ACUTE URTICARIA IN INFANCY

Thato Mosidi
Medical student, University of Cape Town, South Africa
Leanne Wong
Medical student, Vrye Universiteit, Amsterdam, The Netherlands
Sue Jessop, *MB ChB, FF Derm (SA)*
Consultant, Division of Dermatology, University of Cape Town, South Africa

Introduction

Urticaria, or hives, is a common disorder in the young child. The characteristic clinical finding in urticaria is a well-circumscribed, raised, erythematous plaque, which is typically evanescent and frequently shows central pallor. The lesions are usually very pruritic. The mast cell is the key cell in urticaria. Its activation causes the release of vasoactive mediators, predominantly histamine, leading to oedema in the superficial dermis. There are many causes of urticaria. However, in many cases the cause remains unknown. The causes of urticaria can be classified as IgE-mediated hypersensitivity reactions, chemically induced mast-cell degranulation, physical urticaria, arachidonic acid metabolism and complement-mediated reactions (Table I). It is important to differentiate urticaria from erythema multiforme, which shows epidermal necrosis, with the characteristic target-like appearance. While urticaria and angio-oedema (in which the oedema is largely in the subcutaneous tissue) are clinically distinct entities, they may be seen in the same patient, either concurrently or at different times during the illness.[1] Urticaria is defined as 'acute urticaria' if it lasts for less than 6 weeks and 'chronic urticaria' if it lasts for more than 6 weeks.

Table I. Common causes of acute urticaria in young children

Drugs
- Penicillins
- Cephalosporins
- Sulphonamides
- Non-steroidal agents
- Narcotics

Foods and food additives
- Milk
- Egg
- Peanut
- Nuts
- Soy
- Wheat
- Shell fish, fish

Infections
- Viruses – adenovirus, Epstein-Barr, enterovirus, Coxsackie
- Bacteria – *Streptococcus pyogenes, Escherichia coli*
- Parasites

Case report

A 6-month-old boy presented to the paediatric dermatology clinic with a 3-day history of a generalised body rash. Prior to this presentation, he had a 4-day history of symptoms suggestive of an upper respiratory tract infection for which he was given amoxycillin and a decongestant containing pseudoephedrine. Twenty-four hours later the rash appeared. He was also feverish and irritable. This was the first episode of such a reaction and he had previously used the medication without any adverse effects.

The child further developed conjunctivitis 1 day after the rash appeared. He had no other medical or dermatological history of note and had no known allergies. His mother is asthmatic.

On examination the child was stable. His temperature was 37.3°C and he had occipital and cervical lymphadenopathy. He had an extensive erythematous rash, which involved more than 80% of the total body surface area, including his scalp (Figs 1 & 2). He also had bilateral conjunctivitis without exudates and bright red lips. However, the oral mucosa was normal. A diagnosis of acute urticaria was made, due to either the

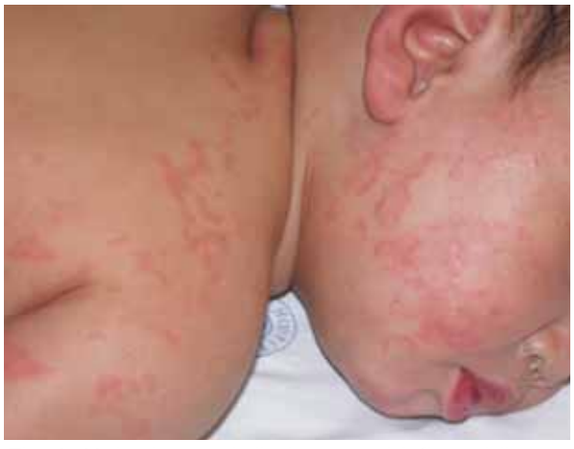

Fig. 1. Urticaria, nasal discharge and inflamed lips on presentation.

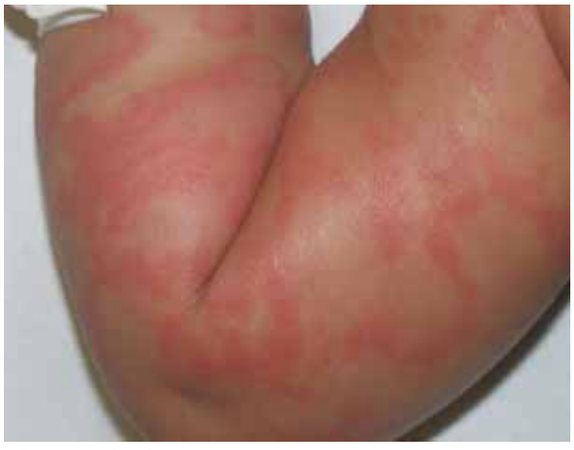

Fig. 2. Urticaria on presentation.

Correspondence: Dr S Jessop, Division of Dermatology, University of Cape Town, Observatory 7935. E-mail susan.jessop@uct.ac.za.

infection or the amoxycillin or both, and all medication was stopped. In view of the bright red lips, extensive rash, conjunctivitis, fever and adenopathy, Kawasaki syndrome was also considered in the differential diagnosis; however the lack of hand oedema or desquamation, the short duration of fever and rapid clearing of the other clinical signs were thought to be against this diagnosis.[2] The child was admitted and treated with two antihistamine drugs (containing chlorpheniramine maleate and cetirizine dihydrochloride), erythromycin, paracetamol and oxymetazoline hydrochloride nasal drops.

Within the following 4 days the child's skin problem resolved almost completely, leaving a reticular appearance. (Fig. 3).

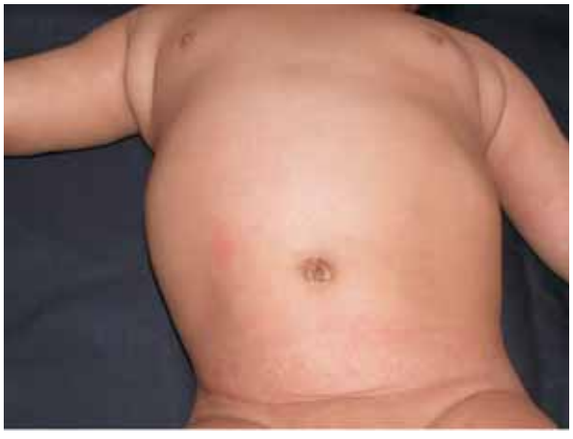

Fig. 3. Clearing of urticaria on day 4.

Discussion

In our case, a 6-month-old infant developed extensive urticaria 24 hours after starting treatment with amoxycillin for a respiratory tract infection. Possible causes for this skin eruption would include both the underlying infection and the therapy.

In a prospective hospital-based study of 56 children (0 to 36 months) with urticaria, Mortureux *et al*.[1] reported the commonest associations to be viral infection (18 cases) and medication (12 cases).[1] Our patient patient probably developed urticaria as a result of the respiratory infection, although the drug may have played a role itself. It may have been due to a combination of infection and therapy, as infection and drug exposure may act synergistically in some cases.

Pure drug allergy is relatively uncommon in young children, but may be commoner in older children.[3,4] In 6 children, food allergy was suspected and in others there were multiple possible causes, including the combination of presumed viral infection and drug therapy. Food allergy is relatively common in babies, but viral infection may again be a cofactor.[1,4] Mortureux *et al*.[1] found that the children with drug-induced urticarias developed the rash 6 to 10 days after starting with the therapy. Some of the children had used the drug previously yet this was their first skin reaction.

The drugs that most commonly cause an urticarial reaction in infants have been shown to be beta-lactam and sulphur-containing antibiotics and non-steroidal anti-inflammatory drugs (NSAIDs). NSAIDs may cause urticaria by altering the metabolism of arachidonic acid, which results in increased production and release of leukotrienes. NSAIDs are also implicated in causing angio-oedema.[5] Urticaria with angio-oedema is also relatively common in children with food allergy.

Treatment of urticaria

Medical management is required in the early stages, to alleviate symptoms, although the aim should be to identify and discontinue the offending agent in the case of food or drug allergy. Antihistamines are the mainstay of therapy and should be given in adequate doses to control the symptoms. The main groups of antihistamines commonly used in urticaria are shown in Table II. During the acute phase of the illness, one should give the antihistamines on a regular basis, according to half-life, rather than in response to the severity of symptoms.

First-line therapy should be a non-sedating long-acting H_1 receptor blocker[6] (see Table II). The approach to urticaria in general is dictated by clinical severity and response but one should add further agents until control is achieved, while continuing to try to identify the underlying cause. If a single agent does not control the symptoms, a second antihistamine such as one of the older sedating group may be added at night. There is no evidence to show that one antihistamine is superior to any other in this condition.[7] The addition of an H_2 receptor blocker such as cimetidine or ranitidine is common practice in chronic urticaria and is supported by a controlled trial.[8] Topical antihistamines and steroids have no role in the treatment of urticaria. Oral steroids are generally undesirable, except in the management of severe angio-oedema, as rebound urticarial weals tend to be a problem when the medication is withdrawn.

Table II. Antihistamine therapy for acute urticaria

(Add from each group incrementally if required)

Non-sedating H_1 receptor blocker

- Cetirizine
- Levocetirizine
- Loratadine
- Desloratidine
- Fexofenadine

Sedating H_1 receptor blocker

- Alkylamine, e.g. mepyramine, chlorpheniramine
- Phenothiazine, e.g. promethazine
- Piperazine, e.g. hydroxyzine
- Cyproheptadine

H_2 receptor blocker

- Cimetidine
- Ranitidine

Adverse effects such as drowsiness, dry mouth and urinary retention are frequent with the older sedating antihistamines, although less prominent in children, who may even show paradoxical restlessness and excitement with some antihistamines.

Angio-oedema in children with urticaria will usually respond to the same measures. However when angio-oedema affects the airway or is associated with shock, urgent emergency treatment is required, with adrenaline and intravenous fluids[9] (Table III).

Key points

- Infection is the commonest cause of acute urticaria in young children.
- Drug and food allergy may also occur or may have a synergistic effect.

Table III. Treatment of severe angio-oedema[9]

- Adrenaline (route depends on urgency)
- Intravenous fluids
- Antihistamine
- Steroids and salbutamol if bronchospasm associated (ventilation if inadequate response)
- Identification of cause and future prophylaxis

- First-line treatment is the identification of infection and use of a long-acting non-sedating antihistamine.
- Adrenaline and fluids are first-line treatment for angio-oedema.
- Corticosteroids are not indicated for urticaria or angio-oedema unless laryngospasm is present.

Declaration of conflict of interest

The authors declare no conflict of interest.

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