

## CLINICAL ALLERGY IMAGES

**Section Editor – George du Toit, MB ChB, FCP, FRCPC, MMed, DCH, Dip Allergy**

*Paediatric Allergy Consultant, Evelina Children's Hospital at St Thomas' Hospital, London*

This is one of a series about clinical images relevant to the practice of allergy and immunology. Please submit interesting images and discussion for publication to the Section Editor, Dr George du Toit (details below).

### ITCH AND ALLERGY

Itch (pruritus) is the predominant symptom of skin disease. This is particularly so for allergic skin disorders such as eczema and urticaria. Despite the acknowledgement of this troubling symptom, pruritus remains poorly understood, with even the major nerve pathways for itch and its close relationship to the sensation of pain remaining debatable.

#### **Pathophysiology**

In inflamed skin, histamine plays a major role in the sensation of itch, and its mode of release from activated mast cells is now better appreciated. However, use of antihistamines alone is usually insufficient to control this troubling symptom, suggesting a role for other mediators. Tachykinins (e.g. substance P) and cytokines (e.g. interleukin-2) are important chemical mediators of itch in the periphery. Opioid mu-receptor-dependent processes activate inhibitory circuits in the central nervous system which regulate both the intensity and quality (isolated itch vs. itch-burn) of itch. Interestingly, this pattern of peripheral and central sensitisation in pruritus has striking similarities to that observed in patients who suffer with chronic pain. The presumed similarities in the mechanisms between itch and pain has obvious therapeutic potential, as successful therapies for chronic pain might also be of use in chronic itch. It is proposed that the stimulation of large areas of skin – such as by scratching – generates inhibitory activity which suppresses itch excitation, albeit temporarily.



*Fig. 1. Eczema-induced pruritus and associated skin damage due to scratching.*

Correspondence: Dr G du Toit, Department of Paediatric Allergy, Evelina Children's Hospital at St Thomas' Hospital, London. E-mail georgedutoit@gmail.com



*Fig. 2. Allergic conjunctivitis-induced pruritus with associated conjunctival injection secondary to intense rubbing.*

It is frightening to consider the health implications of, and decreased quality of life induced by, chronic recurrent itch. Itch-induced scratching may result in trauma to the skin, nose or eyes. The following series of photographs (Figs 1-3) demonstrate self-inflicted physical trauma which has occurred as a direct consequence of scratching due to disease-specific itch. Repetitive scratching may result in localised complications, e.g. infected skin lesions such as eczema herpeticum or impetigo, and blepharitis of the eye. Itch also commonly impairs other daily functions such as sleep, social interactions and ability to concentrate.

#### **Treatment**

The currently available therapies for the treatment of itch often prove inadequate. We are duty bound as allergy practitioners to help facilitate the control of itch. Strategies for the control of itch are disease-specific but may include one or more of the following: allergen elimination (e.g. cow's milk protein allergy induced eczema exacerbations), optimal moisturising techniques (e.g. wet wrappings), application of appropriate topical immune modifying ointments and provision of antihistamines.



**Fig. 3(a)**



**Fig. 3(b)**

*Fig. 3a. Urticaria-induced pruritus with (Fig. 3b) demonstration of dermatographism secondary to scratching of cheek.*