

1.2 Abscesses

History & Examination

An abscess is a collection of pus and the clinical features are a hot, painful, fluctuant mass, which is under tension. Typically the patient finds it difficult to sleep due to the pain

Treatment

- A properly developed abscess cannot be treated with antibiotics and requires surgical drainage.
- In certain situations this can be carried out under local anaesthesia, provided the skin is not very inflamed and the abscess is small. Local anaesthesia is not indicated when the skin is inflamed because injection into such skin may cause infection to spread, and the high blood flow usually renders the anaesthetic ineffective.
- Larger abscesses will invariably need draining under general anaesthetic.
- It is important to be aware of the surrounding structures when draining abscesses to avoid damaging vessels or nerves
- A course of oral antibiotics is not necessary unless there is significant surrounding cellulitis. Avoid putting drains into abscesses, but simply leave them incised with a betadine dressing to compress them. Larger abscesses are best treated by giving an im or iv dose of a suitable antibiotic before incision, followed by incision & curettage, followed by primary closure with deep sutures. These can be removed 5 days later.

Follow up

If there is significant cellulitis bring the patient back to return clinic at 2-3 days. If not then patient can return at 5 days or be followed up at the GP.

1.3 Bites

Animal bites (the worst of which is the human bite) can result in quite severe soft tissue infections.

Bacterial infection is particularly likely if:

- Puncture wound (cat/human)
- Hand wounds >24 hr old
- Wounds in alcoholics diabetics and immuno-compromised

Management

Establish the biting animal and the time since injury

Obtain Xrays if FB, Fracture or joint involvement is suspected

Treatment

- Explore fresh wounds under appropriate anaesthetic .
- Debride and clean thoroughly with copious saline
- Refer complicated wounds (those that are too difficult to clean, those involving tendons
- Those involving nerves) to a specialist

- give antibiotics if the wounds are penetrating (not necessary with superficial wounds) and bring the patient back at 48 hours for consideration of delayed primary suture
- The only exception to this is if the wounds are on the face, in which case they should be thoroughly cleaned and sutured under antibiotic cover. Use Augmentin.

DO NOT SUTURE OR STERISTRIP WOUNDS ELSEWHERE ON THE BODY.

Special considerations

- Be on the lookout for puncture wounds over the knuckles, which patients are reluctant to admit are due to bites, but are usually caused by the victim's teeth.
- Such wounds often penetrate the metacarpo-phalangeal joint capsule.
- If they present >24 hrs after injury they are often already infected with sepsis within the joint. Refer these patients to hands on call.
- Otherwise thoroughly irrigate the wound. Treatment then involves thorough exploration of the wound and if the joint is involved other structures such as tendons may also be damaged. This must be looked for
- Admission for 6 hrs for 2 doses of IV Augmentin is recommended with follow up in A&E clinic at 2-3 days

Some animal scratches, especially cats, can result in very severe infections. Penicillin and metronidazole are the drugs of choice.

Insect bites can be very troublesome, especially continental varieties! Treat with oral anti-histamines, antibiotics, and a high arm sling if appropriate. Be patient, they are slow to resolve. (See also under stings and soft tissue infection).

Patients may present with bites sustained in areas where malaria is endemic. Occasionally laboratory workers from Leeds University present. The Plasmodium falciparum parasite lines used at Leeds University are chloroquine SENSITIVE. The recommended treatment for high risk bites is **Proguanil** 2 tablets daily after food. This should be taken for 28 days. This deals with both erythrocyte and hepatocyte phases. Any pyrexial illness in the next 3 months should be reported to the patient's GP or (in the case of Leeds University workers) the Occupational Health Service, University of Leeds (tel 0113 2332997). Reasons for caution in taking Proguanil are allergy to Proguanil (biguanide), renal failure or if on anti-coagulants. Side effects are rare. The most common is mild gastric irritation which often settles on continued taking of the drug.

1.4 Burns

Type of burn :

Thermal

Electrical

Chemical

Radiation

History

The important questions regarding the history are:

- Was there an explosion or fall(risk of other injuries)?
- What was the burning material?
- Was the fire in an enclosed space (risk of CO poisoning)?
- How long was patient exposed to fire and smoke?
- Was there loss of consciousness?
- Was there any first aid?
- What is the past medical history and tetanus status?
- Always consider the risk of NAI in a child.

Treatment

- **A:** this may be at risk from burns to the mouth and nose and CO inhalation. Airway burns are suggested by hoarseness, stridor, carbonaceous sputum, singeing of nasal hairs. Airway oedema and obstruction can develop rapidly.
- **B:** this may be impaired due to contracted chest burns but is not usually a problem in the emergency room. O₂ should be administered to all patients and CO measures taken to determine treatment of this
- **C:** Hypovolemic shock in a patient with burns is usually not due to the burn within the first 6 hours. Consider trauma from blast or fall and manage appropriately.

Assess the percentage of burn.

The patient's palm represents 1% surface area. Use the Lund & Browder charts. There are separate ones for adults & children. It is important to get an accurate picture of the percentage as this will allow accurate calculation of fluids, disposal and prognosis.

The Depth of burn

This is quite tricky

1.Erythema

In calculating the percentage burn ignore simple erythema

2.Partial thickness

These are very painful. The appearance range from blistering to a loss of the majority of the dermal elements leaving a raw surface

3.Full thickness

These may be white brown or black in colour and appear leathery ;they do not blister and are insensate

Treatment

- This depends on the percentage burn and the presence of other injuries
- Give O₂ to all patients
- After consideration of the A, B, C the patient should have their pain controlled with IV morphine. titrated against the pain.
- Replace fluid by giving 2-4ml of electrolyte solution per Kg per 1% burn surface area in the first 24 hours following the burn, giving half of this total in the first 8 hours.

- Burns >10% and burns in specialist areas eg face and genitalia need admission to a burns unit
- Before transfer you must ensure that satisfactory analgesia, fluid replacement therapy (with good iv access and after discussion with the A&E Senior) and simple sterile covering of the wounds are established.

Borderline burns

- (ie 5-10% in a child or 10-15% in an adult) may be admitted under the Paediatric/General Surgeon of the day after discussion with the A&E Senior.
- Outpatient burns are treated either by a standard jelonet "burns dressing".
- Burnt hands can be treated with 'Flamazine' and put into plastic gloves, but this interferes with the assessment of depth at the next clinic visit, and we would prefer jelonet dressings initially.
- Faces are treated with bland E45 cream applied repeatedly until a scab forms. Bring the patient back on the second day for inspection and dressing change. The next visit is approximately four days later.
- *Superficial burns* usually heal within two weeks. Deep dermal and full thickness burns may take considerably longer.
- Advice sheets are available for parents of a burnt child.

1.5 Head injury

Author : Matt Shepherd, Wayne Hamer

Date : Dec 2002

Background

Head injury encompasses a broad spectrum of clinical problems frequently seen in the A&E department. Ironically it is those at the less severe end of the spectrum that often pose the greatest difficulty in management.

The questions generally posed are:

- **Who needs admitting?**
- **Who can I safely discharge?**
- **Who needs radiological investigations and which ones?**

Using the Scottish Intercollegiate Guidelines Network document 'Early Management of Patients with a Head Injury' and a recent paper 'The Canadian CT Head Rule for patients with minor head injury'* this guideline hopes to answer these questions.

*Stiell I, Wells G et al. The Canadian CT Head Rule for patients with minor head injury. Lancet 2001; 357:1391-96

Assessment

- Airway (with C Spine control)
- Breathing (with oxygen)
- Circulation (with IV access/haemorrhage control)
- Disability (GCS)
- Expose/environment

- (don't forget to measure Glucose in any patient with altered consciousness, start with a BM stick)

Follow ATLS approach and guidelines
(Primary survey, Resuscitation phase, Secondary Survey)

Resuscitate with IV fluids, Oxygen.

Analgesia (pain increase ICP as does vomiting and being combative)

Anaesthetic input early (*all patients with a GCS <8/15 require an anaesthetist*)

Monitor ET_{CO2} and ventilate to normocapnoea

The aim of this approach providing adequate oxygenation and tissue/brain perfusion using fluids and high flow oxygen is to minimize the prospect of further (secondary) injury.

In head injury there is a loss of auto regulation of brain perfusion and hence perfusion is related to:

Mean arterial pressure (MAP) – Intracranial pressure (ICP)

Once stable further assessment is required:

1. Mechanism of injury
2. Loss of Consciousness (duration)
3. Seizures
4. Memory of incident and posttraumatic amnesia (PTA).
5. Nausea / Vomiting (duration)
6. Headache
7. Weakness / visual problems / paraesthesia / dizziness /poor coordination
8. Alcohol / Drugs
9. Medicines esp. anticoagulant therapy
10. Examination for focal neurological signs including GAIT & FUNDOSCOPY.
11. Examination for clinical signs of skull fracture i.e. nose/ears for signs of blood or CSF, for signs of periorbital haematoma, subconjunctival haemorrhage with posterior border not seen, bruising posterior to mastoid process, boggy scalp haematoma

REMEMBER IF THERE IS SUFFICIENT TRAUMA TO PRODUCE HEAD INJURY THE CERVICAL SPINE IS ALSO LIKELY TO HAVE SUFFERED TRAUMA.

WHO NEEDS A CT SCAN?

Indications for Emergency CT Scanning (ie after resuscitation)

1. All patient with head injury and GCS < 9/15.
2. All patients with a deteriorating level of consciousness (a 2 point fall in their GCS) or progressive focal neurological signs.

Indications for Urgent CT Scan (ie within 4 hours of assessment)

1. GCS between 9-12.
2. Clinical or Radiological evidence/suspicion of skull fracture

3. New Focal neurological signs which are not progressive.
4. GCS 15/15 with
 - i) Persisting amnesia / short term memory deficit (amnesia for >30 min prior to injury)
 - ii) Severe persistent headache despite simple analgesia
 - iii) Continuing nausea and vomiting (vomiting twice or more)
 - iv) Seizure
 - v) Altered behaviour / irritability

WHO NEEDS A SKULL X-RAY?

Those not requiring a CT Scan who:

1. GCS 13 or 14 prior to being observed – although anybody with a persisting GCS of 13-14 should be considered for CT. Involve a senior.
2. GCS 15/15 in whom:
 - i) Non trivial mechanism of injury i.e. fall from half own height or more
 - ii) Patient amnesic, vomited
 - iii) Inadequate history i.e. if alcohol/drug use suspected
 - iv) Full thickness scalp laceration / boggy scalp haematoma
 - v) Loss of consciousness

WHO NEEDS OBSERVATION?

All head injured patients require observation. This may be as an inpatient or by another responsible adult at home.

Admission to Hospital is indicated if:

Level of consciousness is impaired (GCS <15/15)

If fully conscious (GCS 15/15) but any of following risk factors:

- Amnesia persisting for at least five minutes after injury occurred.
- Continuing nausea/vomiting
- 1/more seizures post injury
- Focal neurological signs
- Irritability or abnormal behaviour
- Clinical or radiological evidence of skull fracture or abnormal CT Scan
- Severe headache or other neurological symptoms

Patient has significant medical problems e.g. anticoagulant use.

Concurrent alcohol/drug use makes assessment difficult.

Cannot be supervised by an adult on discharge.

When to discharge after observation

1. Full recovery of consciousness, which is sustained for >4hours.
2. Eating normally with no vomiting

3. Neurological symptoms/signs fully resolved or are minor and amenable to simple treatment e.g. simple analgesia for headache.
4. Radiologist has reviewed results of imaging and no further investigation/treatment is required.
5. Other injuries all treated.
6. If less than 24-hour stay then need adult supervision (and written head injury instructions) on discharge for at least further 24 hours.

If being discharged: Oral advice and reinforce this with a written head injury advice sheet.

KEY POINTS

**PREVENT SECONDARY BRAIN INJURY BY PROPER FLUID RESUSCITATION
 OXYGENATION and EARLY SENIOR/EXPERT ADVICE
 LOOK FOR AND BE AWARE OF OTHER INJURIES
 DON'T ASSUME ALCOHOL IS TO BLAME
 IF IN DOUBT ASK ADVICE AND/OR OBSERVE until neurologically intact.**

1.6 Maxillofacial

Facial Fracture

- The most common are the mandibular fracture, (which is usually clinically apparent), malar fracture (which takes some practice to recognise) and maxillary fracture.
- Check for defects of external ocular movements, and check that the palate is stable.
- If a facial fracture is present and displaced, the Resident Dental Officer should be informed. If a fracture is undisplaced, bring the patient back to the next Facio-Maxillary Clinic .
- T-M joint dislocations should be reduced in A&E with the help of midazolam.

- Malar fracture are Easily missed. Usually follows a punch to the face. The patient has a tender cheek, maybe deformity, often local numbness affecting the upper teeth, and sometimes a subconjunctival bleed. Ask for facial X-rays. You may see a fluid level in the maxillary sinus and you may see the fracture. Refer to the Maxillo-facial surgeons.

Facial wounds

- Require very careful suturing. Even contaminated wounds can usually be closed primarily under antibiotic cover, provided adequate surgical toilet is carried out.
- Don't excise skin. Use steristrips where possible. Histo-acryl glue is also valuable, though not near the eyes.

Nasal injury

- Fractured nasal bones are common. Diagnose on history and appearance; initial X-rays are not required. Send to the "Nasal fracture" clinic the following Monday, advising the patient to bring a photograph with them of their facial appearance before the nose was injured. Do not alter this procedure because the patient is involved in litigation; your clinical diagnosis is quite sufficient for any medico-legal process.