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Management of tick bites in Australia

Important! Watch this video about how to safely remove a tick¹

<https://www.allergy.org.au/patients/insect-allergy-bites-and-stings>

This factsheet provides information on how to safely manage a tick bite, safely remove a tick to prevent allergic reactions to tick bites, and how people who are allergic to tick bites should safely manage a tick bite.

This factsheet should be read alongside the *Prevention of tick bites in Australia* factsheet.

Knowing how to prevent and manage tick bites is important as allergic reactions to ticks are almost entirely preventable.

How do people know if they have been bitten by a tick?

A tick bite usually looks like a small dark freckle with a scab, or mole, on the skin. A magnifying glass may be helpful to confirm a tick is present.

As ticks are very small and their bites do not usually hurt, ticks can easily be overlooked on the body, especially if the tick is in a sheltered spot. Ticks prefer soft skin and hairy areas.

People may be unaware when they are bitten by a tick, as the tick can inject small amounts of saliva with anaesthetic properties so that the person cannot feel that the tick has attached itself. In addition to the bite being painless, often the person will not sense a tick moving on their skin. However, once it starts to feed, it becomes noticeable, enlarging as it becomes filled with blood and eggs.

Managing a tick bite when bitten in Australia

Australia has specific challenges, particularly around allergies, anaphylaxis, and mammalian meat allergy from bites from one particular tick (the Australian paralysis tick), and therefore has different recommendations for the safe management and removal of ticks than the rest of the world.

To safely manage a tick bite, it is recommended that if bitten by any tick in Australia, people should not disturb the tick, from the time it is found attached to the skin to when it is killed using the methods recommended in this factsheet. Attached adult ticks should be killed *in situ* (where they are) by freezing them with ether-containing sprays to prevent allergic reactions to ticks. The dead tick should then be left to drop off. For ticks that can hardly be seen (nymph and larval ticks) it is recommended that a generous amount of permethrin cream is carefully dabbed or dropped onto the tick to kill the tick where it is. If the person cannot freeze the tick, leave the tick in place without disturbing it and seek urgent medical assistance to safely remove the tick. Safely managing the tick using the recommended methods in this factsheet should not be overly delayed, as a delay of several hours may increase the risk of contracting a tick-borne illness.

¹ An allergy project supported by the National Allergy Strategy, the Australasian Society of Clinical Immunology and Allergy (ASCIA), Allergy & Anaphylaxis Australia (A&AA), and Tick-induced Allergies Research and Awareness (TiARA).

Current advice² stresses the importance of establishing whether a person who has been bitten by a tick has an allergy to tick bites. Subsequent medical management of the patient with a tick bite is dependent on whether the person has an allergy or not.

It is vital that anyone with a known tick allergy summon urgent medical attention as soon as they are aware of an attached tick and not attempt to remove it without medical help. For patients with known tick allergies, managing and removing the tick must occur in a hospital or emergency department in the event of anaphylaxis occurring when the tick is removed.

All bites from adult ticks need to be treated as if an anaphylaxis could result, as first adult tick bite anaphylaxis is not uncommon.

Anaphylaxis, including tick anaphylaxis, is a medical emergency. In Australia, anaphylactic reactions to tick bites have been fatal, but fatalities are uncommon. Crucially, people who have an anaphylactic reaction to a tick bite react only when the tick is disturbed. Tick anaphylaxis is only seen with bites from adult ticks. As such, tick anaphylaxis is very unlikely to occur when the tick is killed where it is with ether-containing sprays before it is removed (that is freezing it where it is).

A range of short videos, including on 'Signs and symptoms of allergic reaction', 'EpiPen® administration, and 'Anapen® administration³, are available from:

<https://allergyfacts.org.au/resources/videos-from-a-aa>

The information in the following sections provides more details about what to do and what not to do if bitten by a tick in Australia.

First aid for tick bites

People who are not allergic to ticks should safely manage the tick bite by not disturbing the tick and killing the tick where it is without delay, as described in more detail overleaf.

A short video on how to safely remove the tick by freezing it where it is with ether-containing sprays, thus killing the tick so that it then drops off, is available at the beginning of this factsheet. Alternatively, if the person cannot freeze the tick, leave the tick in place without disturbing it and seek urgent medical assistance.

² Advice from the Australian Government Department of Health and Aged Care, ASCIA, TiARA, and Healthdirect.

³ Advice from A&AA.

DO NOT scratch or disturb a tick

- Do not scratch anything that itches until you have had a look at it, or scratch anything you can't see if you live, work, volunteer or play in a tick-endemic area.
- Do not disturb a tick, squeeze, agitate, jerk, or twist a tick, as this will make it more likely that the tick will inject its saliva into the person.
- Do not use irritant chemicals such as methylated spirits, kerosene, petroleum jelly, nail polish, oil, or alcohol; or use a lighted match; as these do not work and may cause the tick to burrow deeper into the skin.

DO NOT try pulling the tick out with household tweezers or fingernails

- Do not try 'picking' a tick out of the skin with household tweezers, fingernails, or other tick-removal gadgets.
- It is unsafe to insert fine tweezers between the skin and the tick mouthpiece and lever the tick out without killing the tick first. This does not prevent tick allergy or anaphylaxis, and therefore this method is not advised.⁴

DO kill the tick where it is

For ticks that can be seen (adult ticks), freeze the tick to kill it where it is

Current advice⁵ supports the killing of adult ticks where they are by freezing them with ether-containing sprays.

A short video on how to safely remove the tick by freezing it where it is with ether-containing sprays, thus killing the tick so that it then drops off is available at the beginning of this factsheet.

A tick removal mantra⁶ devised for the community is:

For ticks you can see (adult ticks)

"Freeze it, don't squeeze it!"

Use an ether-containing spray e.g. Tick Off® and remember:

"Household tweezers are tick squeezers".

People should freeze the tick using a product that rapidly freezes and kills the tick and allow it to drop off. People should ask their pharmacist for suitable ether-containing products and people should read the instructions on the packaging and any enclosed instructions to make sure they use the product safely and as directed.

⁴ Advice from ASCIA.

⁵ Advice from ASCIA, TiARA, the Australian Government Department of Health, and published articles.

⁶ Advice from TiARA.

An ether-containing spray, Tick Off[®], is available to kill ticks in situ. While people may be tempted to use other ether-containing products such as Wart-Off Freeze[®], this is not recommended as it may disturb the tick. In most cases ether-containing sprays will kill the tick within 5 minutes, and it will drop off the skin later.

If the tick does not drop off, or the person cannot freeze the tick, advice is to leave the tick in place and seek urgent medical assistance to have the attached tick safely managed and removed. People should take care to not disturb or squeeze the tick because this would cause tick saliva to enter their body, increasing the risk of tick-induced allergies.

Published studies show that safe management and subsequent removal of the tick as recommended in this factsheet can reduce the possibility of becoming allergic to ticks. It can also reduce the risk of getting a tick-borne infectious disease or developing tick paralysis.

For ticks that can hardly be seen – use permethrin cream to kill the tick where it is

A tick removal mantra⁷ devised for the community is:

For ticks you can hardly see (larval and nymph stage ticks)
“Dab it, don’t grab it”
(Apply the tickicide permethrin cream Lyclear[®]).

Permethrin based creams are available from chemists. Apply at least twice with a 1-minute interval between applications. Scrape the tick off after 60-90 minutes using a sharp-edged scraper (taking care not to damage the person’s skin with the scraper).

There is limited scientific information about permethrin use in pregnancy and it is not known whether it can be present in breast milk.⁸ Pregnant and breastfeeding women should ask their pharmacist for advice on the use of permethrin cream.

Management of tick bites in people who are allergic to tick bites

It is vital for anyone with a known tick allergy to summon urgent medical attention as soon as they are aware of an attached tick and not attempt to remove it without medical help. For patients with known tick allergies, removing the tick must occur in a hospital or emergency department in the event of anaphylaxis occurring when the tick is removed.

People who are allergic to tick bites should carry an adrenaline (epinephrine) autoinjector (such as EpiPen[®] or an Anapen[®]) and a mobile telephone and manage tick bites in accordance with the ASCIA Action Plan for Anaphylaxis available at this link:

<https://www.allergy.org.au/hp/anaphylaxis/ascia-action-plan-for-anaphylaxis>.

⁷ Advice from TiARA.

⁸ Advice from TiARA.

First aid for anaphylaxis, including tick anaphylaxis

Anaphylaxis is a medical emergency.

Advice⁹ on first aid and immediate actions for anaphylaxis, including tick anaphylaxis, is as follows:

- Lie the person down if possible and elevate the legs as this maximises blood flow to the head and therefore oxygen to the brain. **Do NOT allow them to stand or walk.**
- **GIVE ADRENALINE INJECTOR.** If there is an adrenaline autoinjector (EpiPen®, Anapen®) available, use it while waiting for emergency services if there is any closing over of the throat, breathing difficulty or impending loss of consciousness.
- Call 000 and explain that the reaction is life-threatening.
- If a person is living alone or is alone, and suffering tick-induced anaphylaxis symptoms, s/he should open the front door, chock it open, and then lie down and put their feet up on a chair/lounge. As above, the person who is alone should call 000 and explain that the reaction is life-threatening. They should also use an adrenaline autoinjector (EpiPen®, Anapen®) if available, while waiting for emergency services if there is any closing over of their throat, breathing difficulty or impending loss of consciousness. The person should leave a note beside them noting they have been bitten by a tick, if time permits.

Information on other topics about Australian ticks

Information on other topics about Australian ticks are available in the following:

- *Prevention of tick bites in Australia* factsheet
- *Australian ticks and the medical problems they can cause* factsheet
- *Serious allergic reactions to tick bites* factsheet
- *Paralysis from tick bites* factsheet
- *Australian endemic tick-borne diseases: Queensland tick typhus* factsheet
- *Australian endemic tick-borne diseases: Q fever* factsheet
- *Australian endemic tick-borne diseases: Flinders Island spotted fever* factsheet
- *Australian endemic tick-borne diseases: Australian spotted fever* factsheet.

⁹ Advice from ASCIA and TiARA.