

PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Grasshopper Allergy
William F. Schnitzker
Pediatrics 1974;53;280-281

The online version of this article, along with updated information and services, is located on the World Wide Web at:
<http://www.pediatrics.org>

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 1974 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



forearm. His spleen tip was barely palpable. A grade II/6 systolic ejection murmur was heard along the left sternal border. This murmur varied with position. The remainder of the physical examination revealed no other gross organic or functional abnormalities.

Laboratory findings are listed in Table I.

RESULTS

The purpuric rash faded during a period of 11 days without specific therapy. The axillary node gradually increased in size, became fluctuant and was drained during the fifth week (14th posthospitalization day) of the patient's illness. Bacterial cultures were negative. Cat-scratch intradermal testing was positive. There was 2 × 2 cm of induration and 6 × 4 cm of erythema noted at 48 hours.

One and a half years after his illness he is quite well. There has been no further evidence of hemorrhagic tendency and no involvement of his central nervous system, kidneys, heart or joints.

Coincident with this patient's illness, a neighborhood child who had played with the same cat developed a facial papule, submandibular lymphadenopathy and had a positive skin test to a cat-scratch antigen. It became necessary to incise surgically and drain the involved lymph node. The drainage material proved to be sterile on bacterial culture.

COMMENTARY

The patient's diagnosis was confirmed by (1) regional lymphadenopathy, (2) a positive skin test reaction specific for cat-scratch disease, (3) the presence of a primary inoculation site, (4) the history of contact with a cat which also transmitted the disease to another child, and (5) the absence of other demonstrable disease.

The development of generalized petechiae with a positive tourniquet test and normal numbers and normal quality of platelets suggests a diffuse vasculitis involving the capillary system. This patient's clinical picture may be differentiated from the classical Henoch-Schönlein purpura in that his petechiae were generalized and there were no joint or visceral manifestations. Other studies, as noted above, failed to identify any other causes for the increased capillary fragility.

The patient's purpura was considered to be caused by an injury to the capillaries. This might be due to a direct insult by the infectious agent of cat-scratch disease, or by an antigen reaction at the level of the vascular endothelium. The endothelial disturbance resulted in increased capillary fragility and permeability. Although it is conjecture on our part, it is presumed that an autogenous immunity may

have been activated. Perhaps the infectious agent associated with cat-scratch disease formed an antigen-antibody complex with the capillary endothelium in this specific patient. The variable in this case must have been the unusual manner in which the patient reacted. A second patient who contracted the cat scratch disease from the same source did not develop non-thrombocytopenic purpura as a complication.

WARREN W. QUILLIAN II, M.D.

WARREN W. QUILLIAN, M.D.

JAMES W. LANCASTER, M.D.

140 Alhambra Circle

Coral Gables, Florida 33134

ADDRESS FOR REPRINTS: (W.W.Q.II) 140 Alhambra Circle, Coral Gables, Florida 33134.

REFERENCES

1. Carithers, H. A.: Cat-scratch disease: Notes on its history. *Amer. J. Dis. Child.*, 119:200, 1970.
2. Carithers, H. A., Carithers, C. M., and Edwards, R. O.: Cat-scratch disease: Its natural history. *J.A.M.*, 207:312, 1969.
3. Margileth, A. M.: Cat-scratch disease: Nonbacterial regional lymphadenitis. *Pediatrics*, 42: 803, 818, 1968.
4. Warwick, W. J.: The cat-scratch syndrome, many diseases or one disease? *Progr. Med. Virol.*, 9:256, 1967.
5. Quillian, W. W., Lancaster, J. W., Quillian, W. W. II: Cat-scratch disease: A clinical concept: Analysis of 34 cases. *J. Florida Med. Assoc.*, 49:389, 1962.
6. Jim, R. T. S.: Thrombocytopenic purpura in cat-scratch disease. *J.A.M.A.*, 176:1030, 1961.

Grasshopper Allergy

Allergic reactions to insects may occur from saliva or injected toxins, patient sensitization to body protein of the insect, sensitization to the emanation, scale, or powder of the insect, or allergy to pollen carried by the insect.

Generalized urticaria, angioedema, anaphylaxis and death may occur in sensitized persons following sting by: Hymenoptera—bees, wasps, hornets, and ants; and Diptera—mosquitoes.

Eczema or urticaria may occur from contact with insects. Allergic rhinitis and asthma may result from inhalation of insects or their products. Mites are contributory factors to house dust allergy. The May and Caddis fly can cause epidemic respiratory allergy by inhalation.¹

Cockroaches, carpet beetles, butterflies and locusts have been reported to cause symptoms in some patients based on their presence in the environment and contact with the patient, the elicitation of positive skin tests to the particular

insect antigen, and to provoke symptoms by inhalation challenge.²

Search of the medical literature and entomology textbooks has not been successful in locating previous reports of urticaria due to grasshoppers. Neither has emanation or secretions from the grasshopper been implicated. Grasshoppers and Orthoptera and closely related to locusts. They may be infested with and destroyed by parasitic fungus.³ Other parasites may attack the grasshopper through the integument or trachea, or by destroying their eggs. The female lays her eggs in the soil and covers them with a white, sticky secretion.⁴ These may be merely extraneous facts or possibly other sources of offending antigens. True silk allergy is believed to be related to insect allergy.¹ Grasshoppers have been eaten by native populations in many parts of the world and were recommended as an emergency food by an armed forces publication during World War II. Cooking was recommended to prevent possible transmission of grasshopper parasites to man, even though it was not established that man is susceptible to such parasites.⁵ Gastrointestinal allergy has never been mentioned.

CASE REPORT

The patient was a 14-year-old white male who complained of generalized blotchy hives with swelling of the face and hands. This had occurred during football practice in the fall of 1966 and 1967. These episodes had been severe enough for him to seek medical advice and treatment. He was treated with systemic steroids and antihistamines with only minimal benefit. His symptoms gradually subsided over a period of days. There has never been any respiratory involvement, either laryngedema or wheezing, and he did not have allergic rhinitis. The family history was negative for allergy.

Results of physical examination were entirely normal. The mother and patient related the hives to contact with grasshoppers and/or praying mantis, a related Orthoptera, during football practice. Skin tests (scratch) to regional grass and weed pollens were done with negative results. Whole grasshopper extract was obtained,* but praying mantis was not available. He was then tested with grasshopper and Hymenoptera antigen, along with control test of the vehicle solution. The grasshopper test became four plus in less than two minutes, at which time the solution was removed, but a wheal continued to enlarge to 7 cm in its greatest diameter. Stinging insects and control tests were negative. Steroid spray was applied to the skin and he was observed for 30 minutes. There were no systematic symptoms and no other medication was given.

* Glycerine-preserved aqueous extract of whole grasshopper was supplied by Hollister-Stier Laboratory.

Treatment was begun with grasshopper vaccine in early August 1968. Initial dose was 0.05 cc of 1:1,000,000 dilution. Subcutaneous injections were given in increasing increments twice a week and progressed to 0.2 cc of 1:100 solution by the end of October. He experienced no difficulty during this football season and then discontinued treatment against advice. He was advised to begin treatment again the following summer, but did not and reported no recurrence of symptoms in 1969 or 1970. There has been no contact with the patient since March 1971.

COMMENT

The family observations of the apparent etiology of this patient's urticaria was reported to and heeded by the physician. Testing proved a definite sensitivity to whole grasshopper extract. Hyposensitization was successful, apparently for three seasons. It would be interesting to see if there is any future recurrence or subsequent development of other allergic diathesis.

The etiology of urticaria is so often extremely difficult to discern and frequently difficult to treat specifically. It was extremely gratifying to have observed this apparent cause, effect and beneficial result.

WILLIAM F. SCHNITZKER, M.D.

1200 Bath Ave.

Ashland, Kentucky 41101

REFERENCES

1. Patterson, R.: Allergic Diseases: Diagnosis and Management. Philadelphia: J. B. Lippincott Co., 1972, p. 649.
2. Harris, M. C., and Shure, N.: Practical Allergy. Philadelphia: F. A. Davis Co., 1957, p. 471.
3. Comstock, J. H.: An Introduction to Entomology. Ithaca, New York: Comstock Publishing Co., 1947, pp. 255-256.
4. Essig, E. O.: College Entomology. New York: Macmillan Co., 1947, pp. 90, 663, 809.
5. Clausen, L. W.: Insect Facts and Folklore. New York: Macmillan Co., 1954, pp. 55-58.

Reduction of Plasma Propionate by Peritoneal Dialysis

The peritoneum is a semipermeable membrane which allows the ready passage of water, electrolytes and small organic molecules, but only limited passage of proteins and other large molecules.¹ Catabolites, water-soluble toxins and other small molecules migrate into peritoneal fluid, and can be removed as the peritoneal fluid is removed.² Peritoneal dialysis has, therefore, been used in the management of renal, cardiac and hepatic failure, for the removal of dialysable poisons such as salicylates and boric acid, and in such varied conditions as

Grasshopper Allergy
William F. Schnitzker
Pediatrics 1974;53;280-281

**Updated Information
& Services**

including high-resolution figures, can be found at:
<http://www.pediatrics.org>

Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
<http://www.pediatrics.org/misc/Permissions.shtml>

Reprints

Information about ordering reprints can be found online:
<http://www.pediatrics.org/misc/reprints.shtml>

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

