

## Bite Wounds

Bite injury is common. There is a high potential for secondary infection if the wound is not managed appropriately. This is because the tooth of the animal / human is bathed in the flora normally resident in the oral cavity. This is always a mixed flora with a large number of **anaerobic** organisms.

- **Dog and cats** – characteristically have *Pasturella cutis* as an oral commensal and this is sensitive to *Co-amoxiclav* ('*Augmentin*'). If the patient has a history of Penicillin sensitivity *Doxycycline plus Metronidazole* is recommended (NB *Erythromycin* apparently much less effective than *Doxycycline*)
- **Marine animals** – have a very different flora mix and advice should be sought from the Bacteriology Department in choosing the most appropriate antibiotic.
- **Human bites** – the most likely to be contaminated and *Co-amoxiclav* ('*Augmentin*') is appropriate. However, see below for potential complicating factors.
- **Snake bites** – see below
- **Tick bites** – see separate ED guideline '[Tick Bites](#)'

Bite wounds can be grouped into 4 general types:

Superficial <b>abrasion</b>	The biting animal has not managed to penetrate the skin
<b>Puncture</b> wound	The biting animal has managed to penetrate the skin +/- other tissues
<b>Bite &amp; Tear</b>	The biting animal has managed to penetrate the skin and detach the tissue from its bed forming a tissue flap
<b>Bite &amp; Tissue loss</b>	Self evidently there is loss of tissue

The **principals of management** for all bites are:

- Assessment of the wound – what structures (nerve, joint etc.) are damaged, if any?
- Thorough wound toilet (debridement) - clean it!
- **Do not close** the bite wound – where there is both tear and puncture it may be safe and appropriate to repair the tear component of a wound but you should leave the puncture part of the wound open - **do not** suture or steristrip the puncture wound component as you will create the ideal culture medium if some implanted organisms are still present. If in doubt – ask for a senior / specialty opinion.
- Antibiotic cover if there is tissue damage or poor viability.
- If tissue loss is evident refer for a senior opinion.
- Consider tetanus status of patient.

### **Human bite wounds.**

(See also [ED Guideline on 'Early Management of members of Public or NHS Staff exposed to blood or body fluids through Needlestick or other related injuries \(PEP\)'](#))

The management of these wounds revolve around 2 separate issues:

1. Management of a bite wound.
2. Assessment of risk of transfer of infectious agents (HIV, **Hep B**, Hep C etc)

The **first** is managed on the same basic principals as any other bite injury (see above). However do bear in mind the mechanism of injury:

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Many human bites come about as a result of the assailant punching a victim in the mouth. Both parties may end up in ED but the punching assailant will be the one with a human bite. It is in the nature of such a punch that the 'bite' wound often leads to penetration of the MCP joint - with a high risk of septic arthritis developing as a consequence. Therefore, whenever penetration of the MCP is suspected the patient should be **referred** to the Orthopaedic Service for wound toilet and debridement in theatre.

The **second** requires early assessment of risk of

- infectivity of the **source** Known high risk / low risk or unknown
- risk of **type** of exposure penetrating injury to skin, blood on mucosa or broken skin

*(See also ED Guideline on 'Early Management of members of Public or NHS Staff exposed to blood or body fluids through Needlestick or other related injuries (PEP)')*

Regarding Hep B risk specifically, where a patient has been exposed to an unknown source the risk of seroconversion is extremely low and hep B vaccine **alone**, given within 48hrs of exposure, has been shown to be highly effective without the need for Hep B immunoglobulin (and it avoids potential side effects e.g. serum sickness).

When the source patient is a known infectious carrier the risks (side effects) of using Hepatitis B immunoglobulin (along with the vaccine) are outweighed by the benefit.

## Snake Bite

Three species of snake are native to the British Isles of which only one is poisonous - *Vipera berus* - the adder. It is identified by a characteristic chevron pattern on the back.



Male Adder

Some adder bites cause no envenomation but systemic features occur in about 30% of cases. Deaths are rare (14 in UK since 1876). Nevertheless, all patients who have been bitten by a venomous snake should be reassured and rapidly transported to hospital, preferably in the

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recovery position, with the envenomed limb immobilised. Management is primarily supportive but antivenom may be required. See [Toxbase](#) for more detailed guidance on management.

For non-venomous species (*Natrix natrix* – grass snake; *Coronella austriaca* – smooth snake):

- Clean and dress the wound
- Give anti-tetanus prophylaxis as required. Prophylactic antibiotics are NOT required.
- Consider X-ray to detect any tooth fragments in the wound
- If patient develops ANY systemic problems (changes in limb girth, hypotension, hypertension) assume the snake was venomous.

If envenomation is suspected or evident:

- Reassure the patient and give paracetamol for pain
- Immobilise the patient (recovery position) and the limb
- Avoid interfering with the bite – do not cut into or suck from the site or apply ligatures or compression bandages.
- Anaphylaxis should be treated conventionally with epinephrine (adrenaline), hydrocortisone, chlorpheniramine and IV fluids.
- Monitor P, BP, peripheral perfusion. Do 12 lead ECG.
- Check FBC, coagulation, D-dimer, U&Es and creatinine, LFTs, CK. Dip urine for haemoglobin and myoglobin.

## Tick bites

(See separate ED guideline on 'Tick bites')

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