

Systemic allergic reaction to a caterpillar in a 3-month-old infant

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Abstract Systemic reactions to contact with a caterpillar are rare in children. A 3-month-old infant presented to the emergency department with acute onset of rash, severe respiratory distress and shock. Her mother volunteered that the infant had been exposed to a tree processionary caterpillar. The infant responded to systemic corticosteroids and antihistamines although the rash persisted for more than 5 days.

Introduction

Systemic manifestations following exposure to the tree processionary caterpillar are rare in children.^{1,2} A 3-month-old infant who developed a severe reaction following contact with such a caterpillar is described.

Case Report

Around 8.30 a.m., a 3-month-old boy was brought to the paediatric emergency ward of Udupi District Maternity and Children's Hospital with a history of an erythematous rash and severe respiratory distress with grunting of 4–6 hours duration. He was said to have been normal on the previous night. His birth and developmental history were normal. He was exclusively breastfed and was immunised (appropriate for his age). His mother reported that he was irritable in the early morning, had a mild fever and was sucking poorly at the breast. Subsequently,

she noticed that he had an erythematous rash and that there was fast breathing and grunting. The symptoms progressed and the infant refused to feed which forced the mother to seek medical attention.

On admission, his temperature was 39.5°C, heart rate 180/min, respiratory rate 56/min, blood pressure 90/62 mm Hg and capillary refill time was >5 seconds. His extremities were cold and clammy and there was central cyanosis. There was an erythematous urticarial rash over the face, trunk, abdomen, back and extremities (Figs 1 & 2). He had a weak cry, decreased activity and grunting respiration. Pulse oximeter saturation was 91–93%. In the chest, there were rhonchi bilaterally. Results of cardiovascular, nervous system and abdominal examinations were normal. The possibility of an insect bite or scorpion sting was considered. When questioned, the mother volunteered that she had found a tree processionary caterpillar (local name: *kambali hulu*) inside the infant's clothing. She had removed the caterpillar and some hairs from the body of the infant at about 7 a.m. on the day of admission. According to the mother, the probable period of contact with the caterpillar was about 3–6 hours.

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FIG. 1. Diffuse erythematous urticarial rash.

Intravenous hydrocortisone and pheniramine maleate was administered. He was given oxygen, intravenous fluids and salbutamol nebulisation. Paracetamol was administered to reduce the fever.

Investigations. Total leucocyte count was $9.3 \times 10^9/\text{L}$ with 69% neutrophils and 25% lymphocytes, and platelet count was

$190 \times 10^9/\text{L}$. After 30–60 minutes of therapy, the cyanosis disappeared, grunting reduced and capillary refill time was normal. The antibiotics initiated on admission were stopped after 48 hours. A final diagnosis of systemic allergic reaction to a caterpillar was made. On day 4, the infant was asymptomatic except for the skin rash and was



FIG. 2. Close-up of erythematous urticarial rash owing to caterpillar dermatitis.

discharged on antihistamines. On follow-up 7 days later the infant was normal. The rash had persisted for over 5 days.

Discussion

Acute onset of generalised rash, severe respiratory distress with grunting, delayed capillary refill time and tachycardia in an apparently healthy infant suggested the possibility of an insect bite. In view of the tachycardia and grunting, scorpion sting, a relatively common problem in this area, was also considered, although a generalised rash is uncommon in this condition. In humans, a direct histamine-releasing or IgE-mediated allergic reaction caused by contact with the tree processionary caterpillar or ingestion/inhalation of its airborne toxin-containing hairs and spines has been described.²⁻⁵ The clinical manifestations vary widely and the most common are urticaria and dermatitis.²⁻⁵ Contact with a processionary caterpillar induces dermatitis, usually in the exposed areas, which results in a maculopapular rash.⁶ The mechanism of caterpillar-induced dermatitis is not fully understood. A toxic-irritative mechanism has been suggested.³ Both immediate and delayed-type reactions have been demonstrated by skin tests using venomous spicules and extracts from a caterpillar.⁷ A study involving a large paediatric population described dermatitis as the predominant clinical feature of allergy to processionary caterpillar and recognised IgE-mediated allergy as one of the mechanisms.⁸ An allergic IgE-mediated mechanism to pine processionary caterpillar proteins has been demonstrated in children.³ In this case, the rash was generalised. A diffuse rash seems to be caused by a toxic irritative and IgE-mediated mechanism. It is likely that the caterpillar had traversed all over the body of the infant, resulting in the diffused contact. More generalised rashes, appearing over a shorter period of time and persisting for longer are caused by an IgE-mediated mechanism.

Systemic manifestations such as respiratory involvement and anaphylaxis have been reported mainly in foresters and adults.^{1,8} In children, systemic reactions to caterpillars are rare^{1,2,9} and might be caused by IgE- or non-IgE-mediated mechanisms. Life-threatening facial oedema and respiratory compromise owing to processionary caterpillar ingestion requiring urgent airway intubation has been reported in a 15-month-old infant.⁹ Shkalim *et al.* described a systemic allergic reaction in the form of a pruritic rash, conjunctival hyperemia, dyspnoea and wheezing in a 12-year-old boy.¹ Evaluation of outbreak reports of airborne caterpillar dermatitis in a kindergarten found respiratory distress in 50% of affected children.⁴ There was also malaise and/or fever in 10% of the children. Other manifestations in the airborne outbreaks were dermatitis, pruritis and conjunctivitis. Our infant had a generalised rash and severe respiratory manifestations, possibly because of a closer and extended period of contact with the caterpillar as the exposure occurred at night. The mother estimated that the period of exposure was at least 3–6 hours. Delayed capillary refill time was a worrying feature although blood pressure was on the normal side. Transient hypertension as an unusual manifestation along with other symptoms caused by caterpillar have been described.¹⁰

There is no specific antidote to caterpillar envenoming or dermatitis. Recommended treatment is mainly symptomatic. Washing the skin under running water and removing the hairs from the skin with fine forceps or by tape-stripping along with administration of antihistamines and corticosteroids have all been proposed as therapeutic options.^{4,5,9,10} In young children, exposure to tree processionary caterpillars may be associated with a severe generalised reaction requiring emergency treatment.

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