

DERMA TODAY

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Dear Doctor,

Greetings from Micro Labs. We are happy to bring you "**Derma Today**" which contains latest and interesting news in the field of Dermatology.

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Looking forward to your valuable feedback.

Best Regards,

Medical Team, Micro Labs Limited.



Relationship of Buccal Micronucleus with Disease Activity Score Using Buccal Micronucleus Cytome Analysis (BMCA) in Systemic Lupus Erythematosus

Introduction

Complex clinical and molecular presentations make the systemic lupus erythematosus (SLE) an archetypal inflammatory disorder involving a significant number of people. Proper treatment and risk detection is important to avoid damage to organs and enhance quality of life. Here they identify the constituents of the specific SLE evaluation, including disease monitoring behavior, and its association with the development of micronuclei (MN). In existing clinical practice, the most effective laboratory studies and indexes are checked. Past reports have shown that SLE is less common in the Saudi population than in other Asian countries. In fact, the incidence rates dropped between 30–50 per 100,000 populations. The lowest prevalence was demonstrated by three Asian nations, India, Japan and Saudi Arabia, varying from 3.2–19.3 per 100,000 people. Many essential pathways are involved in the pathogenesis of SLE, for example apoptosis. An earlier research found an improvement in apoptosis of the lymphocytes and incomplete clearance of apoptotic cells in SLE. Furthermore, apoptosis in active SLE was observed to be stronger comparison with inactive SLE. Since no single indicator may characterize the condition of all SLE patients, generic indexes have been devised for calculating the development of SLE diseases. The most commonly used and easy to use methods for calculating score of disease behavior in SLE are the Global Assessment of Doctors and the SLE disease activity index (SLEDAI). The SLEDAI reports twenty-four characteristics related to lupus as specific weighted ratings. Severe manifestations affecting renal, cardiovascular, and vascular structures are provided more weight rather than cutaneous manifestations, with a maximum score of 105.

Recent revisions are introduced that put more focus on the ongoing disease than merely recent or recurring infection. Through supplying details regarding nuclear damage during the earliest microinvasive process, the buccal micronucleus cyto assay offers predictive knowledge to classify patients at high risk of advancing to malignance. Micronuclei can provide in vivo information for cells such as erythrocytes, lymphocytes, and exfoliated epithelial cells on quantitative damage at the genomic level. The MN assay is commonly favored as an initial screening over a cytogenetic assay, because it is fast, non-invasive, and less time consuming, and does not involve a nuclear division ex vivo. The procedure includes staining exfoliated buccal epithelial cells under a light microscope and examining the smear.

The simplicity of collecting samples allows BMCA a popular option for monitoring classes of people who are seeking SLE therapy. A review of the literature did not find any research that discussed SLE's impact on buccal mucosal cells. MN incidence has been documented to have risen in cancer, neurodegenerative, cardiovascular disease and diabetes patients. In fact, elevated incidence of MNs in ordinary subjects represents genetic uncertainty and a predictive function for potential cancer. To order to provide reliable evidence able to forecast possible incidence of oral lesions to SLE

patients, exposure to clinically appropriate looking mucosa was mandatory for the scientists. Therefore, they aimed to assess the impact of SLE on regular buccal mucosal cells using BMCA in the current research, and then compare such results with the score of disease activity.

Methods

After thorough oral examination of adult Saudi SLE patients of Asir hospital and that of healthy control subjects, the subjects underwent BMCA from normal unaffected bilateral buccal mucosae.

Results

The mean frequency (or number) of MNs in a total of 2,000 cells in patients with SLE (RG) was 5.25, whereas in healthy individuals (CG), this number was 4.77. The mean value of MN cells observed in RG was compared with that for CG. Nonparametric test results showed that the difference in the mean values of MN in both groups was not statistically significant ($P = 0.057$). Pearson's correlation test showed that there was no significant correlation between MN count and disease activity ($P = 0.079$) or duration of SLE ($P = 0.934$).

RG		CG	
Mean	5.257143	Mean	4.777778
Standard Error	0.556615	Standard Error	1.011922
Median	5	Median	3.5
Mode	5	Mode	0
Standard Deviation	3.292977	Standard Deviation	6.071531
Sample Variance	10.8437	Sample Variance	36.86349
Range	14	Range	25
Minimum	0	Minimum	0
Maximum	14	Maximum	25
Sum	184	Sum	172
Count	35	Count	36
Confidence Level (95.0%)	1.131177	Confidence Level (95.0%)	2.054311

Conclusion

This research indicates that SLE will not contribute to a rise in MN development in buccal mucosal cells which is statistically important. Therefore, careful treatment of SLE in the oral cavity will protect a patient from developing premalignant lesions. Pursuing a comparable analysis on patients with SLE that have higher ratings of disease occurrence would be crucial, and therefore establishing a link with MN incidence. Taken together, it can be inferred from the few research performed on SLE utilizing MN occurrence that the treatment procedures used in tertiary care centers have greatly helped to minimize the cytotoxicity of oral mucosae. Consequently, evaluating the oral health-related quality of life can be useful in tracking the impact of SLE on the oral state.

Source: Assiri K, Hameed MS, Dawasaz AA, et al. Correlation of buccal micronucleus with disease activity score using Buccal Micronucleus Cytome Analysis (BMCA) in systemic lupus erythematosus. Indian J Dermatol 2020; 65:265-8.

Contact Dermatitis among Urban and Rural Patients in a Semi-urban Area in Eastern India

Introduction

Non-communicable diseases have been illustrated in recent studies, which identify the global death and disability-adjusted life-year burden and also its economic effects. Allergic disorders in the target organ, be it mouth, nose, heart, or gastrointestinal tract, are expressed as hyper responsiveness. Allergic skin disorders are classified as skin ailments and mucous membrane triggered by inflammatory disorders focused on irregular humoral reactivity, reactivity of T cells or other associated pathologies. There are various forms of allergic skin disorders such as atopic dermatitis, touch dermatitis, hay fever, allergy to the medication, nummular dermatitis, seborrheic dermatitis, etc. There has been a gradual rise in the incidence of allergic illnesses worldwide. At about 30 per cent – 40 per cent of the world 's population currently suffering from one or more allergic diseases. Among the hypersensitivity diseases, dermatitis dominated the fifth most frequent subgroup with a prevalence of 24.50 per cent of the overall. Contact dermatitis (17.54 percent of the total) is the most frequently diagnosed skin condition in the dermatitis population, which can be an indication of the increasing growth and urbanization of the nation.

Contact dermatitis is characterized as skin's superficial inflammatory reaction caused by the presence of exogenous chemicals on the skin. Those may be allergic or unpleasant responses. The Response More Popular is an eczematous type but certain forms can also be observed, such as multiform erythema, exanthematous, lichenoid, granulomatous, pigmented, and photosensitive reactions Contact dermatitis is one of the rising occupational diseases in developed countries, and has a significant socioeconomic effect. An average 15% -20% of the general population suffer from allergy to touch. An Indian research found that 24.22 per cent of a total of 640 patients had footwear dermatitis. We may not recognize the basic model of the occurrence of skin disorders and the relation between the requirement for dermatological treatment, supply and demand. In fact, we are not conscious of the severity of skin disease as a public health problem. The performance of epidemiological research is quite important for this purpose. Determining the incidence of skin disorders is critical such that appropriate awareness services and prevention measures can be devised.

However, very limited data are available on the prevalence of skin diseases among the Indian population, especially in eastern India. The current research was conducted to establish the incidence of contact dermatitis and to examine the epidemiological history of contact dermatitis in both rural and urban areas.

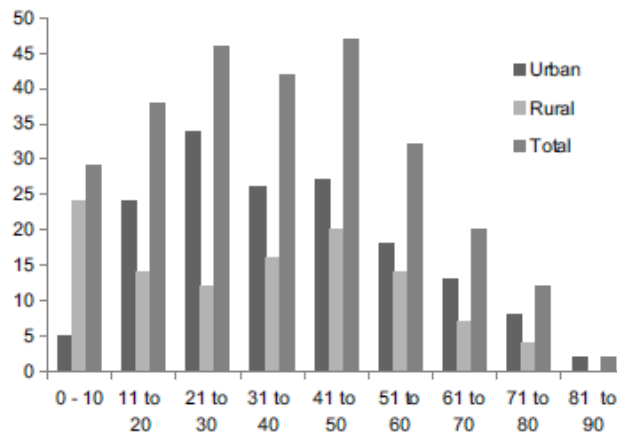
Methods

The study was conducted in a medical college located at a semi-urban area in eastern India with written informed consent obtained from each participant. This hospital-based

cross-sectional study was done from May 2017 to April 2018. Study population consisted of patients attending the dermatology OPD and having lesions clinically suggestive of contact dermatitis and there were 268 such patients. Patients attending the OPD were divided into urban and rural as per their address. Data analysis was done using suitable, standard, and appropriate statistical methods.

Results

The prevalence of contact dermatitis was 4.38% among the dermatology OPD attendees. Urban prevalence was statistically significantly ($P < 0.05$) higher than rural prevalence. Contact dermatitis was common in the age group of 41–50 years. In urban areas, females were more affected than those in rural areas. Occupationally, the difference between urban and rural patients of contact dermatitis was statistically significant ($P < 0.05$). Cosmetic history in the urban group was significantly more ($P < 0.05$).



Distribution of Contact Dermatitis Patients according to age group (n = 268). P value = 0.0006

Occupation	Urban		Rural	
	No.	Percentage	No.	Percentage
Professional	38	24%	14	12%
Pensioner/Retired	11	7%	-	-
Homemaker	41	26%	29	26%
Student	38	24%	20	18%
Businessman	7	5%	-	-
Skilled Laborer	6	4%	2	2%
Farmer	2	1%	5	5%
Paint shop	1	1%	19	17%
Unskilled Laborer	13	8%	20	18%
Vendor	-	-	2	2%
Total	157	100%	111	100%
$P < 0.0001$				

Distribution of Contact Dermatitis Patients (n=268) according to the Occupational Status (Urban- Rural Comparison)

Environmental Disturbances	Urban n	Urban Percentage	Rural n	Rural Percentage
No history	100	62%	86	77%
Dust + Moisture + Construction Material	26	17%	7	6%
Odor + Moisture	2	1%	6	5%
Dust + Construction Material	23	15%	10	9%
Toxic Fumes	1	1%	1	0.9%
Toxic Fumes + Dust + Construction Material	6	4%	2	2.1%
Total	157	100%	111	100%

P=0.0007

Distribution of Contact Dermatitis Patients (n=268) according to the Residential Environmental pollution

Cosmetics	Cosmetic History			
	Urban	Urban percentage	Rural	Rural percentage
No history of cosmetic allergy	61	39%	83	75%
Perfume + BodySpray + makeup + Nail Polish + Lip-Stick	96	61%	28	25%
Total	157	100%	111	100%

P<0.0001

Distribution of Contact Dermatitis Patients according to the Cosmetic History (Urban-Rural Comparison) (n=268)

Conclusion

With regard to touch dermatitis, incidence and history of patients revealed a statistically important gap between urban and rural patients in certain aspects.

Source: Ghosh S, Kundu S, Ghosh S. Epidemiological pattern of contact dermatitis among urban and rural patients attending a tertiary care center in a semi-urban area in Eastern India. Indian J Dermatol 2020;65:269-73..



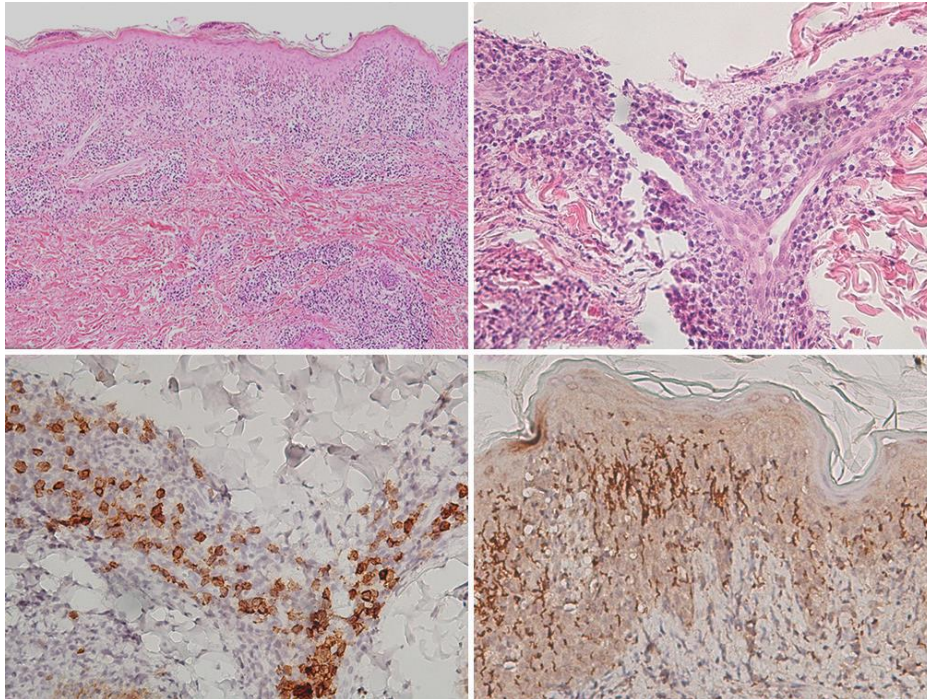
Arthropod Bite-Like Eruption as Rare Presentation of Secondary Syphilis in an HIV-Infected Patient

Case study

A 26-year-old male presented with a 3-week history of numerous pruritic dull red papules and nodules on his trunk and bilateral arms. No oral or genital ulcers were noted. The initial diagnosis was arthropod bite reaction. However, the eruptions were unresponsive to topical corticosteroids; therefore, a skin biopsy was conducted. Pathology revealed acanthosis with perivascular lymphoplasmacytic infiltration from superficial to deep dermis associated with interface involvement of the skin tissue, as well as positive staining for CD138. Immunohistochemical studies revealed the presence of *Treponema pallidum* in the lower mid-part of the epidermis. The patient returned to the outpatient department and admitted homosexual behavior. Laboratory results revealed rapid plasma reagin, 1:4; *T. pallidum* particle agglutination, 1:1280; and anti-HIV antibodies, 153.40. The final diagnosis was secondary syphilis and HIV co-infection. He received a single dose of benzathine penicillin G (2400,000 U), with almost remission of lesions. The patient was referred to an infectious disease specialist for HIV infection control and did not experience similar symptoms during the 1-year follow-up period.



Multiple pruritic dull red nodules on the trunk and bilateral arms. Inset shows remission of lesions after a single dose of benzathine penicillin G treatment



(a) Superficial and deep dermal infiltrate with interface involvement (H and E, $\times 100$). (b) Perivascular lymphoplasmacytic infiltration (H and E, $\times 200$). (c) Positive staining for CD138 highlighted the plasma cell infiltration ($\times 200$). (d) Immunohistochemical detection of *Treponema pallidum* ($\times 200$)

DISCUSSION

Syphilis is a sexually transmitted infection caused by the gram-negative bacterium, *T. pallidum*. It has a three-stage progression and a latent phase. Secondary syphilis occurs in approximately 25% of untreated patients, usually several weeks to a few months after the primary stage. According to the report of Centers for Disease Control and Prevention, in 2015–2016, the national rate of primary and secondary syphilis cases in the United States was 8.7 cases per 100,000 population. Secondary syphilis typically manifests with systemic symptoms such as malaise, fatigue, fever, and headache, as well as various forms of rash, which is classically a maculopapular coppery red rash diffusely involving the trunk and extremities, including the palms and soles. As all of these secondary disease features are not highly suggestive of syphilis and may not be preceded by a detectable primary lesion, diagnosis of this stage of *T. pallidum* infection may be delayed for a long period and can easily be mistaken for another infectious or noninfectious systemic disease. Chancre or typical palmoplantar rashes were not initially noted in the present case. However, numerous insect bite-like nodules were seen. According to the reported literature, this was an extremely rare presentation of secondary syphilis. Serologic testing remains the mainstay for diagnosis of syphilis because *T. pallidum* cannot be cultured. Nontreponemal and treponemal tests are unable to detect antibodies until the infection has progressed 1–3 weeks after the development of the chancre. Direct testing methods, such as dark-field microscopic examination, direct fluorescent antibody-*T. pallidum*, and polymerase chain reaction, should be considered when the diagnosis of syphilis cannot be confirmed. Furthermore, skin biopsy is usually necessary to establish a diagnosis. There are some classic pathological findings in secondary syphilis, for example, the epidermis is often involved and exhibits psoriasiform hyperplasia, the dermis shows a superficial and deep chronic infiltrate, and plasma cells are present in 75% of all cases.



Specific Wharthin–Starry staining (silver staining) using rabbit polyclonal antibodies can be used to identify *Treponema* in the tissue. A single dose of benzathine penicillin G is used to treat patients with uncomplicated syphilis. HIV-infected patients, diagnosed with syphilis, do not have unique regimens but should be treated in accordance with the same recommendations as for HIV-uninfected patients. The recommended regimen for the treatment of primary and secondary syphilis in adults is benzathine penicillin G (2.4 million units IM) in a single dose, which provides at least 14 days of circulating penicillin. This case demonstrated a good response to a single dose of benzathine penicillin G and no cutaneous symptoms were noted during the 1-year follow-up period. The present case report extends the clinical spectrum of secondary syphilis in HIV patients and emphasizes the need for clinicians to have a heightened awareness of the varied and unusual clinical phenotypes of secondary syphilis in HIV-infected patients.

Source: Chen C, Lu Y, Lin Y, Hung C, Wang W, Chiang C. Arthropod bite-like eruption as rare presentation of secondary syphilis in a HIV-infected patient. *Indian J Dermatol* 2020; 65:307-9.



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