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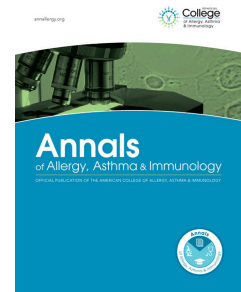
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## **When Long Standing Hives Are Not Chronic Spontaneous Urticaria**

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Chronic spontaneous urticaria (CSU) is one of the most common presentations to allergy clinics. We report the case of a 46-year-old male referred to an academic allergy clinic for evaluation of a recurrent migratory rash described as urticarial.

The patient endorses intermittent areas of pruritis followed by progressive rash and swelling of the skin lasting less than 24 hours in a given location and occurring 2-3 times a week for the previous 3 years. The areas of swelling progressively develop warmth to the touch but remain nontender. The rash is primarily located over the lateral aspect of bilateral forearms, the medial/posterior aspects of both upper arms and the bilateral thighs as well as the lateral aspect of the calves. The rash migrates between these locations and is not present at all of these locations concurrently. He has tried topical homeopathies as well as oral antihistamine and nonsteroidal anti-inflammatory agents with little relief. Hot weather reduces the frequency of these symptoms and cold weather exacerbates them. He reports that occasionally the swelling feels as if it is deeper than involving his skin into the muscles but denies reduced range of motion and denies any joint involvement, joint swelling or redness. He denies fever, weight loss, diarrhea, vomiting, abdominal pain, perianal itching, and swelling of the face, tongue, hands, or lips. He denies a history of asthma, eczema or seasonal rhinoconjunctival symptoms. He was born in Vietnam and moved to Hong Kong when he was 16-years-old. He lived there for 2 years followed by 2 years in Indonesia before moving to the United States. He works in construction and demolition in developing countries spending 3 months of the year in South Africa, Cameroon, Uganda, Kenya and Congo. He is always on malaria prophylaxis during his travels and only drinks bottled water. His exam is notable for xerotic scaled erythematous patches over the medial aspect of both thighs as well as two mid-line coalescing raised erythematous textured plaques with overlying excoriations along his upper abdomen without associated flare and wheal

appearance. His left upper extremity has a firm, nontender, indurated area over the brachioradialis muscle from 3 cm below the lateral malleolus to the midshaft of the radius with overlying warmth but no fluctuance. There was no appreciable dermatographism or evidence on exam suggestive of allergic rhinitis. There are no residual purple lesions, scars or post inflammatory hyperpigmentation in regions of previous rash.

One year prior to presentation, he was evaluated in the Emergency Department for this rash and had a CBC obtained that was notable for a white blood cell count (WBC) of 10.8 with a differential that showed an absolute eosinophil count (AEC) of 3660 cells/dL (normal 30-350). He was prescribed an oral antihistamine agent which had minimal effect.

Laboratory evaluation was pursued due to atypical presentation and revealed a WBC of 9.16 and an AEC 2870 as well as an elevated total serum IgE level of 11957. Complement testing revealed a normal CH50, C3, C4, and C1 esterase inhibitor protein level and function. He was noted to have elevated Filariasis antibody for IgG and IgG4 with positive results to anti-LI-Sxp1 consistent with invasive Loa Loa filarial infection. Subsequent testing for other microfilarial disease including onchocerciasis was negative. Ophthalmologic assessment was negative for orbital filarial infection. Diethyl Carbamazine was obtained with assistance from the CDC and initiated. His AEC rapidly decreased to less than 1000 after 2 weeks of therapy and his symptoms fully resolved.

## Discussion

Chronic spontaneous urticaria, defined as wheal-and-flair erythematous pruritic cutaneous eruptions with or without associated angioedema lasting longer than 6 weeks, is a constant fixture in the offices of allergists and dermatologists. A thorough history and meticulous physical exam is essential during primary evaluation of patients presenting with this concern as

historical clues often provide diagnostic direction and can lead to an alternative etiologic explanation. Specifically, it is important to distinguish idiopathic or inducible urticaria from other dermatologic conditions that have a similar appearance but possess a broader differential diagnosis (i.e. vasculitis or other systemic disease). Laboratory workup in typical cases of CSU rarely alters management<sup>1</sup> but should be considered when there are atypical features such exotic travel history, association of elementary lesions (papules, crusts, scales, scarring), painful lesion, deep dermal findings, and poor response to antihistamine therapy such as in our patient with our differential as below (table 1).

Loiasis is caused by an infection with the loa loa filarial nematode that infects lymphatic and subcutaneous tissue. It is a vector born infection that is introduced to the human host through bites of the *Chrysops* deerfly. These flies are native to West and Central Africa including Congo and Cameroon. A common cutaneous finding with loiasis is waxing and waning migratory edema of the subcutaneous tissue that is described as Calabar swelling. This is related to the migratory path that the filarial worm takes through tissues and are usually found in the extremities adjacent to joints. Loa loa attempts to migrate to the subconjunctival tissue of the eye where it can be visualized and causes local symptoms including pain, pruritis, and photosensitivity. Diagnosis is made by the identification of an adult worm in the subconjunctiva or by Giemsa stained smear of the plasma. Serologic tests specifically testing for the LISXP1 antigen are available through research laboratories. While urticaria and other dermatologic findings have been reported in patients with filariasis<sup>2</sup> this is less commonly reported with loaiasis<sup>3</sup>. The cutaneous lesions present in our patient did have findings that could be construed as urticarial in that excoriation and pruritis were present. However, the atypical degree of swelling, high risk travel history, and presence of eosinophilia with significantly elevated total

70 IgE in the absence of a strong history of atopic disease all suggested an alternative etiology.  
71 Filariasis infections are uncommonly seen in many Western countries and can be challenging to  
72 diagnose. History is the most important tool to differentiate a rare diagnosis such as this from the  
73 more common conditions such as CSU followed by targeted laboratory evaluation as warranted.

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TABLE 1: Differential Diagnosis of Case Patient

|                                                       |
|-------------------------------------------------------|
| Chronic Spontaneous Urticaria                         |
| Inducible Urticaria (cold, solar, cholinergic)        |
| Urticarial Vasculitis                                 |
| Autoinflammatory Syndromes                            |
| <i>Cryopyrin Associated Periodic Syndromes (CAPS)</i> |
| <i>Schnitzler's Syndrome</i>                          |
| Drug-Induced Lesions via recurrent exposure           |
| Eosinophilic Fasciitis / Cellulitis / Panniculitis    |
| Interstitial Granulomatous Dermatitis                 |
| Mastocytosis (Urticaria Pigmentosa)                   |
| Infection (Helminths)                                 |
| Malignancy                                            |
| <i>Cutaneous T-Cell Lymphoma</i>                      |
| <i>Non-Hodgkin Lymphoma</i>                           |
| <i>Solid Organ Tumor</i>                              |
| <i>Eosinophilic Leukemia</i>                          |
| Contact Dermatitis (Allergic vs. Irritant)            |

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