A chigger is the parasitic larval stage of a common mite in the genus Trombicula. Several species of chiggers exist in the United States, but Trombicula alfredugesi is most commonly encountered. The adult stage is not parasitic and is often seen in lawns and moving across pavement. They are brilliant red and are often called “red bugs” (see Figure 1). In Missouri, the adult stage spends its winter in the soil and the females will deposit eggs during the first warm days of spring. Eggs hatch into chiggers that are only about 1/150th inch in diameter. It is this stage that attacks humans and causes so much discomfort. Chiggers crawl about on vegetation, waiting to attach to a host. Rodents, birds, livestock, snakes, toads and other animals serve as natural hosts. Humans are an accidental host. There are two to three generations of chiggers produced each year in Missouri, so the threat of being attacked exists from May until the first killing frost.

In general, chiggers are more common in damp areas with low-growing shrubs, tall grass, weeds, etc. Within favorable habitats, the distribution of chiggers is usually patchy. Individuals are often concentrated in certain areas of the habitat and virtually absent from other areas of apparently equal quality. The unfortunate person sitting in an area with a high concentration of chiggers will be attacked, while someone sitting only a few yards away will often receive no bites at all.

Feeding habits

After coming into contact with a human host, chiggers will crawl upward, going under or through clothing until they find an area where clothing fits tightly against the skin. Rather than pass through tight places, they will commonly settle and feed. They will frequently settle and begin to feed. They commonly settle and feed in areas such as the tops of shoes and socks, inside tight-fitting underwear under a waistband or bra, at the back of the knees and in the crotch and armpits.

Chiggers do not burrow into the skin or suck blood. Instead they pierce the skin with their mouthparts and inject a digestive enzyme. This fluid dissolves the tissues of the host, which are then sucked up by the chigger as food. Within a few hours, tissue around the feeding area solidifies into a hardened tube, called a stylostome. The chigger remains attached to the stylostome and sucks up liquefied tissue — like a person drinking through a straw. Feeding will continue for three or four days if left undisturbed. Itching usually starts within hours and the chiggers are often scratched away before they finish feeding.

Chiggers quickly die if they are dislodged from the host, but the irritation and resulting itch from the bite will continue until the body neutralizes the saliva, dissolves the stylostome and repairs the tissue damage. The dissolved tissue will continue to ooze out of the wound each time it is scratched. The fluid that oozes from the wound solidifies into a hard “cap.” This “cap” is a distinct feature of chigger bites and is not associated with other arthropod bites such as mosquitoes.

Figure 1. Two enlarged views of the chigger. A. Larval parasitic stage. B. Adult red mite.
Avoidance

The best defense against chiggers is to avoid them. Avoid wearing shorts, sleeveless shirts and sandals when going into chigger habitats. Tightly woven fabrics reduce the threat of chiggers penetrating through clothing. Tuck pant legs inside boots, and button cuffs and collars tightly to keep chiggers on the outside of clothing. This increases the time that chiggers are exposed to any repellents you may have put there. Remove clothing as soon as possible after exposure to chigger habitats and launder it before wearing it again. A warm shower with a vigorous skin massage, taken within an hour or two after exposure, greatly reduces the number of irritating bites. However, if itching has already started, it is probably too late for bathing to do much good.

Repellents

If you must enter chigger-infested areas, chemical repellents can be used with good results. Any insect repellent containing DEET (diethyl toluamide) will be effective. It should be applied to clothing from the feet up and must be repeated every two to three hours to maintain its effectiveness. Sulphur powder is also effective when applied to the clothing but has a strong odor that makes it less desirable. Another repellent is Permanone (also sold as Coulston’s Permethrin Tick Repellent). It contains the pyrethroid insecticide permethrin and should be sprayed on clothing and allowed to dry before the clothing is worn. These products are generally available at sporting goods stores and outdoor-clothing outlets.

Area control

Mowing of lawns and removing unnecessary shrubs or weeds will decrease suitable chigger habitats and is the most effective form of area control. Controlling chigger populations by spraying infested areas has limited effectiveness. However, you can spray, dust, or apply a granular pesticide if you have a chigger problem in unkept areas around your lawn. It is common to treat a 20-foot wide band as a buffer zone. There are several products labeled for chigger control, including carbaryl (Sevin), chlorpyrifos (Dursban), diazinon or cyfluthrin (Tempo). Such treatments give temporary control of only a few days or weeks depending on environmental conditions.