

## APLS: Trauma New Scenario 3

### History {initial candidate briefing prior to arrival of child}

A 10-year-old girl is shot in the left chest by a drive by drug related shooting.  
 Found side of road and loaded onto ambulance trolley.  
 Estimated weight 30 kg

### Initial impression {provide information as candidate assesses child and applies monitoring}

RR 34. HR 120. BP 100/65. SpO<sub>2</sub> 96% in air. She is agitated, crying, calling for her mother.  
 GCS 15 (E 4, M 5, V 4).

### Clinical Course {to be given to candidate as they progress}

The child initially is stable with oxygen. She has a small sucking chest wound on the left side of her chest. Decreased A/E. No tamponade. Epigastric tenderness and a blood-stained vomit. No exit wounds on log roll.

Subsequently RR rises and SaO<sub>2</sub> falls and there is decreased AE on the left side as a pneumothorax enlarges. Perfusion deteriorates and HR rises. BP starts to drop.  
 DDX – hemo-pneumothorax, tamponade, haemorrhagic shock, spinal. FAST -ve.

## INSTRUCTORS INFORMATION

### Key Treatment Points



<b>&lt;C&gt;</b>	Assess for and control external bleeding	
<b>Airway &amp; C-spine</b>	Establish airway patency	
	Protect cervical spine	
	High flow O <sub>2</sub> via face mask commenced early Titrate O <sub>2</sub> therapy to SpO <sub>2</sub> 94-98% when stable	
<b>Breathing</b>	3 way, ported or occlusive dressing followed by ICC	
<b>Circulation</b>	Early IV access X 2 wide-bore cannulae	
	Blood for cross-match etc	
	Urgent surgical consult for penetrating injury mx. Focus is urgent surgery.	
	Crystalloid 10 ml/kg bolus and early use of blood, TXA	
	Massive transfusion protocol	
	Analgesia	
<b>General Therapy</b>	Arrange CXR and AXR to ascertain bullet passage and likely organ injury. Pelvic x-ray not appropriate in penetrating injury.	

**Diagnosis:** Left pulmonary contusion with open pneumothorax. Hypovolemic shock.  
 Stomach laceration.

## **Learning objectives**

At the end of this session participants should be able to:

- Apply the structured approach to assessment, management and diagnosis of penetrating trauma and shock
- Recall, classify and apply the differential diagnosis of hypotension in penetrating trauma
- Recall the management of open chest wounds
- Recall and apply the management of hypovolemic shock and massive transfusion in their own practice

## **Potential Issues to be Discussed**

- Principles of resuscitation in penetrating trauma and shock
- Penetrating trauma, shock and the role of urgent surgery
- Massive transfusion
- DDx of hypotension in penetrating trauma including hypovolemia, tension pneumothorax, tamponade, spinal shock
- Management of open chest wound

## **6th Ed APLS ANZ**

### **Open pneumothorax**

In this situation, there is a penetrating wound in the chest wall with associated pneumothorax. The wound may be obvious, but if it is on the child's back it will not be seen unless actively looked for. If the diameter of the defect is greater than about one-third of the diameter of the trachea, air will preferentially enter the pleural space via the defect rather than be drawn into the lungs via the trachea when the child takes a breath. It is then referred to as a sucking chest wound.

### **Signs**

Air may be heard sucking and blowing through the wound. The other signs of pneumothorax will be present. There may be an associated haemothorax (i.e. a haemo-pneumothorax)

### **Resuscitation**

High-flow oxygen should be given through a reservoir mask.

The immediate treatment for a sucking wound is to occlude the wound site completely with an occlusive dressing.

Another solution is to use a ported chest seal, provided that the defect is not larger than the base of this device (Figure 12.2 on p 129).

Whichever immediate treatment option is undertaken, a chest drain will be required as part of emergency treatment. It should not be inserted through the defect itself as this may spread contamination and restart bleeding.

## APLS: Trauma Scenario 4

### History {initial candidate briefing prior to arrival of child}

A 6 year old boy was playing in the roof of a shed with his friend. They had some petrol and matches. Two hours before admission, he dropped a lighted match onto some of the spilled petrol which erupted into flames in his face. He ran screaming for the ladder and fell one storey. Hearing the screams, the farmer arrived finding the boy on the floor of the shed with his shirt on fire and writhing in pain. The farmer put out the flames with a blanket and called the ambulance who are now en route to your hospital.

Estimated weight 20 kg.

### Initial impression {provide information as candidate assesses child and applies monitoring}

On arrival he is in pain, is crying and has stridor. He has burns with blisters and sloughed skin to the face, trunk and right arm. HR 135, BP 94/61, RR 40, SpO<sub>2</sub> 95% in air, Temp 36.2. The ambulance officers report that he would not tolerate a cervical collar or face mask oxygen

### Clinical Course {to be given to candidate as they progress}

Early in the assessment, provide the comment that the face is becoming very swollen. Urgent intubation needs to be arranged for worsening stridor and increasing work of breathing. Worsening perfusion from a ruptured spleen which stabilises after two boluses of crystalloid or blood. Burns fluid therapy needs to be considered

## INSTRUCTORS INFORMATION

### Key Treatment Points



<C>	Assess for and control external bleeding	
<b>Airway, C-spine &amp; Breathing</b>	Establish airway patency	
	Protect cervical spine	
	Attempt high flow O <sub>2</sub> via face mask but urgently arrange for intubation and ventilation	
<b>Circulation</b>	Early IV / IO access	
	Blood for X-match, COHb, etc.	
	Fluid boluses 10 mls/kg x 2 of warmed crystalloid or blood	
<b>General Therapy</b>	Initial analgesia. Ongoing sedation after intubation	
	ICU/Retrieval, Gen surg & Burns service consultation	
	Trauma imaging	
<b>Diagnosis:</b> Compromised airway 30%, partial and full thickness burns to face, trunk and upper limbs. Ruptured spleen		

## **Learning objectives**

At the end of this session participants should be able to:

- Apply the structured approach to assessment, management and diagnosis of burns and airway oedema
- Recall and apply the principles of airway management regarding airway oedema and obstruction due to burns injury
- Recall and apply the principles of acute management of severe burns

## **Instructor information/resources**

- Note: Ensure debrief includes a discussion of burns dressings and ongoing fluids.
- Because oedema occurs following thermal injury, the airway can deteriorate rapidly.
- Thus even suspicion of airway compromise, or the discovery of injuries that might be expected to cause problems with the airway at a later stage, should lead to immediate consideration of tracheal intubation.
- This procedure increases in difficulty as oedema progresses; it is therefore important to perform it as soon as possible.
- All but the most experienced should seek expert help urgently, unless apnoea requires immediate intervention.
- Management of Carbon Monoxide Poisoning -pg 159
- Ensure debrief includes a discussion of burns dressings and ongoing fluids.

[APLS Manual 6<sup>th</sup> Ed p 156]