

INVESTIGATION OF CATERPILLAR DERMATITIS IN SCHOOL CHILDREN

In February the South Western Sydney Public Health Unit received reports from a Community Health Centre and two parents indicating a large number of children at a local primary school had developed skin rashes. Further information was sought from senior staff at the school and from GPs. About 40 children aged 5 to 11 years were reported to have developed a rash over a three-day period. Staff noted the school was experiencing a caterpillar infestation, with children complaining of skin irritation after contact with caterpillars in the playground.

PHU INVESTIGATION

In response to a possible association between the caterpillar infestation at the school and the skin rashes, South Western Sydney PHU staff contacted the Medical Entomology Unit of Westmead Hospital to obtain information on the potential association of caterpillars with skin rashes. Environmental Health Officers of the PHU went to the school to ascertain the extent of the infestation and to collect specimens for identification.

The site inspection revealed the presence of dark reddish brown caterpillars on the brick walls of school buildings and caterpillars sheltering on and beneath the bark of *Melaleuca spp* (paperbark) and *Eucalyptus spp* (stringybark) trees in the playground near where children sit at lunchtime.

Caterpillar specimens were collected from the trunk of a *Melaleuca spp* and from a brick wall of a school building. The Medical Entomology Unit identified them as larvae of the mistletoe browntail moth, *Euproctis edwardsi*, from the family Lymantriidae (tussock moths).

DISCUSSION

The purpose of this report is to highlight the need to consider unusual causes of rashes.

The caterpillar (larval) stage of this moth is considered to be one of the most important causes of caterpillar dermatitis in humans in Australia². The chief "infective" agents are the caterpillar hairs which occur in small patches along the dorsal surface of the caterpillar. These minute hairs are tapered with progressively smaller barbs covering the surface of each. Due to their ability to become airborne from disintegrating cast larval skins, and their dart-like structure, the hairs can readily disperse, settle and penetrate skin and clothing.

The hairs of this caterpillar are quite irritant, with most people developing some symptoms after exposure. Symptoms may include skin irritation, rashes, papules, pain and swelling of the infected area¹. Repeated exposure to the hairs of this caterpillar may result in patients becoming hypersensitive, requiring treatment for allergy.

The hairs may be detected by close examination of the affected area with a magnifying glass. Alternatively, adhesive tape could be applied to the affected area, and then removed. Examination of the tape with the aid of a microscope will often reveal the presence of the dart-like hairs.

Humans may be exposed to the caterpillar hairs in the following ways:

- The caterpillars shed (moult) their skin during the larval stage. The hairs from the skins often disperse through the air and may infect any person who walks through such an infected area.

- Pupation of this moth takes place in sheltered areas such as under the bark of host trees. The pupal case of this moth consists of larval hairs loosely interwoven with webbing. Disturbance of cocoons by lifting and removing bark can dislodge the hairs or fragments of them.

Children playing near the base of trees or climbing on branches that have an infestation of caterpillars readily become infected. Rashes have also resulted from wearing clothes that have been dried near affected trees, where caterpillar hairs have drifted and settled on the clothes.

Adult moths can also cause caterpillar dermatitis. When the adult moth emerges it takes with it some larval hairs from the cocoon on its anal hair tufts which are shed or incorporated in egg laying.

FACTORS THAT CONTRIBUTE TO AN INFESTATION

The mistletoe browntail moth has two generations a year. Adults first appear in mid-November, with the larvae (caterpillar stage) emerging in January. These larvae produce the next generation of adults in April and their larvae hatch in May. The larvae remain relatively quiescent until August, sheltering under a mass of webs².

Female mistletoe moths lay their eggs on the branches and leaves of food plants. Emerging larvae live for three to four weeks and, depending on a supply of suitable food sources and prevailing weather conditions, caterpillar populations may become abundant. In areas where mistletoe is heavily attacked, there may be a localised outbreak of dermatitis associated with the caterpillar³.

The larvae of this moth generally feed on mistletoes *Amyema spp*, which are mostly parasitic on *Eucalyptus spp*. An alternative food source is the native cherry tree, *Exocarpus curpressiformis*. Larvae generally feed at night and seek shelter under bark during the day, though in population outbreaks larvae will wander during the day. This phenomenon was observed by staff of the PHU during the site inspection.

CONCLUSION

The presence of numerous mistletoe browntail moth caterpillars in the school playground implicates them as a possible source of the skin rashes in the children.

Several recommendations have been made to the school executive to control the caterpillar infestation and to minimise the risk to children of contracting caterpillar dermatitis. These include:

- the children to be advised to avoid playing under trees and the school to block access to areas where a known infestation has occurred;
- the school to ensure all mistletoe is removed from trees in the playground; and
- the placement of hessian around the base of trees to provide shelter for caterpillars during the day. The hessian containing the caterpillars can then be removed and burned.

The application of chemical insecticides such as maldison or cabaryl by a licensed pest controller is one option that can be considered when large masses of caterpillars are detected in the foliage or are obvious on the trunks of trees. However

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PUBLIC HEALTH ABSTRACTS

Professor James S. Lawson, Professor and Head of the School of Health Services Management at the University of NSW, has prepared the following public health items from the literature.

CHILD HOMICIDE — THE EXTREME OF ABUSE

In the past 15 years 17 cases of fatal child abuse were cared for at the Children's Hospital at Camperdown. Most of the children were less than three years old and nine were under one. Seventy-six per cent died from head injury and 24 per cent from asphyxia or strangulation. About one-third had evidence of previous physical abuse. A process of review of these deaths may increase awareness of, and help prevent, fatalities from child abuse.

De Silva S and Oates RK. Child homicide — the extreme of child abuse. *Med J Aust* 1993; 158:300-301.

CALCIUM SUPPLEMENT REDUCES BONE LOSS IN WOMEN

The value of supplementation of calcium intake in the prevention of osteoporosis remains uncertain. An American study has demonstrated that if calcium supplements by way of diet are taken by normal women after they have reached menopause, the rate of loss of bone mineral density can be reduced by 43 per cent.

Reid IR, Ames RW, Evans MC and Gamble GD. Effects of calcium supplementation on bone loss in postmenopausal women. *New Engl J Med* 1993; 328:460-464.

IDENTIFYING WOMEN AT RISK FROM RUBELLA IN AUSTRALIA

A West Australian group has found the incidence of congenital rubella syndrome remains below 2 cases per 10,000 live births. This low rate is a direct consequence of the vaccination against rubella of about 86 per cent of Perth schoolgirls. But experience in Western Australia indicates vaccine acceptance has fallen in some country areas. The group also notes that women born in Asia are at greater risk of having a baby affected by congenital rubella syndrome than women born in Australia. The challenge is to develop mechanisms to identify and vaccinate non-immune women.

Condon RJ and Bower C. Rubella vaccination and congenital rubella syndrome in Western Australia. *Med J Aust* 1993; 158:379-382.

REAPPRAISAL OF HEALTH BENEFITS OF EXERCISE

Two recent studies purport to show improvements in mortality as a consequence of exercise. The studies are by Paffenbarger and colleagues in the United States and by Sandvik in Norway. They do demonstrate a reduction in mortality among physically fit men but, unfortunately, both studies are subject to bias. A review of 27 studies on habitual physical activity in the primary prevention of coronary disease supports the conclusions of Paffenbarger and Sandvik. Again, however, these studies may be biased because it has not been possible to mount a controlled prospective trial. But Curfman, when reviewing all the available literature, has concluded that regular exercise probably does offer some protection against coronary heart disease. Exercise improves work capacity and helps control body weight — both benefits, sufficient in themselves, to encourage regular physical activity. However Curfman argues that when extolling the merits of exercise, health professionals should not overstate the case.

Curfman GD. *New Engl J of Med* 1993; 328:8:574-576. Paffenbarger RS, Hyde RT, Wing AL, Lee I-M et al. The association of changes in physical activity level and other lifestyle characteristics with mortality among men. *New Engl J Med* 1993; 328:538-545. Sandvik L, Erikssen J, Thaulow E, Erikssen G et al. Physical fitness as a predictor of mortality among healthy, middle-aged Norwegian men. *New Engl J Med* 1993; 328:533-537.

SEXUAL LIFESTYLES AND PREVENTION OF AIDS

The availability of laboratory evidence about the human immunodeficiency virus has provided, for the first time, information about sexual lifestyles based on scientific principles in contrast to how people respond to social surveys. Two studies from Britain and France have indicated that many people have a few sexual partners and a few have a great many. Most couples are monogamous, with more than 70 per cent of men and women reporting they had only one partner in the past year in contrast to about 5 per cent of men and 1 per cent of women who reported 10 or more partners in the past five years. The highest rate of partner change is in unmarried urban men and women under the age of 25. The patterns in Britain and France are similar.

The British results show that affluence is associated with partner change and that the top two social classes have a higher rate of partner change than individuals in lower classes in the United Kingdom.

Editorial: Mapping Sexual Lifestyles. *Lancet* 1993; 340:1441-1442.

Caterpillar dermatitis in children

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the application of insecticides must be undertaken to ensure minimal contact to school children and teaching staff. This was not recommended and is generally considered after other options have failed.

The PHU will be advising local GPs through its GP newsletter on the potential of the mistletoe browntail moth to cause dermatitis in humans.

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1. Southcott RV. Lepidopterism in the Australian region. *Rec. Adelaide Children's Hospital*. 1978; 2:87-173.
2. Southcott RV. Moths and butterflies. Toxic plants and animals. A guide for Australia. 1987; 243-257.
3. Lee DJ. Arthropod bites and stings and other injurious effects. *School of Public Health and Tropical Medicine*. 1975; 201-203.