

Bites & stings

Author: Dr Miki Lazner / Mr Christian Chadwick / Dr Martin Llewelyn
Approved by: Antimicrobial Steering Group September 2021 & UHSussex Medicines
Governance Committee December 2021
Publication date: December 2021. Version 3
Review date: December 2023

General assessment & examination

Red flags

- ! Signs of anaphylaxis
- ! Signs of systemic infection
- ! Human bite / bruising - **must consider inflicted or non-accidental injury**

What type (human, animal, insect, etc.)

- consider size and breed of animal, impact on potential injury to underlying & surrounding tissues; ?domestic animal vs. wild

When & How (note time since injury) ?recent foreign travel

Where (if animal, ?penetrating a joint)

Look at depth, extent, width, how its *feels* to child

- Illustrate or photograph wound
- note any underlying / surrounding structures visible
- is skin intact, any bruising - ?age, ?pattern

Feel for tenderness (consider bony injury if powerful bite) and local warmth

Move joints above + below site - note pain, reduced range of movement

NV status - note distal CRT, peripheral pulses, any sensory deficit

Examine for signs of **allergic reaction** (systemic or **anaphylaxis**)

- ABC, skin, GI tract

?signs of local infection – note, measure + mark any erythema + swelling (?cellulitic), any tracking, exudate, pus +/- heat (particularly over joints)

?signs of local allergic reaction – erythema, non tender, normal function of limb, itchy

Examine for signs of **lymphangitis**, oedema

General management

X-ray if suspect fracture or foreign body (ask about broken tooth)

Irrigate with at least 100 ml tap water or normal saline & **explore** wound

- Use local anaesthetic or refer for a general if extensive

Bites are normally left open **UNLESS** gaping or requires cosmetic repair (face)

High risk wounds for infection:

- *Wound >24 hours old*
- *Puncture wound* - risk of infection increased in **puncture vs open** wound
- *Extensive tissue damage*
- *Wounds to hands, over a joint, through and through oral*
- *If wound has been closed*
- *Animal or human bite* = contaminated wound (see specific information below)

Prescribe **oral antibiotics** for high-risk wounds. **Duration** 3 days.

If wound is **infected**:

1. take blood cultures and swabs if appropriate (open wound / pus)
2. Give oral antibiotics if infection is local or **IV antibiotics if signs of systemic infection. Duration** 5 days (can go up to 7 days if required)

Swabs will need to be chased by the requesting clinician if patient is discharged from CED.

Antibiotic choices

(See cBNF for all doses)

Oral antibiotic first choice:

Under 1 month: Discuss with Microbiology

Age 1 month & over: Co-amoxiclav

Oral antibiotic alternative or if penicillin allergic:

Age under 12 years: Co-trimoxazole.

Age 12 & over: Doxycycline with metronidazole

Intravenous antibiotic first choice:

Age 1 month & over: Co-amoxiclav

Intravenous antibiotic alternative or if non-IgE penicillin allergic:

Cefuroxime with metronidazole or Ceftriaxone with metronidazole

For IV antibiotic choice if IgE penicillin allergic – discuss with Microbiology

Immunisations:

- **Tetanus** – as per guidelines (Tetanus immunoglobulin for high-risk). See <https://www.gov.uk/government/collections/tetanus-guidance-data-and-analysis>
- **Rabies** – usually unknown status of animal, if is a risk and even if wound several weeks old, prophylaxis is required as rabies virus incubates up to 12 weeks. In the UK bats can carry bat rabies which can be transmitted to humans.

Animal specific bites & stings

!! Any bite or puncture wound from a human or animal in vicinity of a joint → inform Orthopaedic Registrar !!

If there are any signs of systemic illness to suggest secondary infection, ensure that a blood culture is taken and intravenous antibiotics started.

Rat bites, bat bites and any animal bites not covered in this guide e.g. horse, goat etc. and any bites in immunocompromised children must be discussed with microbiology in or out of hours.

Human bites Human mouth carries largest number of aerobic + anaerobic bacteria. If person biting known or risk of hepatitis or HIV, consider transmission + follow relevant protocol. **Consider inflicted or non-accidental injury and discuss with CED registrar or consultant.** See CHIVA guidelines for further information on post-exposure prophylaxis (PEP):
<https://www.chiva.org.uk/infoprofessionals/guidelines/>

Management Prophylactic oral antibiotics required (for both anaerobic & aerobic bacteria. See page 2 for which antibiotics to use. Consider PEP as above.

Dog bites Size of dog is important as is breed (tissue / bone injury). Consider psych / emotional trauma. Requires notification to police (Dangerous Dogs Act).

Management Wound management. See page 2 for which antibiotics to use.

Cat bites **Management** Antibiotics to be given. Most common organism causing infection, *pasteurella multocida*, can lead to severe wound sepsis with secondary septicaemia. See page 2 for which antibiotics to use..

Tick bites Ticks bite mammals to feed on blood. The South Downs are a particularly popular habitat. Ticks carry and transmit various diseases. Once a *host* has been found the tick burrows its mouthparts, which are barbed, into exposed skin and secrete neurotoxins so that the host may not feel its attachment and subsequent local irritation.

Rarely severe allergic or anaphylactic reactions occur. Rare is also severe reaction to the neurotoxins secreted – toxicity greater in younger children and with prolonged attachment, particularly in the scalp – respiratory paralysis has been documented.

- Examination** Local features include local irritation, erythema and itching. Local allergic reactions are fairly common.
Systemic effects include lethargy, fever, irritability, myalgia, progressive ataxia, dysphagia, diplopia, loss of tone, respiratory paralysis.
Progressive paralysis of hands and feet has been reported 2 or more days after the bite. Rarely serious systemic effects after removal of tick.
- Infection** Suspect tick-bourne infection if febrile illness with rash, lymphadenopathy, arthralgia up to 14 days post bite (see separate guidelines). Discuss with Microbiology on call if suspected.
- Management** Remove tick using fine tweezers, forceps, or tick-removing tool. Grasp tick as close to skin as possible and pull upwards with slow steady pressure. Avoid twisting or crushing the body as this may release further toxins into the wound. There is ongoing debate about removing a 'live' tick or to kill prior to removal (as it is thought a stressed tick on removal will inject more toxin into the wound). To kill, apply a generous layer of Vaseline over the tick to suffocate it. It will be easier to remove after about two hours and may fall off within 24 hours.
- It is NOT necessary to remove any mouthparts left behind in most cases. If local allergic or systemic allergic reaction then mouthparts should be removed using fine needle.
- Look for other ticks once one tick has been found – ticks like warm, moist areas e.g. scalp, neck, axillae, interdigital spaces, umbilicus, groin, genitalia, natal cleft, popliteal fossa.
- Do not test for Lyme disease acutely. No prophylactic antibiotics are required.

- Weever fish** Fish bury themselves in seabed. Normally patient steps on fish in shallow water, causing injury from dorsal spines to plantar of foot. Spines contain venom. Injuries often very painful but serious complications are rare.
- Examination** Local features include burning at sting site, spreading up affected limb; often accompanied by warmth, erythema, oedema and numbness; pain may remain for 24 hours, oedema for several days. Systemic features include headache, nausea/vomiting, dizziness, pallor, aching muscles/joints. Potential for secondary infection. Severe reactions include arrhythmias, chest pain, hypotension, respiratory distress and seizures.
- Management** Submerge affected limb or wound in **hot water**, as hot as can be tolerated for up to 90 minutes – until pain easing. If submersion not possible consider hot compresses. Further submersion up to two hours after if pain returns. NOT cold water as increases pain++. Simple analgesia, if required IV analgesia, local anaesthetic (not to plantar) or regional. Puncture wound site inspected, if evidence of embedded spines/fragments – removal is ideal.

Anti-tetanus as required (not high risk wound). Other measures as clinical condition requires. Advise monitor for wound infection on discharge.

Rat bites If wild, can transmit leptospirosis (Weil's disease)

Management Give See page 2 for which antibiotics to use. See cBNF for doses for wild rat bites.

Bat bites Bats can carry bat rabies which can cause disease in humans. Rabies is an encephalitis caused by the rabies virus, a member of the rhabdovirus family. It is an acute viral infection that is almost invariably fatal once symptoms develop. Most bat bites are felt rather than seen, and rarely draw blood. They may be invisible and are often not noticed. All bats must be assumed to be an infection risk. Any exposure to bats should prompt risk assessment.

Management: The child is likely to require post-exposure prophylaxis with a course of rabies vaccine. This is not a medical emergency and can wait until the next working day. Contact the Public Health England (PHE) Rabies and Immunoglobulin Service (RIgS) on 0208 327 6204 for advice on risk assessment and treatment.

Additional advice is available at:

<https://www.gov.uk/government/collections/rabies-risk-assessment-post-exposure-treatment-management>; &

<https://www.gov.uk/government/publications/rabies-the-green-book-chapter-27>.

Snake bites Identify the snake. Only poisonous native UK snake is the adder (*Vipera berus*) – identifiable by dark zig-zag / diamond pattern on back. Most adder bites cause no poisoning with only local symptoms but systemic features are seen in 30% cases (potentially life-threatening or cause long-term morbidity – death is rare, 14 in UK since 1876). Potentially more serious bites are seen from imported snakes.

Examination Local effects include pain, tenderness (exclude tooth fragment), swelling, bruising + regional lymph node enlargement. Occasionally whole limb may become swollen + bruised with involvement of the trunk and rarely the whole body, within 24 hours.

Systemic signs of envenomation (may not appear for several hours) are anaphylactic features (rare), hypotension, arrhythmias, angioedema, reduced level of consciousness, spontaneous bleeding, respiratory distress, vomiting, abdo pain +/- diarrhoea and acute renal failure.

Management **Non-venomous:** Clean + dress wound. Tetanus prophylaxis as required. Prophylactic oral antibiotic is NOT required.

Venomous: If clinical envenomation is suspected, contact National Poisons Information Service directly.

Anyone presenting with history of venomous snakebite should be observed in hospital for a minimum of 24 hours.

Limb should be immobilised (NOT tourniquet), assess for early anaphylaxis signs, see Toxbase/discuss with NPIS for further management. **Antivenom** considered if hypotension (+/- shock), clinical envenomation suspected or significant local swelling – see Toxbase. Antivenom information can also be found in the BNFC. NB – asthmatics have higher risk of severe anaphylactic reaction to antivenom.

Insect bites Bites may occur without a clear history. Symptoms within 48 hours are localised allergic responses (significant swelling but non-tender and usually itchy).
Post-48 hrs, painful erythema and swelling may indicate secondary bacterial infection.

Management Elevation and analgesia gives symptomatic relief +/- oral anti-histamine. More severe local reactions may require parenteral anti-histamines and corticosteroids.
If signs of local infection, antibiotics indicated. See page 2 for which antibiotics to use.

Bee & Wasp stings Exclude generalised severe anaphylactic reaction. More usually present as localised pain and swelling. If sting still present, remove from skin. Avoid squeezing sting on removal, as this will release more venom/toxins.

Jellyfish stings Stings from UK jellyfish lead to local irritation only. Treat as for insect bites.
