APLS: Trauma Scenario 5

History {initial candidate briefing prior to arrival of child}

A 5 year old boy ran out in front of a car. It swerved, but still hit him. He was thrown to the ground unconscious and has not woken up since. He was brought to hospital by ambulance.
Estimated weight 20 kg.

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

Unconscious, but initially responding to pain, blood in hair, from right ear, and on right lower leg. Cervical collar in place. Gurgling when breathing. SpO_2 92% in air. HR 130, RR 30, CRT <2, BP 100/65. Pelvic binder in situ.

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

Remains unconscious, when candidate checks the pupils the right is dilated. Movements of the neck result in hypotension and paralysis. The airway remains partially obstructed until suction and insertion of an oropharyngeal airway.
Intubation is necessary to secure the airway and control CO_2 and oxygenation.

INSTRUCTORS INFORMATION

Key Treatment Points ☑

<C>	Assess for and control external bleeding	
Airway & C-spine	Establish airway patency/suction /OPA	
Breathing	Protect cervical spine	
	High flow O2 via face mask commenced early Titrate O2 therapy to SpO2 94-98% when stable	
	Arrange for urgent intubation and ventilation with $ETCO_2$ monitoring	
Circulation	Early IV access with 2 wide-bore cannula	
	Blood for cross-match etc	
General Therapy	Urgent head CT Consideration of other measures to maintain cerebral perfusion Urgent Neurosurgical consultation	

Diagnosis:
Head injury with right parietal skull fracture and extradural haematoma.
Fractured C3/4. Fractured right tibia and fibula

Learning objectives

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

- Apply the structured approach to assessment, management and diagnosis of trauma, head injury and cervical spine injury
- Recall and apply the management of traumatic brain injury in their own practice

Instructor Information

Measures to increase cerebral perfusion and decrease ICP temporarily

Nurse in the 30° head-up position and head in midline to help venous drainage
Ventilation to achieve a *P*aCO_2 of 30–34 mmHg*
Infusion of intravenous mannitol 0.25–0.5 g/kg
or 3% hypertonic saline (3 ml/kg)
Combat hypotension if present with crystalloid/blood infusion and inotropes if necessary
* Note this level is lower than normal because it is a temporary, short-term, urgent intervention.

APLS: Trauma Scenario 6

History {initial candidate briefing prior to arrival of child}

A 7 year old boy was building a tree house about 3 metres from the ground, when he fell from the tree and impaled himself on a metal stake in the rose garden. He screamed of excruciating abdominal pain leading his mother to pull the metal stake out of him and call for an ambulance.
Estimated weight 25 kg.

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

On arrival, the boy is screaming and writhing in agony. RR 30, SpO_2 95% in air. HR 135, BP 109/71, Pale and sweaty, CRT 5. Single non-bleeding, penetrating wound left flank. Extremely tender abdomen. Cervical collar in place.

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

He then deteriorates with worsening perfusion and increasing tachycardia. He becomes agitated and combative then unresponsive, vomits and aspirates.
His SpO_2 falls and he requires, suction, BVM ventilation with 100% O_2 before oxygenation improves.
Perfusion improves with: 2 x 10 ml/kg crystalloid/blood and 1 x 5ml/kg blood or FFP with TXA. His penetrating wound, tender & distended abdomen and haemodynamic indicate the need for urgent surgical consultation.

INSTRUCTORS INFORMATION

Key Treatment Points ☑

<C>	Assess for and control external bleeding	
Airway & C-spine	Establish airway patency, suction	
Breathing	Protect cervical spine (fall from a height)	
	High flow O2 via face mask commenced early Titrate O2 therapy to SpO2 94-98% when stable	
	BVM ventilation with 100% O2	
	Arrange urgent intubation and ventilation	
Circulation	Early IV access with wide-bore cannula x 2	
	Blood for cross-match etc	
	Early use of blood & 15 mg/kg tranexamic acid	
	Massive transfusion protocol	
General Therapy	Analgesia and sedation Broad spectrum antibiotics Arrange for urgent surgical assessment ICU / Retrieval service	
Diagnosis; Hypovolemic shock from penetrating injury of left kidney and spleen. Enlarging retroperitoneal haematoma. Laceration of left colon with early peritonitis.		

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 and apply the management of hypovolemic shock and massive transfusion in their own practice