

Scabies and Poison Ivy Confusion

By Charles Camisa, MD

You might reasonably ask, how could one confuse these two distinct entities? Scabies is an infestation of the skin caused by the sarcoptes mite and poison ivy is an allergic contact dermatitis caused by a resin in the plant. The confusion happens in the layperson and with the inexperienced professional. When I was a dermatology first year resident at NYU, the custom was to have these novice individuals take call at the major metropolitan hospitals of Bellevue and the University. In July of 1978 when I answered one of these calls from the ER, we had not studied these diseases yet, and I had never seen or personally had scabies or poison ivy. I was no different than the ordinary citizen.

The patient in question was a young adult with a very itchy rash, fairly widespread, that consisted of small red bumps and blisters with some distributed in a linear array. I thought of scabies, prescribed the standard regimen at the time which was Kwell lotion, and gave him a follow up visit to our clinic the next week. The lotion irritated his skin, the rash spread, and the itching got worse. The correct diagnosis was poison ivy allergic contact dermatitis, and we then treated him successfully with prednisone.

So let's talk about the two conditions, and then I'll tell you about another anecdote that happened soon after the one illustrated above. The scabies mite is so tiny, only 0.4mm, that it is essentially invisible to the naked eye. There is a brand that is specific for us humans and one that specifically befriends our dogs, and rarely do they intermingle. Human scabies is transmitted from casual or intimate contact only with other humans. The rash consists of small red bumps which have a tendency to be located in skin folds such as fingerwebs, wrists, underarms, and groins. The breasts, genitalia, and around the navel may also be affected. These are usually so itchy that the patient has scratched most of the sites making it difficult to see tiny linear burrows that lead to the red bumps.

The best way to be sure of the diagnosis is to make a superficial scraping of the burrow or bump and examine it under the microscope. If you are fortunate you will see the armor-plated creature with four stubby legs and spines. If you not see her, you may see her oval-shaped eggs, or small dark brown fecal pellets.

I have occasionally captured an entire mite in the center of a skin biopsy, but this is rare indeed, because the average number of mites on an infected host is only 8-12! This is hard to believe because the patients itch all over their body and usually can't localize the itch sensation to a specific spot. We now understand that most of the itching results from an irritant or allergic hypersensitivity reaction to the mites, eggs and feces by the immune system. We know the numbers of mites from experiments performed by intrepid investigators including my friend Dr. Steve Estes (deceased) who intentionally infected themselves and observed the entire life cycle of the scabies mite, rate of migration in the uppermost layer of their own skin, number of eggs laid, etc. The incubation time is about one month and the infestation is quite contagious.

Individual cases are fairly easy to treat once diagnosed, but epidemics are more challenging. Outbreaks are known to occur in conditions of crowding, especially in nursing homes, institutions for handicapped persons, and hospices. The current treatment of choice is permethrin 5% cream by prescription, two full

body applications over 5 days, with washing and heat drying of all active clothes, towels and linens because the mite can live off the body for 2-5 days. All household or intimate contacts must be treated simultaneously. That is why the epidemics in institutions are difficult to manage: all the residents, employees, and visitors who touch the patients must be treated.

Kwell, which I used erroneously on the poison ivy patient 30 years ago, is now second line therapy. It is a 1% lindane lotion, a very good insecticide/miticide that got a bad rap because of some neurotoxicity seen due to inappropriate or excessive use in babies and small children. There also have been a few reports of lindane resistance in scabies.

Third line therapy is an oral veterinary drug used to treat worms and the tropical disease that causes river blindness in humans. The drug is called ivermectin and is given as a single dose repeated ten days later.

About a week after the first incident, I was called to our other ER on a Saturday night. We learn best from our mistakes: by now I had read all the textbook chapters and any recent journal articles I could find on the two entities. The patient was a young woman who was admitted to the ER for severe pain, swelling and itching in the private area. She was unable to urinate on her own, so the emergency room physician had to place a catheter in her bladder to allow the urine to flow.

I had to question this very uncomfortable patient about the history. The rash and swelling began today. Her boyfriend was unaffected. They went camping last week. She did find herself in the uncomfortable position of having to relieve herself in the wild without having any toilet paper. She used some nearby ivy leaves as a poor substitute. Now I was certain of the diagnosis of allergic contact dermatitis from the resin in the leaves and treated her with intravenous steroids. She eventually made a complete recovery.

The resin called *urushiol* is present in all parts of the poison ivy, oak and sumac plants, all species of the *Toxicodendron* genus. This chemical can sensitize up to 85% of people who come into contact with it. If you have never been exposed, the first time you contact it, there may be no rash, or a rash may develop within two weeks making it harder to remember the exposure. Subsequent exposures in the allergic person produce rash and itching within 48 hours, and the reactions can be quite severe if widespread or if they affect the face or genitalia.

The resin can be washed off with simple soap and water immediately after contact, but it can be spread by unwashed hands and clothing. Less obvious exposures occur from handling animals who were exposed, carrying firewood, and from smoke of a campfire, bonfire or forest fire. Poison ivy dermatitis is the most common occupational hazard for the forest fire fighters in the western U.S. Contrary to popular belief, the rash cannot be spread by blister fluid after the first washing because the fluid is sterile and does not contain the allergen.

Treatment of milder localized cases of poison ivy dermatitis may consist of antihistamines like Benadryl and topical treatments like calamine and hydrocortisone. Moderate to severe cases require oral prednisone, Medrol dosepack, or even the intramuscular injection of the steroid called Kenalog.

Of course, prevention is always desirable, so gardeners, joggers, campers, etc. should learn the appearance of their local variant of poison ivy. The plants are ubiquitous weeds and grow everywhere in the continental U.S. They look a little different, but all of them have groups of three leaflets. Thus, the

saying **leaves of three let it be** even if you're not sure. Similar chemicals may also be found in the sap of the mango tree and the skin of the fruit, in the oil of cashew nut shells, and in fruit pulp of the ginkgo tree. Therefore, a poson ivy-like rash may develop in persons who touch or ingest these substances.
