BSSH The British Society for Surgery of the Hand

Human and Animal bites to the hand

Bite injuries to the hand are common and can result in acute sepsis, chronic pain and disability, especially if poorly treated. The severity of injury also determines potential outcome but the aim is infection free healing with good skin cover and a functional range of motion. The psychological, safeguarding and legal consequences of injury should be considered.

First aid treatment and referral pathways

- For all first aid measures see Hand Injury Triage guidelines at; https://www.bssh.ac.uk/hand_trauma_app.aspx
  Referral category green to red depending on degree of injury. If the dermis is not breached, then washing under a tap with a simple dressing is adequate and onward referral is unnecessary. Patients with injuries with signs of infection or sepsis, penetrating joint injuries, open fractures, signs of vascular compromise or where there is significant soft tissue damage or multiple injuries should be seen by a hand surgeon emergently. . Patients should be resuscitated and fasted in anticipation of surgery.
- Human bites should be referred. An adult human bite is commonly sustained in a punch injury, the so called "fight bite" in which urgent surgical exploration is mandatory because of the high risk of joint sepsis.
- When there is a safeguarding concern formal assessment, medical photography, and appropriate referral are necessary.

Consent – principle of shared decision making

- Discussion with the patient should include all options, an outline of their rehabilitation requirements for each option, and the likely outcomes.
- The patient's values, occupation and hand function requirements should be discussed, and considered in a joint decision making process.
- Examples of this:
  - Whether to amputate or salvage a badly mauled finger

Decision making documentation

- The factors that have been considered in making a management decision should be documented, particularly where the surgeon and patient have agreed an option that might not be a common approach.
- Documentation of the circumstances of the bite should be as detailed as possible as this is crucial in any safeguarding or criminal process.

Non-operative management

Non-operative management is appropriate for minor bites that don't penetrate the dermis or bites with minimal soft tissue trauma, and no signs of infection that have been promptly washed out after injury.
Where this option is selected the patient should have a clear understanding of the signs of infection and how to seek help if they should arise. Elevation should be advised for at least 48 hours and a referral to hand therapy may be necessary if motion is impaired.

Operative management

- Operative intervention may range from simple debridement and washout of the wound under local anaesthetic to multi-stage debridements and complex reconstructions, which might require onward referral. It is appropriate to delay tendon repair and fracture fixation until the wound is judged free of contamination and devitalised tissue.

Operative management requirements for initial surgery

Timing

- Poorer outcomes are associated with delays to surgery .
- Initial surgery should be within 24 hours of injury, sooner if there is a penetrating joint injury, fight bite, an open fracture, tendon sheath penetration, vascular compromise, significant contamination or sepsis.
- The timing of further operations will depend on the presence of infection, contamination, necrosis and reconstructive requirements.

Staff

- Performed or supervised by a surgeon competent in the debridement of hand wounds
- An ODP or scrub nurse familiar with the equipment required

Environment

- Simple wound excision and washouts can be safely performed in a minor injury unit or outpatient setting but more complex injuries requiring fracture fixation should be carried out in a designated operating theatre with the appropriate number of air changes.

Equipment

- Light
- Copious fluids for washout
- Hand surgery instrumentation
- As needed:
    - Microsurgery instrumentation

- Appropriate fracture fixation equipment and implants
- Appropriate magnification – loupe or microscope
- Intra-operative mini C arm Xray facilities with images appropriately stored in PACS
- Tourniquet and the associated infrastructure

Additional measures e.g. antibiotics

- Antibiotics should be started as soon as possible after injury. If the patient requires hospitalisation, the intravenous route is appropriate. Local guidelines and history of allergy will determine which antibiotic is prescribed but in general it should be broad spectrum (for example co-amoxiclav). Microbiology swabs or tissue samples should be taken in the more severe injuries for culture and sensitivities. Ongoing antibiotic prophylaxis may be required where there is severe injury, bone or joint involvement or gross contamination.
- For tetanus prophylaxis LINK
- Anti-venom treatment may be required in the case of bites from venomous animals such as snakes or tropical insects. Consult www.toxbase.org for advice on anti-venom.
- Human bites may pose a risk of viral transmission, both victim and assailant should be risk assessed and advice sought from the microbiology or genitourinary medicine departments depending on local guidelines on testing and prophylaxis for blood borne viral infections such as Hepatitis B and HIV.

Therapy requirements post-operatively

- Assessment by a hand therapist should be made while they are an inpatient or as soon as feasible after discharge
- If mobilisation is going to be significantly delayed a Position of Safe Immobilisation (POSI) splint is recommended
- Early mobilisation is recommended with modification for tendon repair, soft tissue reconstruction or fracture fixation.
- Close communication between therapist and surgeon is essential.

Audit

- Regular or rolling audits of
  - Infection rate
  - Rate of re-operation
  - Number of hospital visits/interventions
  - Functional outcome at 3 months, ROM, pain and PROM

References

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