Original Article

Urticaria: a threat to *betel* consumers

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Abstract ***Background*** Chronic urticaria is a common dermatosis with a multifactorial etiology including ingestants. The incidence of chronic urticaria has doubled during the last decade. Chewing of betel is common in Hyderabad.

Objective To determine the relationship of betel to chronic urticaria as an underlying cause in the local population.

Patients and methods During one year, patients of chronic urticaria at our department were investigated to find out the underlying cause.

Results Out of 2625 total cases of urticaria, 943 (35.9%) were found to be habitual betel nut (supari) and *pan* (betel leaf) and *gutka* (betel leaf and lime) chewers. Ninety two of 95 volunteers got relief of their signs and symptoms on abstinence from betel. Eighty five of them reported relapse of the disease rechallenge with the suspicious substance confirming the cause-effect relationship

Conclusion The observations suggest that intake of betel in the form of sweetened *supari* and *pan masala* and *gutka* correlates with chronic urticaria.

Key words
Chronic urticaria, betel

Introduction

Urticaria and/or angioedema is a common reactive phenomenon and according to an estimate about 20% of the people suffer from urticaria at sometime or other during their life time.[1] Acute urticaria may be severe but brief and less concerned with dermatologists. When urticaria persists for longer than six to twelve weeks it is considered chronic in nature.[2] Dermatologists are more concerned about chronic urticaria because of its challenging etiology which remains obscure in more than 75 percent of the cases.[3] An association with systemic illnesses like mycobacterial infections, chronic sinusitis, dental abscess, SLE, leucocytoclastic vasculitis and thyroid disorders has been found.[4] In women vaginal candidiasis and trichomonal infections are frequently associated. Urticaria is also induced by physical stimulus such as temperature, sunlight and physical pressure. Specific hypersensitivity to aeroallergens, idiosyncratic reactions to drugs or food chemicals and additives may provoke urticaria in some individuals but in majority other intrinsic or unknown factors dominate. Whatever the cause, the pathogenesis of urticaria shares the common mechanism irrespective of the etiology.[5]

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Reviewing the profile of Skin Diseases among all the patients visiting the out patient department of Dermatology at Liaquat University of Medical and Health Sciences Hyderabad & Jamshoro during 10 years period extending from January 1991 to December 2000, the incidence of urticaria doubled (personal observation). Considering the rising figures, the present study was planned at the outpatient department from January Ist 2002 to December 31st 2002. The main objective of this study was to sort out major factors.

Materials and methods

This observational study comprised of all patients, having chronic urticaria, who visited outpatient Department of Dermatology, Liaquat University of Medical and Health Sciences Jamshoro/Hyderabad included during the year 2002. 2625 (5.8%) of total cases having signs and symptoms of urticaria for more than 10 weeks duration, labeled as chronic urticaria, were scrutinized in detail. **Table 1** shows the study population according to age and sex.

Detailed personal history in relation with respiratory, urinary and gastrointestinal systems was particularly taken. Attention was paid to medication specially NSAIDS, alcohol or any drug addiction. Mouth, nose and throat of each individual was examined thoroughly to assess the effects of smoking and other dietry and chewing materials specially *supari* (betel nut), *pan* (betel leaf) and *gutka* (betel leaf and lime). In case of habitual users, the duration and quantity of daily intake was also noted to assess their relation to signs, symptoms and chronicity of the urticaria.

Table 1 Age & sex distribution of patients of chronic urticaria (n=2625).

Age (years)	*Male No. (%)*	*Female No. (%)*
0-10	48 (1.8)	35 (1.3)
11-20	142 (5.5)	133 (5.1)
21-30	356 (13.6)	292 (11.1)
31-40	278 (10.6)	461 (17.4)
41-50	149 (5.8)	383 (14.6)
51-60	85 (3.3)	138 (5.2)
>61	68 (2.6)	57 (2.1)
Total	1128 (43.2)	1497 (56.8)

Complete blood counts, ESR, detailed urine and stool examinations were carried out in every case. Ultrasound abdomen and chest and sinus roentgenogram were done in a number of cases. Those with acid-peptic disease were also screened for *Helicobacter pylori*. Thyroid scan and thyroid function tests in ten cases were performed. All thyroid investigations were within normal limits. Skin biopsy was suggested in four cases whose weal persisted more than 48 hours and did not respond to antihistamines, all four had urticarial vasculitis.

Results

In our study of 2625 chronic urticaria cases, we observed chronic urticaria to be more common in 30-50 years of age in both sexes. 90% of the patients belonged to lower socioeconomic group. In 35.9% (943) cases of chronic urticaria, we observed excessive use of betel ingredients in some form, especially *gutka, suparai* and *pan masala*. History of two or more years intake of these substance was noted. On further questioning more than 85% revealed history of vague lower abdominal pain, nausea, irregular bowel habit, constant mild cough and sore throat and occasional palpitation. 23% of affected persons reported improvement in

urticaria when they did not take *gutka* in ample quantity.

Other causative factors were detected in 5.6% (147) cases (apart from those induced by betel ingredients). These were inadequately treated chronic recurrent infections e.g. as urinary tract infections with embedded urinary calculi, sinusitis with deflected nasal septum, *Helicobacter pylori* infections and otitis media, dermatophytosis, dental carries and gingivitis, malignancies, viral hepatitis, fish and pickle among dietary products.

Rechallenge with betel

Out of these 943 cases of betel ingredients related sufferers, we randomly selected 95 patients, who voluntarily stopped taking *supari, pan masala* and *gutka,* as per our advice. 92 of these 95 volunteers got relief within 15 days. After a month they were rechallenged with the suspected material under study, and within 20 days, 85 volunteers developed urticarial rashes again.

Discussion:

The most important and challenging aspect of the urticaria is determination of the underlying cause which is very difficult in the majority of chronic urticaria cases. A pre-requisite in the investigation of chronic urticaria is the establishment of a pattern of occurrence that is onset, duration and course of disease.[6] A varying pattern of onset suggest that the source of challenge to the individual is from some external factor such as one found in the allergic, exogenous and physical causes of urticaria. A constant pattern of onset suggests habitual exposures to an exogenous challenge, such as common food or a cause within the patient as one occurring in certain underlying infections, collagen disorders etc. In 60% cases of chronic urticaria, a specific cause is not found, despite the best efforts. Multiple and exhaustive sessions for comprehensive history, foods, hobbies, medication, dairy, complete blood count, repeated routine investigations particularly for UTI and GIT infections and a trial of food additive-free diet are some of the appropriate approaches. Ingested allergens undoubtedly play a role in the symptoms of some patients, both atopic and non-atopic and gastrointestinal signs such as lip swelling, vomiting, diarrhea, pruritus ani were associated, as well.

Our study revealed betel use to be the major cause in 35.9% of cases. This important finding was confirmed by rechallenge. Betel chewing has been important social activity in many countries for millennia. It serves many cultural roles, is mild psychostimulant and is thought to be addictive. Betel chewing is a social and cultural component of Pakistani society, as well. About 20% of the three million population living in Hyderabad chew betel, during most of working hours, despite, being fully aware of at least one malignant outcome that is the oral cancer.

Betel is associated with oral submucosal fibrosis (OSF), leukoplakia and oral squamous cell carcinoma.[7] OSF is often accompanied by mucosal leukoplakia and loss of lingual papillae.[8] OSF is regarded by many researchers as a precancerous condition.[9-11] Perleche and lichen planus-like lesions have also been observed in betel chewers.[12,13] *Gutka* is a mixture of leaf (*Piper betel*), nut of areca palm tree,

catechue-a spice obtained from *Accacia catechu*, lime (calcium hydroxide) and tobacco. All these ingredients are of poor quality (even fungus affected) which are dubbed for a few days to soften. Some flavouring substances are added finally before packing and marketing. Because of its moderate psychostimulating effect and comparatively low price, a vast majority of labourers, their working female members, children and elderly persons chew this admixture, virtually during all working hours. Mothers are known to give their infants premasticated liquid. Betel lime and areca nut are two main carcinogenic betel components. The active ingredient of areca nut is arecoline, an alkaloid with acetylcholine-like properties. Arecoline can cause bronchoconstriction and may trigger asthma.[14] The cholinergic activity may be the underlying mechanism for urticarial rash.

Much is being published in the newspapers against consumption of *pan* and *supari* but still there is a need of an awareness campaign by social and health organizations in our country, particularly. Indian Ministry of Health and Family Welfare requires warning labels on packets of *supari*, and *pan masala* stating that the products are injurious to health.[15] In Mumbai, the local government has imposed a ban on public spitting of betel as part of efforts to tidy up the city.[16]

Though, we have noticed an association between urticaria and betel consumption; however, further research is warranted to reconfirm this relationship.

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