



PENETRATING CHEST TRAUMA

Aims

- Describe the philosophy of clinical care for penetrating injury (GSW, stabbings, glass injury, impaling, etc)
- Describe triage pattern for penetrating chest trauma

Background

In penetrating chest trauma the degree of bleeding and potential for internal damage is often underestimated.

- the characteristic physiological response to blood loss of increasing tachycardia can be less marked and may even manifest early on as bradycardia. Therefore any change in the cardiovascular state of the patient should warrant immediate re-assessment.
- the entry hole may bear little or no relationship to the end position of the tip of the knife at maximum insertion

The “worse case scenario” should therefore be presumed. Even simple wounds to the legs, especially the upper thigh can prove fatal as uncontrolled bleeding occurs into the large volume of the thigh.

Unlike blunt trauma where most cases of hypotension do not require an emergency surgical procedure or intervention, penetrating injuries often require immediate surgery to control bleeding. For this reason time to theatre is important and scene times should be kept short.

Policy

Triage

Always inspect the patient from head to toe both front and back before coming to a triage decision. Do not presume the wounds at the front are the only ones.

For chest wounds:

Chest wounds between the nipple lines, in the epigastrium or between the shoulder blades should be triaged to a cardiothoracic centre irrespective of clinical state. Wounds outside of these areas should go to the local hospital if the patient is haemodynamically stable, however if the patient is unstable then triage to a cardiothoracic centre.

All other wounds

Should be triaged to the nearest Emergency department.

Clinical Care

Tamponade obvious bleeding points – use a tourniquet if necessary. A large thigh BP cuff with anaeroid pressure gauge is useful for this. Inflate the cuff to a pressure greater than the monitored blood pressure or until bleeding stops. Equally an Combat Applied Tourniquet may be of use.

If any sort of tourniquet is used, the receiving team must be told what time it was applied and why. This must be documented in the PRF.

If the patient displays signs of shock, exclude hypoxia as a cause and drain pneumothoracies if present. If signs of shock persist “time to theatre” is important. If the patient is compliant then nil else should be done. Maximise oxygenation with reservoir mask and proceed to hospital immediately. If the patient is being airlifted draw up 100 mg ketamine in case of deterioration, ensure good venous access and tight packaging with the IV line is easily accessible. The ketamine is for emergency sedation should the patient become agitated / uncontrollable on the aircraft. If the patient is already combative or restless, a general anaesthetic should be undertaken prior to loading. If only analgesia is required, morphine is the drug of choice unless it is only required for chest drain insertion in which case ketamine is a reasonable alternative.

In general, fluids should only be infused if verbal contact is lost with the patient (if awake) or the systolic pressure falls below 80 systolic in the ventilated patient and a tension pneumothorax has been excluded.

If RSI is to be undertaken in the presence of severe volume depletion, then first ensure good venous access and consider volume loading before drug administration. In cases of moderate volume depletion, ½ the dose of induction agent may be all that is needed.

Note - IPPV itself may precipitate cardiac arrest in cases of profound volume depletion.

- If the patient with penetrating chest injury loses cardiac output en route and tension pneumothorax has been excluded, thoracotomy may be indicated in chest stabbings if > 10 minutes from a hospital with immediate access to cardiothoracic surgeons. Within GNAA region this means if further than 10 minutes from JCUH.