

Things that can go wrong on holiday

W Rabbetts

Amayeza Information Services, South Africa

Corresponding author, email: wilna@amayeza-info.co.za

Abstract

Bites and stings from insects and animals can merely be a nuisance, or they can cause severe local reactions and even life-threatening consequences. Some bites are vectors for serious infections such as malaria, yellow fever, tick bite fever and rabies. Although one should ideally avoid contact with these insects and animals, this is not practical and the approach to how best to minimise the risks and complications of the more common bites and stings, especially over the summer holiday season, will be discussed, as well as a short overview of cuts and bruises, which may also be more likely when travelling away from home.

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Introduction

Humans are vulnerable to injury from accidents as well as stings and bites from many insects and other animals daily, but even more so when they travel to new places, and as December approaches, more people may be embarking on holidays in exciting places. This article will address some of the bites, stings and other accidents that may occur on holiday and how to prevent or treat them.

Bites and stings

Is it a bite, or is it a sting, and what is the difference? Although these terms are often used interchangeably, there is a difference. Stings involve the injection of venom via a posterior structure (usually aptly called "a sting"), whereas bites involve structures associated with the mouth. Both result in local reactions, and some may cause severe life-threatening systemic consequences.¹

Bites

Some of the more common insect bites include bites from ticks, fleas, mosquitoes, spiders and bedbugs. Other than spider bites, they can all be prevented by means of approved insect repellents and/or insecticides. Using insect repellents containing 30% DEET (N,N-diethyl-3-methylbenzamide or N,N-diethyl-m-toluamide) is recommended by the American Academy of Pediatrics (AAP).²

Mosquito bites

Mosquitos may be small and have short lifespans, but they can wreak havoc on human lives. From their itchy bites to the diseases they can carry, mosquitos are often annoying and sometimes downright deadly. There are several different types of mosquitoes, many of which bite humans to obtain a blood meal for their offspring. These tiny insects can transmit some of the deadliest infections. For example, female *Anopheles* mosquitoes, which bite at night (and often don't make any noise), carry malaria, and *Aedes* mosquitoes, which bite during the day, carry yellow fever, dengue and chikungunya. Other mosquitoes may not transmit infections, but they may still cause severe discomfort.

Treatment of these bites consists of mainly over-the-counter antihistamines and topical anti-itch medications. While there is a vaccine against yellow fever and chemoprophylaxis available against malaria, the best form of protection is to not get bitten in the first place, by using an effective insect repellent. Effective repellents include synthetic preparations such as DEET, Picardin (KBR3023), and IR 3535, as well as PMD (P-MENTHANE-3,8-DIOL), which is derived from lemon eucalyptus. For maximal protection against mosquitoes, DEET is preferable over other agents.³ Examples of DEET containing products in South Africa are Tabard and Peaceful Sleep.

Tick bites

In South Africa, the most common disease caused by ticks is tick bite fever. There are two distinct types, *Rickettsia conorii*, that tends to be associated with milder disease with little risk of complications and *Rickettsia africae*, that can result in severe or even fatal complications.⁴ The incubation period is about five to seven days, after which non-specific symptoms similar to malaria occur. There is an eschar at the site of the bite, but this is not always visible as it may be in areas such as the scalp or behind the ear or between the toes. About three days later, a maculopapular rash appears and often involves the soles and palms.^{1,5} Doxycycline is the drug of choice, even for children under the age of eight years. The adult dose is 100 mg twice daily for five to seven days. A clinical response is usually seen within 48 hours. There are increasing published data on the relative safety of doxycycline compared with older tetracyclines in both pregnancies and in children.⁶

Recent studies have shown that DEET applied to exposed skin and permethrin-impregnated clothing is a reasonably effective preventative measure. If the tick is found on the body, it should be carefully removed, using fine-tipped tweezers. The tick should be grasped as close to the skin's surface as possible and pulled upward with steady, even pressure, taking care not to twist or jerk the tick as this can cause the mouthparts to break off and remain in the skin.⁴ Do not try to smother a tick with petroleum jelly, nail polish or rubbing alcohol or try to burn the tick while it is stuck to your skin.⁷

Spider bites

Many spider species are found in Southern Africa, but fortunately, not many of them are venomous. The venomous ones are divided into neurotoxic and cytotoxic groups. The neurotoxic group is represented by the widow or button spiders and a bite from one of these will result in a burning pain at the site of the bite, which can spread to the chest, back or abdomen. This is then followed by generalised muscle pain and cramps, especially in the abdomen, chest, back and thighs. Muscle tremors and weakness follows and then also profuse sweating and other neurological symptoms.⁸ Medical attention should be urgently sought as administration of antivenom may be required.¹

The cytotoxic group includes the sac and violin spiders, as well as the six-eyed sand spider. Bites are initially not that painful, but a vesicular or bullous skin lesion may develop and this can progress to local tissue necrosis. There is no antivenom for these bites and antibiotic therapy and surgical debridement are the required treatments.⁸ A tetanus toxoid booster is also recommended.⁹

Bedbugs

Bed bugs are small, flat insects, reddish-brown in colour, wingless and about 1 to 7 mm in length. Although bed bugs have not been shown to transmit disease, their bites can produce strong allergic reactions and considerable emotional stress.¹⁰ Bed bug bites resemble several other insect bites, but if they are discovered upon waking, and they form a line or row on the skin, particularly on exposed skin, and are itchy, then one should suspect bed bugs. The bugs and their eggs are seldom seen, as they hide in the crevices during the day. Little brown specks (their dung) on the linen, mattresses and walls surrounding the bed, are telltale signs.¹⁰

The bites can be treated with an oral antihistamine and/or low-dose topical corticosteroid and the furniture and clothing should be treated appropriately to get rid of the bed bugs. Vacuuming the furniture and washing linen and clothing in hot water and drying them in an electric drier can be effective, but pest control agents may be required.¹¹

Snakebites

Roughly 11% of the 173 species of snakes in southern Africa can be considered deadly and these include mambas, cobras, the rinkhals, puff adder, gaboon adder, boomslang and the twig snake. The Mozambique spitting cobra accounts for most serious bites, followed by the puff adder, and then the stiletto snake and rhombic night adder. Most of the deaths resulting from snakebite in southern Africa are as a result of Cape cobra and black mamba bites.

In the event of a snakebite, the following symptoms may appear:

- An immediate burning pain, followed by swelling, which progresses up the limb and may affect the lymph glands – the puff adder and the Mozambique spitting cobra (cytotoxic venom).

- Dizziness, difficulty in swallowing and breathing, drooping eyelids and nausea – Cape cobra and mambas (neurotoxic venom).
- Bleeding from the nose, small cuts, followed by bleeding from mucous membranes and, after several hours, severe internal bleeding – the boomslang and the twig snake (haemotoxic venom).
- Shock, which can cause nausea, pain and difficulty breathing.

What you can do

- Get the victim to a hospital as soon as possible.
- Keep the victim calm and as still as possible.
- Remove rings and tight clothing.
- Apply pressure bandage for bites from the Cape cobra and black mamba. The idea is to put pressure on the lymphatic system and, in doing so, reduce the rate at which venom is absorbed.
- Artificial respiration when necessary for snakes with neurotoxic venom.
- In the case of spitting snakes where the venom gets into a victim's eyes, flush the eyes for at least 15–20 minutes with water or any bland liquid like milk if no water is available and then get the victim to a doctor.¹²

It is always advisable to check ahead of visiting an area what snakes are found there and be able to identify and avoid them. For more information, visit <https://www.africansnakebiteinstitute.com/snakebite/>

Rabid animal bites

Human rabies cases are rare in South Africa, but cases are still confirmed annually. Humans are exposed to rabies through bites and other wounds inflicted by rabid animals. The virus is contained in the saliva of a rabid animal. Most human rabies cases in South Africa are associated with domestic dog exposures. In addition to dogs, any bites or scratches from wild animals such as yellow mongoose, black-backed jackal, bat-eared fox, and caracal must all be considered as possible exposure to the rabies virus. Rabies is not typically reported from small rodents such as mice and rats and there are no rabies viruses reported in bats in South Africa.

What should a person do if they have been exposed to a suspected rabid animal?

Wash all wounds and scratches immediately with soap or detergent and flush them thoroughly for about 5–10 minutes with water. Seek immediate medical treatment for post-exposure prophylaxis, which will be given in accordance with the category of exposure.¹³ A tetanus shot is also recommended where the patient has not received one in the last five years.

Stings

The most common stings that occur are from bees, scorpions and then jellyfish and bluebottles. Apart from the localised pain and

swelling that these stings can produce, some people may also have allergic reactions to the stings and develop anaphylaxis.

Bee stings

The most common stings in South Africa are caused by the honeybee. If a bee approaches, one should stand still, and not frighten it. If it lands, one should try gently to blow it off. If a swarm of bees approaches, on the other hand, one should run away as fast as possible, as bees are slow flyers and can normally be outrun. When a bee stings, the barbed sting tears off and stays embedded in the skin, resulting in the death of the bee. The venom that it injects includes enzymes and proteins which give rise to histamine release and an inflammatory reaction. The barbed sting should be carefully removed by scraping the skin as soon as possible, but not by squeezing, as this causes more venom to be injected. Most bee stings cause swelling, pain and redness within minutes, and these can be minimised by applying ice or cold compresses and by taking an antihistamine such as promethazine.

When someone who is allergic to bee venom gets stung, more severe allergic reactions can occur including anaphylaxis. People who are allergic to bee venom should carry a preloaded adrenalin syringe and Medic Alert bracelet or similar warning device.¹

Scorpion stings

There are around 150 scorpion species in southern Africa. There is a great rule of thumb when it comes to scorpions: **The thicker the tail and smaller the pincers, the more venomous it is.** Scorpions are nocturnal and more active during the warmer season. Most stings are accidental when scorpions are stood on or grabbed in the dark, as scorpions would rather escape humans than attack.¹⁴ All the thick-tail venoms require urgent medical treatment with antivenom, and while the stings from the smaller-tailed scorpions are excruciating and the affected area will be very sensitive to touch, these stings are not serious.¹⁵

Jellyfish and bluebottles

At the coast, jellyfish and bluebottle stings occur frequently. If someone is stung by either of these, a welt or rash develops. Rinse the sting site with seawater and remove the tendrils carefully. For patients with significant pain, treatment with hot water immersion or application of hot packs rather than cold therapy or irrigation with vinegar is recommended. Take care, however, not to scald the skin.¹⁶ Stings from sea urchins or starfish can be rapidly inactivated by applying heat, as they are heat-labile venoms.¹

Cuts and bruises

Slips, trips and falls happen easily when on holiday, so knowing how to treat cuts and bruises is important. Bruises will mostly heal on their own, but the following measures help:

- apply a cold pack for 15 minutes every 1–2 hours,
- raise the area,
- take medication to reduce pain and swelling, and
- do **not** use a warm pack or heating pad on the bruise.¹⁷

For cuts that do not go all the way through the skin, no stitches will be necessary. Treatment of most cuts start by cleaning the area with soap and water and removing any debris that may be present. If the cut is bleeding, press a clean cloth or bandage firmly to the area for 20 minutes and elevate it above the level of the heart. A thin layer of antibiotic ointment, for example an ointment containing mupirocin, and a clean bandage, is all that is needed for cuts that do not need stitches.¹⁷ A tetanus booster could also be indicated if the patient has not had one in the last 5–10 years, especially if the cut is dirty or deep.

Travelling can increase risks to personal health and well-being, and these risks should be understood when planning travel, particularly to unfamiliar, distant or remote areas. Taking appropriate precautions before beginning a trip can reduce these risks and ensure a plan is in place in the event of injury. The pharmacist can play an important role in helping people pack the necessary first-aid products by checking where the customer is going and advising on what they might need when they get to their holiday destination.

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