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CASE SERIES

Strongyloides infection as a reversible cause of chronic urticaria

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Abstract: Recurrent urticaria is a frequent presenting complaint in the Allergy Clinic, despite the fact that chronic urticaria is not an IgE-mediated (atopic) condition in most cases. We present four cases assessed over 5 years in our allergy service who were found to have evidence of strongyloidiasis and whose clinical features resolved with standard anti-helminth treatment.
Keywords: urticaria, *Strongyloides*, strongyloidiasis, chronic spontaneous urticaria, CSU

Introduction

Recurrent urticaria is a frequent presenting complaint in the Allergy Clinic, despite the fact that chronic urticaria is not an IgE-mediated (atopic) condition in most cases. We present four cases assessed over 5 years in our allergy service who were found to have evidence of strongyloidiasis and whose clinical features resolved with standard anti-helminth treatment. This manuscript was reviewed and approved by the Ethics Review Board of Alfred Health, Melbourne, VIC, Australia. A patient consent waiver was approved by the Ethics Review Board as the manuscript has been sufficiently anonymized not to cause harm to the patients or their families.

Case 1

A 35-year-old man migrated to Australia from Vietnam; he had been in excellent previous health on no regular medications. He had 6 months of almost daily urticaria, usually beginning hours after the evening meal and exacerbated by pressure and heat. He experienced some relief with oral anti-histamines. He also described concurrent symptoms of postprandial loose bowel motions two to three times a day. Physical examination was unremarkable. Full blood examination, thyroid antibodies and random serum tryptase were within normal ranges, and gastrointestinal assessment including endoscopies was non-diagnostic. Serum total IgE was elevated in keeping with his atopic status. Positive *Strongyloides* serology was identified (ELISA-IgG; DRG, Springfield Township, NJ, USA); following treatment with Ivermectin, there was resolution of his urticaria and gastrointestinal symptoms.

Case 2

A 28-year-old man who migrated from India to Australia in 2008 was referred with 7 months of daily widespread urticaria. He had previously been prescribed a 10-day course of oral prednisolone, with temporary relief. Regular antihistamines provided par-

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tial symptomatic improvement. Of note, he had no abdominal symptoms. Physical examination was normal. Investigations were within normal ranges other than low-positive *Strongyloides* serology; his urticaria resolved promptly after the administration of Ivermectin.

Case 3

A 64-year-old retiree who migrated from Fiji to Australia several years earlier reported 5 years of episodic urticaria, which had only been partially responsive to oral antihistamines and prednisolone. There were no other clinical symptoms, although there was a peripheral blood eosinophilia of 1.35×10^9/L (normal range 0–0.5). After *Strongyloides* serology was found to be positive and three stool samples were negative, he was treated with Ivermectin. He has had a single episode of urticaria since that time, and the eosinophilia resolved. Serology repeated at a 10-month interval remained positive.

Case 4

A 50-year-old man of Japanese origin presented with 5 years of weekly episodes of urticaria. He was otherwise well and the only abnormality on investigation was a positive *Strongyloides* serology. Treatment with Ivermectin improved his symptoms; he did not return for follow-up serology.

Discussion

Urticaria is a relatively frequent occurrence and may be an isolated acute episode; if recurrent, it may be diagnosed as chronic spontaneous urticaria (CSU). Many of these individuals are referred to an allergy service for assessment of possible causes, and usually, the condition is suppressible with oral antihistamines before eventual spontaneous remission. A careful clinical assessment is nonetheless essential to identify any other potential causes of urticaria, whether these may be food allergy,[1] underlying autoimmune conditions or alternative dermatologic diagnoses.[2] An association with a variety of helminth infections has also been reported.[3]

Strongyloides stercoralis is a widespread, soil-transmitted, intestinal nematode that is frequently asymptomatic in immunocompetent individuals. In the Australian population, the infection may be acquired by those who have visited or been resident of *Strongyloides*-endemic areas such as Southeast Asia or southeastern USA, and also within Australia.[4,5] It is diagnosed with either of stool microscopy or serology; peripheral blood eosinophilia may be present. Stool testing may require multiple specimens to detect the pathogen.[6] Symptomatic infections may result in a variety of gastrointestinal and, less often, respiratory symptoms, or dermatologic manifestations including urticaria.[6] However, the infection may persist within the host for many years, even decades, without symptoms. *Strongyloides* hyperinfection syndrome, which can lead to overwhelming sepsis and death, can develop in the setting of immunosuppression, even with relatively short courses of oral corticosteroids.[7] Therefore, it is proposed that all individuals with the condition ought to be treated, even if asymptomatic. First-line treatment is with Ivermectin, and may be repeated at an interval of 7–14 days. Follow-up serology may become negative over time, although false positives may be due to cross-reactivity with other parasites.[6]

Conclusion

This case series serves as a reminder that not all presentations of recurrent urticaria are, in fact, CSU and that allergists must consider alternative causes before assigning the condition "idiopathic" or "spontaneous". We hasten to add that many other similarly exposed patients have attended our clinic over the same time frame, in whom *Strongyloides* was identified, but treatment did not result in remission of the urticaria. Furthermore, chronic urticaria usually remits spontaneously, so that it remains possible that the resolution in our patients may have been the natural course of the disease. The series highlights the importance of judicious use of corticosteroids, as even short courses are not without risk. It may be prudent to consider assessment for helminths, especially *Strongyloides*, in those at risk presenting with recurrent urticaria, as definitive treatment may lead to complete resolution.

Disclosure

The authors report no conflicts of interest in this work.

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