

BOSMIN® MEMO

SUBJECT: Chiggers
TO: Files
FROM: Robert Beatty
DATE: 18 September, 2020

INTRODUCTION.

This memo is to record my experience with these biting Trombiculidae (scrub mite, chigger) insects and my treatment of the bites.

KEY WORDS.

Trombiculidae, Trombicula, scrub mite, chigger, harvest mite, stylostome, Retrieve cream, QV cream, digestive enzymes, grass catcher

WEB INFORMATION.

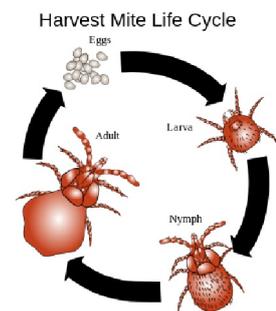
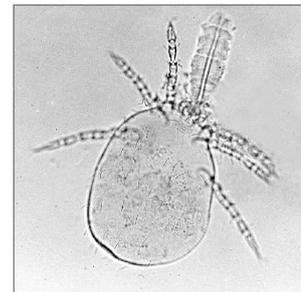
1) Trombiculidae¹

This site illustrates the mite larva, and notes:

Not to be confused with Trombidiidae, similar in name and appearance, but a different family of mites.

The Trombiculidae (/trɒmbɪˈkjuːlɪdiː/; also called berry bugs, harvest mites, red bugs, scrub-itch mites, and aoutas) are a family of mites. The best known of the Trombiculidae are chiggers. The two widely recognized definitions of "chigger" are the scientific (or taxonomic) and the common, the latter of which can be found in English and medical dictionaries. According to most dictionaries, the several species of Trombiculidae that bite their host in their larval stage and cause "intense irritation" or "a wheal, usually with severe itching and dermatitis", are called chiggers. The scientific definition seemingly includes many more, but not all species of Trombiculidae. Trombiculidae live in forests and grasslands and are also found in the vegetation of low, damp areas such as woodlands, berry bushes, orchards, along lakes and streams, and even in drier places where vegetation is low, such as lawns, golf courses, and parks. They are most numerous in early summer when grass, weeds, and other vegetation are heaviest. In their larval stage, they attach to various animals, including humans, and feed on skin, often causing itching. These relatives of ticks are nearly microscopic, measuring 0.4 mm (1/60 of an inch) and have a chrome-orange hue.

Trombiculid mites go through a lifecycle of egg, larva, nymph, and adult. The larval mites feed on the skin cells of animals. The six-legged parasitic larvae feed on a large variety of creatures, including humans, rabbits, toads, box turtles, quail, and even some insects.



¹ <https://en.wikipedia.org/wiki/Trombiculidae>

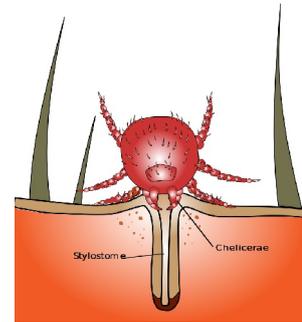
After crawling onto their hosts, they inject digestive enzymes into the skin that break down skin cells. They do not actually "bite", but instead form a hole in the skin called a stylostome and chew up tiny parts of the inner skin, thus causing severe irritation and swelling. The severe itching is accompanied by red, pimple-like bumps (papules) or hives and skin rash or lesions on a sun-exposed area. For humans, itching usually occurs after the larvae detach from the skin.

After feeding on their hosts, the larvae drop to the ground and become nymphs, then mature into adults, which have eight legs and are harmless to humans. In the postlarval stage, they are not parasitic and feed on plant material. The females lay three to eight eggs in a clutch, usually on a leaf or under the roots of a plant, and die by autumn.

The species *Trombicula (eutrombicula) hirsti*, which are found in Australia and are commonly called the scrub-itch mite.

And:²

The intense itching that chigger bites cause comes from two sources. One is an allergic reaction to the chiggers' saliva. In some people, this reaction is extreme, leading to large sores or hives. In most, it simply causes a small, red, itchy bump. The other source of itching is the stylostome itself. It causes irritation and discomfort until the body's immune and lymphatic systems dissolve it and carry it away. If the chigger fed for a long time and the stylostome extends deep into the skin, this process can take quite a while.



A Trombiculid mite larva attached to human skin

OUTCOMES

The chiggers' digestive enzymes in the saliva cause "the insanely itchy welts". The itching can be alleviated through use of over-the-counter topical corticosteroids and antihistamines. According to Mayo Clinic, the chiggers "fall off after a few days, leaving behind red, itchy welts", which normally heal on their own within one to two weeks. Hot showers or baths also help reduce itching. In cases of severe dermatitis or secondary infection associated with chigger bites, a doctor should be consulted. Although the harvest mite chigger usually does not carry diseases in North American temperate climates, *Leptotrombidium deliense* is considered a dangerous pest in East Asia and the South Pacific because it often carries *Orientia tsutsugamushi*, the tiny bacterium that causes scrub typhus, which is known alternatively as the Japanese river disease, scrub disease, or tsutsugamushi. The mites are infected by the *Rickettsia* passed down from parent to offspring before eggs are laid in a process called transovarial transmission. Symptoms of scrub typhus in humans include fever, headache, muscle pain, cough, and gastrointestinal symptoms.



Chigger-caused lesions on human skin showing characteristic welts

² <https://animals.howstuffworks.com/arachnids/chigger3.htm>

PERSONAL EXPERIENCES.

I experienced an itching sensation on my right foot during an Asian cruise trip in 2015. The ship's doctor was a South African who inspected my foot which had no surface expression of the itch. He advised I apply a fungicide to the affected area. This made little difference.

When I came home, I asked my skin clinician what the itch was, and why I could feel small lumps under the skin. His response was the lumps were normal vein and nerve structures and I was probably experiencing a form of eczema. I received similar advice from my GP in a subsequent appointment.

However, the skin doctor had prescribed Retrieve Cream for use on treating rough skin patches, so I applied that cream to my foot itch.



RESULTS.

The results were dramatic. After two days a series of red spots began to appear on my foot. Over a fortnight of applying cream treatment twice a day, my foot showed a red patch with white spots present. The itch had dramatically reduced, as shown 21



21 Sept 2019



24 Sept 2019

Sept 2019, with the rash reducing. Three days later on the 24th the spots and red skin started to disappear, and the dry skin was treated with QV cream.

REPEAT INFECTION

On 19 August 2020 I again experienced a more severe attack of chigger bites, once again only on the right foot and ankle. How was this occurring?



10 Sept 2020



18 Sept 2020

BACKGROUND

We live on a one hectare property in the Ipswich City Council region. The property is grassed and needs regular mowing. We also have several fruit trees. I mow the grass with a ride-on mower fitted with a grass catcher. The mower includes a set of high lift cutter blades which serve to lift the cut grass into the grass catcher - along with any mites living in the grass. The cut grass is dumped, in a pile next to the fruit trees, and used as mulch when raked around the base fruit trees.



When some of the mulch needs further smoothing, it is my habit to push it into place using my right boot. Some of the grass cuttings can enter below my long trouser leg and lodge on the sox and inside my work boot. No doubt this is where the chiggers get access to my leg. To make things worse, I clean myself down with compressed air after mowing, which removes grass and dust from my clothes, but would have little impact on the mites feasting on my skin and inside my sox.

PREVENTION.

Chigger mites are a feature of our local area, and my tactic for avoiding further infection will include:

1. Wear boot protectors when using the mower.
2. Only use the garden rake to spread grass cuttings.
3. Have a shower bath after mowing.

CONCLUSIONS.

1. It is very surprising that three front line medics were unable to diagnose this complaint.
2. The lack of diagnosing ability is particularly concerning given that chiggers are endemic to this part of the world.
3. It appears that the use of Retrieve Cream is not known as an effective treatment against this complaint anywhere in the world.