ABC of Dermatology

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INSECT BITES AND INFESTATIONS

Body louse.

Leishmaniasis.

So, naturalists observe, a flea
Hath smaller fleas that on him prey;
And these have smaller fleas to bite 'em
And so proceed "Ad infinitum."

JONATHAN SWIFT

It is, of course, the internal parasites of biting insects that cause trouble for man, rather than "smaller fleas" on their surface.

An ornithologist went bird watching in Guyana, where he sustained widespread "midge bites" on the arms. He was referred on account of nodules that developed a few weeks later, then enlarged and ulcerated. Other lesions occurred further up the arms with regional lymphadenopathy. A biopsy specimen showed histiocytic inflammatory changes, and *Leishmania braziliensis* was isolated from smears; the midges (phlebotomus or sand fly) had acquired the protozoon while feeding on local rodents and transferred it into the ornithologist's skin.

Serious disease from insect vectors is rare in residents of most Western countries but, as in the patient described above, must be considered in those returning from tropical and subtropical countries.

Most cases of bites from fleas, midges, and mosquitoes are readily recognised and cause few symptoms apart from discomfort. Occasionally an allergic reaction confuses the picture, particularly the large bullae that can occur from bites on the arms and legs. It may be difficult to persuade patients that their recurrent itching spots are simply due to flea bites and the suggestion may be angrily rejected.

Some diseases with skin lesions resulting from insect bites

Condition	Appearance	Organism	Vector
Cutaneous leishmaniasis	Chronic enlarging nodules with ulceration	<i>Leishmania</i> protozoon (<i>L. braziliensis</i>)	Sand fly
Oriental sore	Ulcerating nodules	<i>Leishmania</i> (<i>L. tropica</i>)	Sand fly
Kala-azar	Hypopigmented, erythematous, and nodular lesions	<i>Leishmania</i> (<i>L. donovani</i>)	Insect vectors
Onchocerciasis	Pruritic nodules	<i>Filaria</i> (<i>Onchocerca volvulus</i>)	Black fly (Simuliidae)
Typhus, human	Erythematous rash and systemic illness	<i>Rickettsia</i> (<i>R. prowazekii</i>)	Human louse
Typhus, murine		(<i>R. mooseri</i>)	Rat flea
Rocky Mountain spotted fever	Maculopapular rash and fever	<i>Rickettsia</i> (<i>R. rickettsii</i>)	Ticks
Rickettsial pox	Vesicular eruption like chickenpox	<i>Rickettsia</i> (<i>R. akari</i>)	House mouse, louse
Tick typhus	Necrotic lesions maculopapular rash and fever	Various rickettsias	Ticks
Scrub typhus	Fever, lymphadenopathy, maculopapular rash	<i>Rickettsia</i> (<i>R. tsutsugamushi</i>)	Mites
Relapsing fever	Widespread maculopapular lesions	<i>Borrelia recurrentis</i>	Lice, ticks
Lyme disease	May be annular	<i>Borrelia burgdorferi</i>	Ticks, black fly
Yellow fever and dengue	Flushing of face, scarlatiniform rash	Arbovirus	<i>Aedes</i> mosquito

Bullae caused by insect bites.

On the other hand, some patients are convinced that they have an infestation when they do not. Often they will bring small packets containing insects. Examination shows these to be small screws

Parasitophobia specimens.

Bites on ankles.

Erythema chronicum migrans.

of wool, pickings of keratin, thread and so on. Sympathy and tact will win patients' confidence; derision and disbelief will merely send them elsewhere for a further medical opinion. Pimozide by mouth may help to dispel the delusion of parasitic infestation (delusional parasitosis).

Some useful points:

(1) Flea bites, including those from cheyletiella mites in dogs and cats, occur in clusters, often in areas of close contact with clothing—for example, around the waist.

(2) Grain mites (pyemotes) and harvest mites (trombicula) can cause severe reactions.

(3) Tick, and possibly mosquito, bites can produce infection with borrelia spirochaetes, causing arthropathy, fever, and a distinctive rash (erythema chronicum migrans)—Lyme disease. The condition responds rapidly to treatment with penicillin. Increasing numbers of cases are being reported in the United Kingdom.

Left: harvest mites; right: papular urticaria.

Papular urticaria

Persistent pruritic (itching) papules in groups on the trunk and legs may be due to bites from fleas, bed bugs, or mites. A seasonal incidence suggests bites from outdoor insects, while recurrence of the papules in a particular house or room suggests infestations with fleas. The term is sometimes used for other causes of itchy skin.

Spider bites

Spider bite (Nigeria).

In Europe spider bites rarely cause problems, but sometimes noxious species arrive in consignments of tropical fruit. The patient shown had been bitten by a spider the day before leaving Nigeria and developed a painful necrotic lesion.

Bites from the European tarantula are painful but otherwise harmless.

In tropical and subtropical countries venomous spiders inject neurotoxins that can be fatal. The "black widow" (*Latrodectus mactans*), "fiddleback," and *Atrax* species of Australia are better known examples. Scorpions cause severe local and systemic symptoms as a result of stings (not bites).

Infestations

Burrows of scabies.

Scabies

The commonest infestation encountered is scabies, and it is easily missed or misdiagnosed. Scabies is due to a small insect, *Sarcoptes scabiei*. The female mite burrows into the stratum corneum to lay her eggs; the male dies after completing his role of fertilisation, and the developing eggs hatch into larvae within a few days. Intense itching occurs some two weeks later, during which time extensive colonisation may have occurred. The infestation is acquired only by close contact with infected people.

Diagnosis—Finding a burrow—the small (5-10 mm long) ridge, often S shaped—can be difficult as it is often obscured by excoriation from scratching. Without finding a burrow, however, the diagnosis remains uncertain. Isolation of an acarus with a needle or scalpel blade and its demonstration under the microscope convinces the most sceptical patient. Always ask who the patient lives with as household contents will need treatment as well.

Scabies: points to note

- There may be very few burrows, though the patient has widespread itching
- The distribution of the infestation is characteristically the fingers, wrists, nipples, abdomen, genitalia, buttocks, and ankles. It does not occur above the neck
- Close personal contact is required for infestation to occur—for example, within a family, through infants in playgroups, and through regular nursing of elderly patients
- Itching may persist even after all mites have been eliminated; itching papules on the scrotum and penis are particularly persistent.

Larva migrans.

Pediculosis capitis.

Head lice and nits.

Treatment—Treatment is with gamma benzene hexachloride preparation (Quellada) or 25% benzoyl benzoate emulsion. Important points in treatment are:

- (1) The patient must have a hot bath and wash the affected areas thoroughly.
- (2) All clothing next to the skin must be clean.
- (3) The lotion must be applied from the neck down, particularly to infected areas, making sure the axillae, wrists, ankles, and pubic areas are included. These procedures must be repeated in 24 hours and again after seven days to catch any further crop of newly hatched mites.
- (4) All contacts and members of the household should be treated at the same time.
- (5) Residual papules may persist for many weeks, but this does not mean that there is still infection present. Topical steroids can be used to relieve the itching.

Demodex

Demodex folliculorum is a small mite that inhabits the human hair follicle, the eggs being deposited in the sebaceous gland. It is found on the central area of the face, chest, and neck of adults. It may have a role in the pathogenesis of rosacea, in which it may be found in large numbers. It may be associated with a pustular eruption round the mouth and blepharitis.

Larva migrans

The boy in the illustration had been on holiday at a coastal town in Kenya and regularly played on a beach frequented by dogs. Two weeks after returning to Britain he started itching on the buttocks and subsequently his parents noticed a linear, raised area that progressed to form a semicircle—a condition known as larva migrans, due to the larvae of the hookworm of dogs and cats, *Ancylostoma caninum*. The ova are shed in the faeces and in a warm moist environment hatch into larvae that invade “dead end” hosts. They do not develop any further, so systemic disease does not occur. Treatment is either by freezing the advancing end of the lesion with liquid nitrogen or by applying thiabendazole (10%) suspension. Similar lesions in patients returning from tropical countries raises the possibility of larva corneus from strongyloides infestation, myiasis from the larvae of flies, or gnathostomiasis.

Visceral larva migrans caused by *Toxocara canis* and *Ascaris lumbricoides* may produce a transient rash.

Pediculosis (Lice)

Infestation with lice became less common in the postwar years, but the incidence has recently increased.

There are three areas of the body usually affected by two species—*Pediculus humanus*, infecting the head and body, and *Phthirus pubis*, the pubic louse. The wingless insects feed on blood aspirated at the site of the bite, and each female lays 60-80 encapsulated eggs attached to hairs—“nits” in common parlance.

Head lice are transmitted via combs, brushes, and hats, being more common in girls than boys. The infestation is heaviest behind the ears and over the occiput. If the eyelashes of children are affected this is with “crab lice” (*Phthirus pubis*); it is not pediculosis.

Body lice are less common in western Europe. Transmission is by clothing and bedding, on which both lice and their eggs may be found in the seams. Poor hygiene favours infestation.

Pubic lice infestation occurs world wide and is generally transmitted by sexual contact. Infestation of eyelashes may occur with poor hygiene.

As a result of scratching there may be marked secondary infection that obscures the underlying infestation.

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