

Trauma Scenario 2 Refresher Course

This is a Teaching Scenario. Some flexibility in how it progresses is possible according to individual learner needs

History {initial candidate briefing prior to arrival of child}

A 7 year old boy wearing a helmet was riding a quad bike with an older sibling, who swerved to avoid a tree. The boy was thrown at speed into the tree and is brought into hospital by family.

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 160, BP 79/51, Pale and sweaty, CRT 5. Obvious deformity and swelling of the left mid-thigh and contusions across the lower abdomen.

Clinical Course (to be given to candidate as they progress)

He has ongoing severe pain and has severe pelvic tenderness and genital bruising, he then deteriorates with worsening perfusion and increasing tachycardia. He becomes apnoeic, unresponsive and pulseless. ROSC with BVM ventilation, rapid fluid resuscitation, 2 x boluses of 10 ml/kg warmed crystalloid or blood.

Perfusion remains very poor until he receives further 2 x boluses of warmed blood products as well as TXA. His haemodynamics indicate the need for urgent surgical consultation, or retrieval.

INSTRUCTORS INFORMATION

Key Treatment Points ☑

<c></c>	Assess for and control external bleeding	
Airway & C-spine	Establish airway patency	
	Protect cervical spine	
	High flow O2 via face mask	
	Titrate O2 therapy to SpO2 94-98% when stable	
Breathing	BVM ventilation with 100% O2	
	Arrange urgent airway management and ventilation	
	TCA protocol	
Circulation	IV access by 2, blood for crossmatch etc	
	Early use of blood & 15 mg/kg tranexamic acid	
	Massive transfusion protocol	
	Pelvic binder, traction on femoral fracture	
	Analgesia	
General Therapy	Arrange for urgent surgical assessment	
	ICU / Retrieval service	

Diagnosis: Hypovolemic shock/PEA from pelvic fracture and closed femoral fracture.

Learning objectives

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

- Apply the structured approach to management and diagnosis during PEA in TCA
- Recall and consider application of management of TCA in their own practice
- Recall and apply the principles of management of hypovolemic shock and massive transfusion in their own practice



Scenario 2 is intended to trigger discussion on traumatic PEA arrest and how the likely causes and definitive treatments differ from non-traumatic PEA.

Depending upon candidate progression in the scenario, a pause and discuss technique may be an appropriate technique for this scenario.

Instructor resources regarding paediatric traumatic cardiac arrest (TCA) in below:

- ANZCOR Guideline 12.4 Paediatric Resuscitation in Special Circumstances
- Paediatric traumatic cardiac arrest: the development of an algorithm to guide recognition, management and decisions to terminate resuscitation

Paediatric traumatic cardiac arrest Cardiac arrest? No signs of life No palpable pulses or absent cardiac activity on ultrasound Medical cause including hypoxia from drowning, UNLIKELY Traumatic? asphyxiation impact apnoea LIKELY Immediate life saving interventions if appropriate Standard paediatric (prioritise over chest compressions and defibrillation) life support algorithms External haemorrhage control Ensure adequate oxygenation and ventilation Bilateral thoracostomies Activate massive haemorrhage protocol Rapid volume replacement (IV/IO) with warmed blood and blood products (balanced crystalloid if blood not immediately available) Apply pelvic binder in blunt trauma Ensure cardiothoracic consultant and or surgical consultant called Consider emergency thoracotomy (clamshell) If signs of life in preceding 10 minutes and especially in penetrating trauma Return of spontaneous VES NO circulation (ROSC)? Decision to STOP resuscitation guided by: Consider transfer to theatre for damage control surgery or interventional radiology Duration of cardiac arrest Consider formal imaging (CT) Lack of response to life saving interventions Consider vasopressors if associated head injury Persistently low ETCO2 Arrange PICU transfer Cardiac standstill on US

Figure 15.2 Paediatric traumatic cardiac arrest algorithm

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