries are still in the habit of sitting in a cross- legged position on various surfaces. **Cases details:** This is a report of a case series of three rare cases of cross- legged sitting pattern of distribution of contact dermatitis from a tertiary care hospital of North India. The mean age of the patients was 54.27 years. Occupationally, a corporate employee, a street vendor and a school teacher were affected. All patients presented with chronic recurrent pruritic plaques on the feet with a mean duration of 4 years. Despite symptomatic relief with topical Steroids and oral Antihistamines, the condition recurred persistently. Patch testing revealed sensitivity to rubber mix; but the source of exposure remained unclear until photographic surveillance identified regular contact with a rubber surface sitting in a cross legged position. **Conclusion:** This case series highlights the importance of occupational history, environmental context and active patient caregiver engagement in identifying elusive allergens in chronic recurrent dermatosis. It also underscores a key patient safety principle: persistent, unexplained dermatologic conditions should prompt deeper investigation particularly photography to avoid misdiagnosis, prolonged morbidity and unnecessary cycles of treatment.

Keywords: Allergic contact dermatitis, Rubber allergy, Photographic surveillance, Cross legged sitting, Rubber mat.

INTRODUCTION

Recent global reports have underscored the significant burden of non-communicable diseases, particularly in terms of mortality and Disability Adjusted Life Years (DALYs), as well as their economic implications.[1] Among these, allergic conditions are characterized by an exaggerated immune response in specific organs, such as the skin, respiratory tract, or gastrointestinal system.[2] Allergic skin diseases are classified as inflammatory conditions of the skin and mucous membranes resulting from abnormal immune responses, including humoral and T-cell mediated mechanisms. These conditions encompass a range of disorders, including atopic dermatitis, contact dermatitis, urticaria, drug-induced allergies, nummular eczema, polymorphic light eruption, seborrheic dermatitis, and autosensitization dermatitis.[3]

The prevalence of allergic diseases has been on the rise globally, affecting an estimated 30%–40% of the population.[4] Within the spectrum of hypersensitivity-related disorders, dermatitis constitutes the most common subgroup, accounting for approximately 24.5% of such cases. Contact dermatitis alone represents 17.54% of all hypersensitivity disorders and may serve as a marker of urbanization and community development.[5]

Contact dermatitis refers to a superficial inflammatory reaction of the skin triggered by external agents. It can be classified as either irritant or allergic in nature. While the most frequently observed clinical presentation is eczematous, other variants such as lichenoid, exanthematous, pigmented, granulomatous, erythema multiforme-

like and photosensitive reactions may also occur.[6] In many industrialized countries, contact dermatitis ranks amongst the most prevalent occupational diseases and imposes a notable socioeconomic burden. Estimates suggest that 15%–20% of the general population may be affected by contact allergies.[7] In India, a study reported that 24.22% of patients presenting with dermatitis suffered from footwear-related contact dermatitis out of a sample of 640 individuals.[8]

People living in developing countries still have the habit of sitting in a cross legged position on a plain, hard surface, rather than using furniture.[8] At most of Indian workplaces—especially in sectors like vegetable vendors, tailors, rural education centres, religious discourses and some manufacturing or service jobs—employees spend much of their time sitting. This prolonged sitting, often with limited physical activity, can lead to health issues such as poor posture, musculoskeletal problems, and even dermatological conditions like positional contact dermatitis due to extended pressure and friction at specific skin sites.

"Positional Sitting Contact Dermatitis" represents a unique clinical scenario where mechanical pressure, occlusion, or friction during sitting may act as triggering factors, sometimes mimicking other dermatologic or systemic conditions. Due to its subtle presentation and atypical distribution, misdiagnosis or delayed diagnosis is common, potentially leading to unnecessary investigations or ineffective treatments. This case series aims to highlight this underreported variant, delineate its clinical features, and underscore the importance of a thorough diagnostic approach. Emphasizing patient safety, early recognition, and appropriate management can help prevent chronicity, reduce patient discomfort, and avoid unnecessary interventions. Therefore, documenting and analysing such cases is crucial to enhance clinical awareness and guide dermatologists and primary care physicians in identifying and managing this form of contact dermatitis effectively.

Cases Details

In this case series we explain and report a case series of three rare cases of cross legged sitting pattern of distribution of contact dermatitis from a tertiary care hospital of North India. The mean age of the patients was 53.33 years. There were two female patients and one male patient. The occupation involved a corporate employee fond of attending religious discourses, a street vegetable vendor and a school teacher teaching music as a profession. All patients presented with chronic recurrent pruritic plaques on the feet with mean duration of 4 years.

Figure 1: Multiple papules and plaques of varying size were present on the outer two third of both feet and lateral malleolus in a symmetrical pattern

On cutaneous examination, multiple papules and plaques of varying size were present on the outer two third of both feet and lateral malleolus in a symmetrical pattern. Some of the lesions were excoriated. The soles of the feet and the legs above the ankle were spared bilaterally. There was no associated lymphadenopathy or varicose veins. There was no other significant past medical, surgical or family history. The General physical examination and systemic examination was insignificant in all cases.

Despite symptomatic relief with topical Steroids and oral Antihistamines, the condition recurred persistently. Since the exact allergen could not be identified and there was a diagnostic dilemma in the caregivers mind; All three patients were subjected to a patch test with CODFI Indian standard series. An average of Two plus (2+) reaction was observed in all the three patients due to rubber mix after 48 hours.

All three patients denied usage of rubber foot wear. Given the symmetrical pattern and positive patch test, the patients and their accompanying attendants were advised to monitor and photograph the feet of patients every two hours over the course of a typical day for the next seven days. On close scrutiny of the photographs, a consistent pattern of the patients sitting cross legged on a rubber mat while listening to discourses or vending vegetables or teaching music was observed.

All patients included in this case series were managed with a combination of topical and systemic therapy aimed at reducing inflammation and alleviating pruritus. Each patient was prescribed Clobetasol Propionate 0.05% cream, a potent topical corticosteroid, to be applied twice daily over the affected areas. This was intended to reduce local inflammation, erythema, and itching associated with the dermatitis. In addition, Hydroxyzine Hydrochloride 25 mg was administered orally twice daily as an antihistamine to provide symptomatic relief from pruritus and to support patient comfort, especially during night-time.

Patients were counselled regarding the importance of avoiding prolonged sitting on hard or non-breathable surfaces, maintaining proper hygiene, and minimizing further mechanical irritation by rubber mats to the affected skin. They were also advised to avoid the use of any topical irritants or allergens suspected to have contributed to the onset of dermatitis. A follow-up visit was scheduled one week after initiation of therapy to assess clinical response, adherence to treatment, and resolution or progression of symptoms. During the follow-up, clinical improvement was evaluated based on reduction in erythema, scaling, and pruritus, and further management was tailored accordingly.

DISCUSSION

The present case series illustrates a classical example of contact dermatitis caused by a workplace related or hobby related, but initially overlooked allergen. Rubber is a common known allergen which is encountered in all the cases in the present study. According to the Traidl et al. and Atwater et al. contact dermatitis when wearing shoes was more common in younger patients (up to 40 years) and men and more than 60% of individuals tested for allergen sensitization by patch testing have been shown to test positive for allergens associated with footwear (e.g., Potassium dichromate, Colophony, and Formaldehyde resins).[9,10] But in the present study a rubber mat turned out to be the main source of Rubber mix antigen postivity.

All of the patients in our case series presented with an unusual mode of exposure: prolonged cross-leg sitting on a rubber mat, which acted as the source of irritant contact. This form of contact was not immediately evident to either the patient, the family members or the attending clinicians, highlighting the diagnostic challenge in such presentations. While similar patterns of positional sitting dermatitis have been described in children—particularly associated with contact between shoes and the posterior thighs or buttocks during crossed-leg sitting positions—there have been no prior reports in adults to the best of knowledge. Existing literature, including the case series by Isaacs et al., has documented this entity exclusively in the paediatric population, termed Paediatric Positional Sitting Dermatitis (PPSD).[11] The novelty of these findings lies in its occurrence in adult patients and its atypical source of exposure, emphasizing the need for increased clinical awareness and careful history-taking in cases of localized contact dermatitis.

The chronic and recurring nature of the dermatitis, along with its stereotyped anatomical distribution, necessitated a thorough and collaborative evaluation with the patient to identify the underlying environmental trigger. Although patch testing remains the gold standard for confirming contact dermatitis, its diagnostic value greatly depends on the clinical context and interpretation of results. In this case, the patients lack of awareness about frequent contact with rubber (via a sitting mat) exemplifies how seemingly insignificant exposures may go unnoticed. This underscores the importance of clinician-guided inquiry into the patient's daily routines, occupational activities, and habitual postures, particularly in cases of recalcitrant or unexplained dermatitis. A careful and targeted history is often essential to uncover hidden or overlooked sources of irritant or allergen exposure.[12]

CONCLUSION

Atypical patterns of contact dermatitis may reflect overlooked occupational exposures with significant patient safety implications. Delayed or missed identification of allergen can lead to chronic symptoms, psychological distress and avoidable healthcare utilization. This case series highlights the diagnostic value of combining patch testing, photographic surveillance and patient lifestyle analysis to identify hidden sources of exposure. Clinicians should adopt a systematic, safety conscious approach when managing chronic dermatoses with unclear aetiology particularly in high risk occupational groups.

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