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Allergic Contact Dermatitis (ACD) Presenting as Cellulitis an Unusual Presentation Secondary to Marking Nut (Semecarpus anacardium) Application: A Case Report

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Abstract: ***Background: Semecarpus anacardium also known as marking nut has unsung medical properties. It has been claimed as half physician in Ayurveda. The folklore claims states that Semecarpus anacardium possess medicinal properties like anti carcinogenic, anti-inflammatory, antioxidant, hypoglycemic, antimicrobial and contraceptive properties. In contrary to its biological potentials it has an adverse reaction like contact dermatitis. Case Description: In this report, we present a 36 year old male who was admitted in the hospital with the signs and symptoms of cellulitis and treated in line of same without any improvement. After careful history taking patient revealed history of application of marking nut to the fissure feet day prior to development of symptom complex, which changed the line of management towards treatment of allergic contact dermatitis (ACD). Literature Review: Despite of many significant uses of marking nut there are some adverse reactions like contact dermatitis have been reported. This is due to the presence of a chemical constituent urushiol. Urushiols are oxidized in-vivo generating a quinone form of the molecule which induces delayed type hypersensitivity leading to symptoms such as itching, inflammation, oozing and burning sensation. They act as haptens changing the shape of integral membrane proteins on exposed skin cells. Allergic contact dermatitis is a severe condition that can be caused by the various phytoconstituents and their derivatives. Hence the people should be vigilant and acquire knowledge when they were subjected to the treatment of indigenous system of medicine. Clinical Relevance: Although allergic contact dermatitis secondary to marking nut is known entity, clinical presentation is variable and can be misleading at times to reach final diagnosis.***

Keywords: *Semecarpus anacardium*, Allergic contact dermatitis, Urushiol

1. Introduction

Adverse cutaneous reaction secondary to plant products are not uncommon and the spectrum varies from mechanical injury, pharmacologic injury, primary irritant phytodermatitis, allergic phytodermatitis to phytophotodermatitis.[1]However, making the diagnosis of adverse effect from plants and plant extracts is not always simple and easy. Contact dermatitis is one of the most common skin problems in our country. Although marking nut contains variety of biologically active compounds with various medicinal properties and its components have been individually used for the treatment of many other diseases like cancer, diabetes, arthritis[2-7]; there are reports of deleterious effect due to marking nut usage.[8-11]In this case, we describe the clinical picture of a 36 year old male who was initially misdiagnosed as cellulitis and later diagnosed as a case of allergic contact dermatitis due to marking nut.

2. Case Report

36 year old male patient presented to emergency department with excessive swelling of right lower limb since 24 hours, associated with difficulty in walking and excessive itching. Patient was haemodynamically stable and afebrile. On local examination right lower limb had extensive erythema, pitting edema, localized raised temperature and localized tenderness, mild erythema on left lower limb (Figure 1). Patient was admitted to surgical ward and thoroughly investigated. He was treated as a case of cellulitis and started with intravenous antibiotics amoxicillin with clavulanic acid, clindamycin and oral anti-inflammatory and antihistaminic. Blood investigations were done. Complete blood cell count revealed raised WBC(white blood cells) count to 13 x 10^9/ L(reference range, 4.5-11 x 10^9/ L) and raised absolute eosinophil count of 1000/µL (reference range, 0-400/µL) ; and biochemical tests (liver function tests and serum urea nitrogen and electrolyte profiles) were all normal. Blood culture was negative for aerobic growth, anaerobic growth. Color Doppler showed edema in subcutaneous plane, no incompetence of sapheno-femoral junction and no evidence of superficial and deep venous thrombosis. 48 hours following treatment, edema of right lower limb had increased progressively and patient also developed maculopapular blanchable rash on trunk (Figure 2) for which dermatology reference was taken.

On careful history taking, patient revealed the history of application of fruit extract of marking nut (Semecarpus anacardium) for fissured feet on a day prior to developing symptom complex. On local examination there was hyperkeratosis and fissures on bilateral sole and black stain of marking nut on right sole (Figure 3). His total IgE level was elevated at 1200 IU/L (reference range, <100 IU/L).Patch test to marking nut showed erythema, infiltration and vesicles (strong positive reaction) within 12 hours.

Considering history, clinical features and biochemistry findings diagnosis of allergic contact dermatitis secondary to

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marking nut was done. Patient was advised to take oral steroid in tapering doses. Within 24 hours of starting steroid erythema and edema subsided remarkably. Gradually both erythema and edema reduced completely (Figure 4) and eosinophil count also returned to normal level.

3. Discussion

Contact dermatitis is one of the most common skin problems. It can be divided into two main types; Irritant contact dermatitis (ICD) and allergic contact dermatitis (ACD). ACD requires prior exposure to allergen for activation of antigen specific acquired immunity leading to the development of immune response and skin inflammation.[12]

Our patient presented with erythema and edema of right lower limb. The local examination findings were initially thought to be the result of cellulitis. In view of the findings of raised AEC, raised Serum IgE levels, positive patch test result, negative blood culture, no pus pocket in USG, drastic response to systemic steroids diagnosis of ACD secondary to marking nut was made.

Ayurveda has been a traditional health care system in India for more than 5000 years and plant products and extracts are commonly used for skin diseases. The marking nut has been used extensively in Ayurvedic medicine since ancient times and locally it is known as bhilawa or ballataka.[13]It's pigment that has been used in the past to mark fabrics that's why it is called as Marking nut. Marking nuts contains urushiol, application of which leads to development of acute allergic contact dermatitis.[14,15]

ACD resulting from exposure to a chemical is a common diagnosis in the dermatology OPD. Morphology of ACD can vary from lichenoid, lymphomatoid, granulomatous, pigmented, purpuric, and erythema multiforme-like lesions.[16]Most of the people believe that plant product usage is safe and natural modality of treatment without any side effects. But plant products are also known to cause deleterious effect on skin. ACD presenting as cellulitis is very rare presentation. High level of suspicion is necessary for the adequate diagnostic and therapeutic care of patients with contact dermatitis.

References

[1] Stoner JG, Rasmussen JE. Plant dermatitis. Journal of the American Academy of Dermatology.1983 1;9:1-5.
[2] Tripathi YB, Pandey RS. Semecarpus Anacardium L, nuts inhibit lipopolysaccharide induced NO production in rat macrophages along with its hypolipidemic property. Indian J Exp Biol. 2004;2: 437-8.
[3] Arul B, Kothari R, Christina AJ. Hypoglycemic and antihyperglycemic effect of Semecarpus Anacardium Linn. In normal and streptozotocin-induced diabetic rats. Methods Find Exp Clin Pharmacol. 2004;26:759-62.
[4] Mary NK, Babu BH, PadikkalaJ.Antiatherogenic effect of Caps HT2, a herbal Ayurvedic medicine formulation. Phytomedicine. 2003;10:474-82.
[5] Ali MA, Wahed MI, Khatune NA, Rahman BM, Barman RK, Islam MR. Antidiabetic and antioxidant activities of ethanolic extract of Semecarpu sanacardium (Linn.) bark. BMC complementary and alternative medicine. 2015;15:138.
[6] Subramani S, Banu Hedyathullah Khan H, Palanivelu S, Thiruvaiyaru, Panchanadham S. Restorative Effect of Semecarpus Anacardium on Altered Energy Metabolism in Type-2 Diabetes Mellitus–Induced Cardiac Dysfunction in Rats. Journal of dietary supplements. 2018;9:1-4.
[7] Soysa P, Jayarthne P, Ranathunga I. Water extract of Semecarpus parvifoliaThw. leaves inhibits cell proliferation and induces apoptosis on HEp-2 cells. BMC complementary and alternative medicine.2018;18:78.
[8] Goldsmith NR. Dermatitis from Semecarpus Anacardium (Bhilawanol or the Marking Nut) spread by Contaminated Mail. Journal of the American Medical Association.1943;123.
[9] Verma GK. Airborne contact dermatitis apparently acquired when using pericarp juice from Indian marking nut as a home remedy to treat patchy hair loss. Contact Dermatitis. 2019;25.
[10] Fok JS, Kral AC, Hayball J, Smith WB. Marking nut anaphylaxis. Asia pacific allergy. 2016;6:192-4.
[11] Krupa Shankar DS. Contact urticaria induced by Semecarpus anacardium. Contact dermatitis.1992;26:200.
[12] Saint-Mezard P etal.Allergic contact dermatitis. European Journal of Dermatology. 20041;14:284-95.
[13] Goon AT, Goh CL. Plant dermatitis: Asian perspective. Indian journal of dermatology. 2011;56:707.
[14] Goldstein N. The ubiquitous urushiols Contact dermatitis from mango, poison ivy, and other" poison" plants. 1968. Hawaii medical journal. 2004;63:8.
[15] Bhatia K, Kataria R, Singh A, Safderi ZH, Kumar R. Allergic contact dermatitis by Semecarpus anacardium for evil eye: a prospective study from central India. Indian J Basic Appl Med Res.2014;3:122-7.
[16] Kränke B, Schuster C. Contact dermatitis: relevant differential diagnoses, simulators, and variants. JDDG: Journal der Deutschen Dermatologischen Gesellschaft.2015;13:1073.

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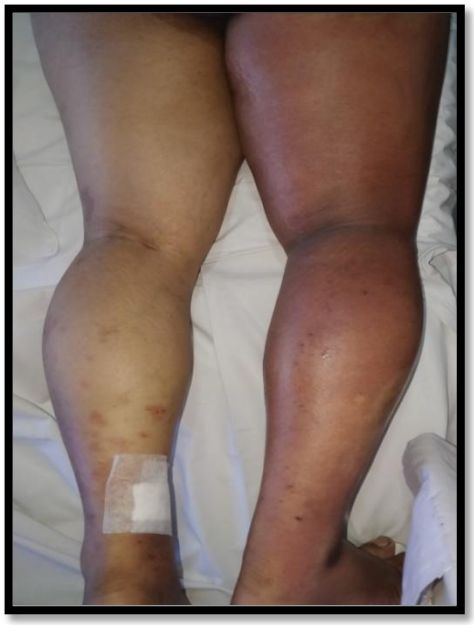

Figure 1: Erythema and edema right lower limb and mild erythema on left lower limb

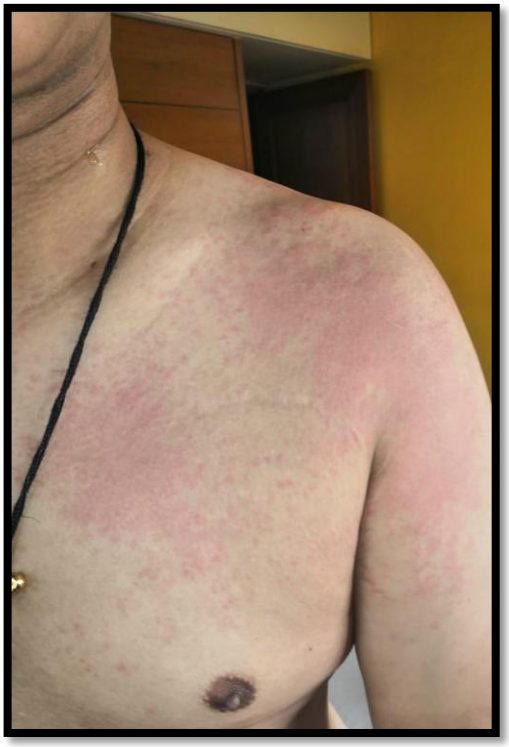

Figure 2: Erythematous maculopapular blanchable rash on trunk

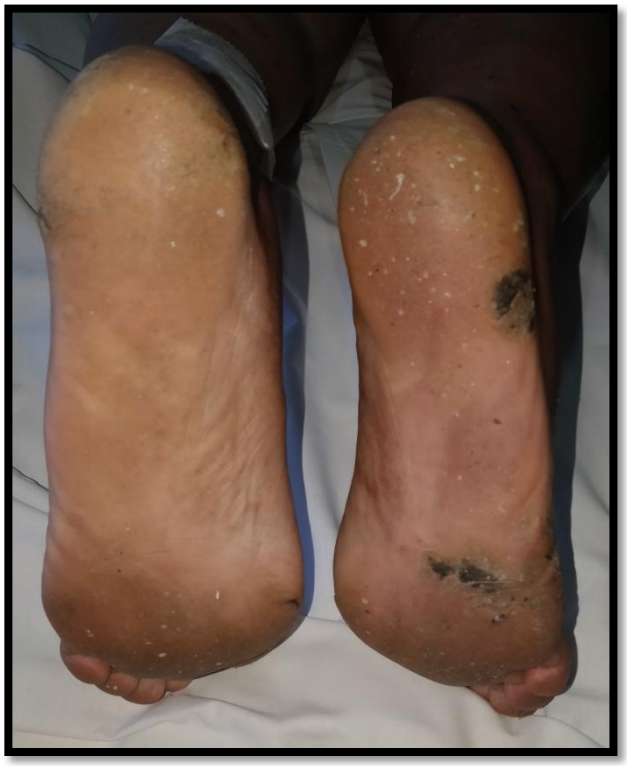

Figure 3: Hyperkeratosis and fissures on bilateral sole and black stain of marking nut on right sole

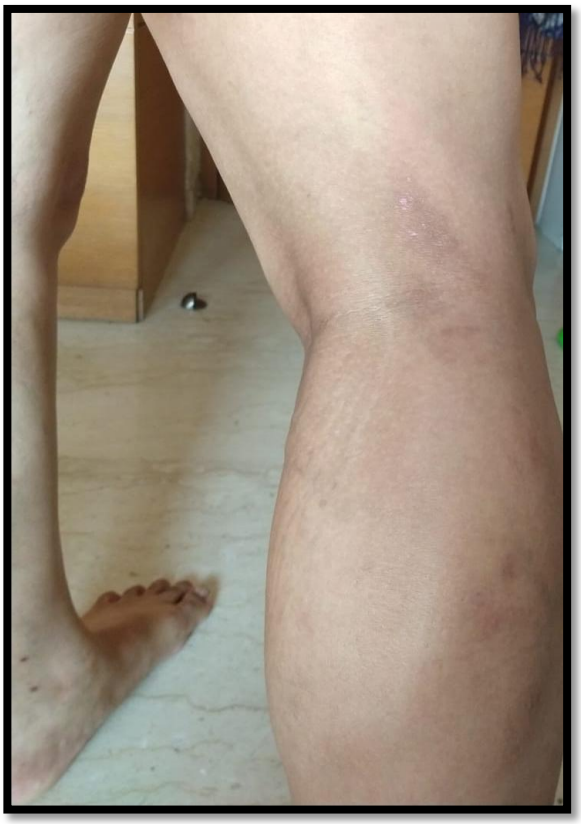

Figure 4: Resolution of erythema and edema

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