

Violence, shooting – is it real, or just TV?

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Applying basic life support to victims of gunshots before the trauma team in the emergency department takes over can be lifesaving. Fortunately however, violence involving guns is not common in Australia.

Violence between humans is despised by people generally, and especially by doctors. Individuals with bruising, lacerations and assault injuries are seen daily in emergency departments throughout Australia, and several stabbings are also likely to be seen each week. We are fortunate, however, that shootings are relatively uncommon, although many programs on television suggest otherwise.

As a GP also working regular shifts in the local hospital's emergency department, one weekday evening you experienced the hospital response to a shooting incident. You know the principles of basic life support that you would apply to a patient with a gunshot or knife injury until the victim could be transported to hospital (see the box on basic life support on this page),^{1,2} and found it interesting to be part of the next stage of care for the injured person.

A drive-by shooting

At nine o'clock on a weekday night, an expensive black car drove into the 'ambulance only' bay outside the emergency department and started blowing its horn. Suddenly the department was dealing with two violence trauma victims, the usual procedure of the ambulance crew phoning ahead on the 'bat phone' with information to prepare the trauma team not having been possible in this case (see the box on page 53).³

Quickly it became evident that two gunshot injuries needed attention, one to the left thigh of the male driver, who was the 'boss', and the other to the chest of the male passenger, his bodyguard. The shooting had occurred several suburbs away and the driver, who was fully alert but unable to move his left leg, had realised his passenger was severely injured so had brought him to the emergency department himself rather than calling an ambulance. (Fortunately the car had an automatic transmission.)

The driver

The driver initially had stable normal vital signs. He was resuscitated (peripheral intravenous access established and intravenous fluids administered); primary and secondary surveys revealed no additional injuries.

The report of the x-ray of the left femur stated: 'Gunshot wound to left femur. There is a comminuted oblique fracture

Basic life support for gunshot or knife injury victims^{1,2}

Applying the basic principles of life support to people with gunshot or stabbing wounds can save lives.

Danger

First, and most important:

- ensure the safety of the rescuer and the victim.

This may require the police to establish control – even uniformed ambulance officers should not go into the middle of a gang violence situation until it is safe.

Response

Once at the patient's side:

- shake and shout at the patient to check consciousness
- call for help – dial 000
- note the time.

An obstructed airway at the scene is still the biggest cause of preventable death. Thus, turning the patient onto their side is a good option. Also, proximal arterial pressure can be life saving if major external haemorrhaging is obvious – for example, compressing the femoral artery at the groin for a gunshot or knife injury to the thigh.

Exposure to a patient's blood and body fluids should be avoided, especially if needles are in the vicinity or there is evidence of their use.

involving most of the left femur. There is mild medial displacement of the distal fragment but virtually no angulation. Metallic densities are seen in the distal femur, two of which are large fragments measuring approximately 1 cm in diameter. There is soft tissue swelling.' (Figure 1.)

The patient was taken to the operating theatre for wound debridement and removal of bullet fragments, open reduction and intramedullary nail fixation.

After 15 days of inpatient care, which

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Major trauma hospital response – MIST and Code Crimson³

Ambulance officers in an ambulance transporting a major trauma or critically ill patient will ring ahead to the hospital on the dedicated red 'bat phone' with information that will enable the best preparation for the arriving injured patient. This necessary information is given in the 'MIST' format:

- M – Mechanism of injury
- I – Injuries
- S – (vital) Signs
- T – Treatment initiated, Time to arrival



Figure. A hospital trauma team in action.

A major trauma call is then sent out in the hospital so that the team of medical and nursing staff can rapidly assemble and take up their roles. The team leader is usually either a senior emergency doctor or surgeon, and other team members will be from the specialties of anaesthetics, intensive care and emergency. The doctor and nurse 'couples' looking after the airway, breathing and procedures wear identifying labels, as shown in the Figure.

If the patient is exsanguinating, the trauma response may be upgraded to a 'Code Crimson', a protocol that facilitates the rapid transfer to operating theatres of patients with major bleeding trauma or vascular emergencies. This fast track system bypasses resuscitation cubicles, where valuable time may be wasted in performing tests and radiology on the patient before surgery. (It has been shown that although each minor task in preparing the patient for surgery may consume barely minutes, together they take about 20 minutes.) Because of the high mortality commonly associated with major vascular injury, the primary goal of a Code Crimson is to have the patient reach the operating theatre and be taken into the care of an appropriate surgical team within 20 minutes of arrival at the hospital.

included mobilisation, the patient was discharged to rehabilitation.

The passenger

The 30-year-old passenger had a single entry wound in the lower left posterior

chest, near the spine; no exit wound was evident. He was in distress, with a blood pressure of 100/70 mmHg and heart rate of 130 beats per minute; he was, however, conscious (Glasgow Coma score, 15/15). His respiratory rate was 18 breaths per



Figure 1. X-ray of the patient with the gunshot injury to the leg, showing a comminuted oblique fracture with mild displacement of the distal fragment, metallic densities in the distal femur and soft tissue swelling.

minute and his oxygen saturation on room air was 98%. Physical examination was otherwise unremarkable.

The patient was resuscitated and blood tests were ordered. As he was stable, he was taken with the full resuscitation team and equipment to the radiology department for a CT scan. Although the gunshot injury was thought to be from a low velocity handgun, there was concern that the bullet may have had enough energy to track along fascial planes or to bounce off bone unpredictably.

Primary survey excluded airway obstruction, tension pneumothorax, massive haemothorax, flail chest, open pneumothorax and cardiac tamponade. These six injuries can be remembered by the mnemonic, 'At This Moment Find Ominous Conditions':³

- At – Airway obstruction
- This – Tension pneumothorax
- Moment – Massive haemothorax
- Find – Flail chest
- Ominous – Open pneumothorax
- Conditions – Cardiac tamponade.

Additionally, percussion of the chest (from anterior to posterior because the

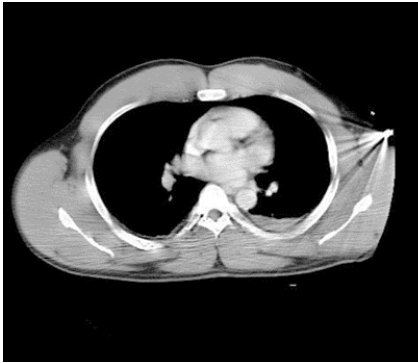


Figure 2. CT scan of the patient with the gunshot injury to the chest, showing the entry of the bullet near the left costal transverse joint at T10.

patient was supine) revealed no detectable haemothorax or pneumothorax.

The mobile chest x-ray had shown the bullet in the left axilla, with no pneumothorax or effusion reported. The CT report concluded that 'the bullet probably

entered near the left costal transverse joint at T10 and transversed the lung parenchyma causing haemothorax and lung contusion, and eventually stopped at the axilla just superficial to the latissimus dorsi muscle anteriorly. No intra-abdominal injury is evident. No bony injury can be appreciated. No pneumothorax.' (Figure 2.)

A chest tube was inserted to drain blood. As the bleeding was ongoing, the patient was taken for a thoracotomy. Most of the bleeding was found to be from an intercostal vessel, which was sutured. The lung was also repaired, and the bullet was removed.

The patient did well and was discharged after six days.

Conclusion

We are fortunate in Australia that shootings are uncommon and are usually limited to within certain small groups of

people. Young, strong and determined patients can tolerate being shot, blood loss, lung injury and fracture of long bones with little initial derangement of vital signs or blood tests despite being critically ill and requiring life-saving care. **MT**

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