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Thursday, August 11, 2016 (Room 9)

14:00 - 16:00 WS #12: Pre Hospital Care Forum

16:30 - 18:30 WS #17: Pre Hospital Care Forum (Repeated)

Case presentations

Tony Smith, Medical Director, St John

Case 1

- You come across the scene of a crash, involving a truck and two cars
- Police are on scene, but no other emergency services
- What are your initial actions?

Case 1

- What are your initial actions?
  - Take a deep breath and slow down…..
  - Ensure you are safe
  - Introduce yourself to Police (if possible)
  - Assess the scene for the number of patients and the severity of their injuries
  - Task bystanders to provide first aid
  - Phone ambulance Control Centre to update them if an ambulance has not yet arrived on scene

Case 1

- There is only one injured patient
- Male in his fifties, trapped in driver seat of car, can only be accessed from left side
  - Awake, airway OK, talking
  - Complaining of difficulty breathing with severe pain on right side of chest
  - Feels cool, clammy and is tachycardic
  - No obvious external blood loss
  - Obeying commands and moving all limbs
  - Keeps saying “can’t breathe, can’t breathe”
- Appears to be rapidly getting worse
- What are the possibilities?

Case 1

- What are the possibilities?
  - Tension pneumothorax
  - Flail chest
  - Haemothorax
  - Haemopneumothorax
  - Large pulmonary contusion
  - Pneumothorax with shock as a result of blood loss from elsewhere, for example abdomen or pelvis
- Ambulance has just arrived
  - Volunteer staff, relatively inexperienced
- What would you do next?

Case 1

- What would you do next?
  - Brief the ambulance crew, agree who is in charge
  - You need access to the patient
  - Fire Service offer to winch car away from truck
  - Always say yes
- What clinical signs would you look for?

Case 1

- What clinical signs would you look for?
  - Reduced air entry
  - Distended jugular veins
  - Hyper-resonant percussion note
  - Signs of shock
  - Tracheal deviation (very late sign, not clinically useful)
- How does tension pneumothorax cause shock?

Case 1

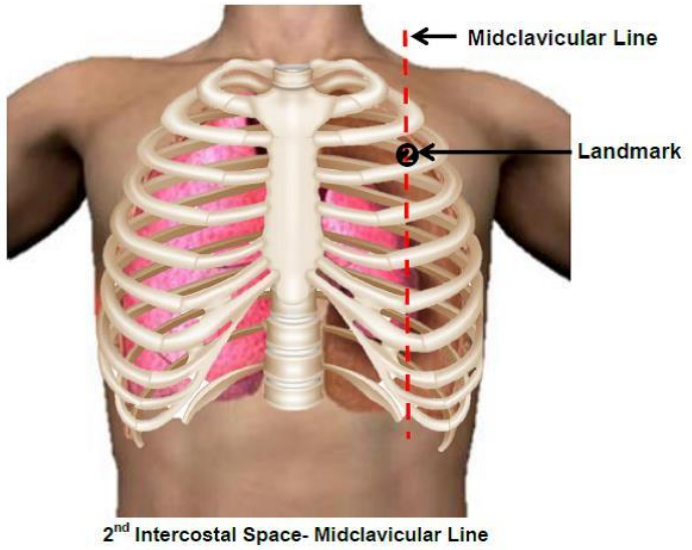
- What clinical signs would you look for?
  - Reduced air entry
  - Distended jugular veins
  - Hyper-resonant percussion note
  - Signs of shock
  - Tracheal deviation (very late sign, not clinically useful)
- How does tension pneumothorax cause shock?
  - Positive pressure in the thorax reduces venous return to the right heart
  - Right ventricle becomes increasingly ‘empty’

Case 1

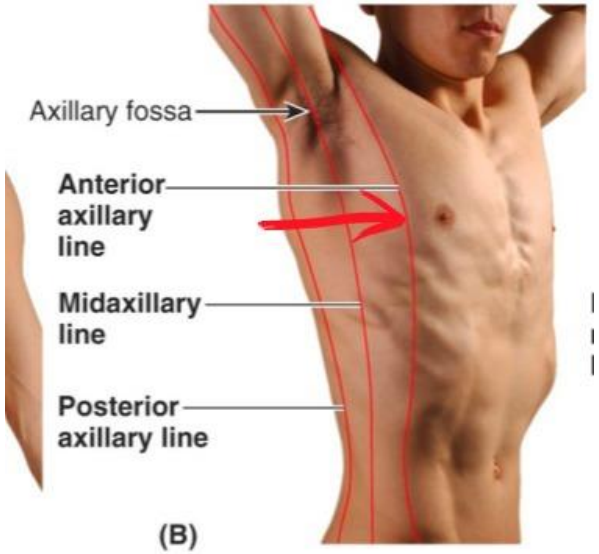
- Clinically you think he has tension pneumothorax
  - Fire service are within a few minutes of getting him out
  - What would you do?

Case 1

- What would you do?
  - Wait till he is out, ensure everyone briefed on priorities and plan
  - Decompress chest on ambulance stretcher
  - Safest place is 4th intercostal space in mid-axillary line, not traditional site of 2nd intercostal space in mid-clavicular line
- How would you decompress?

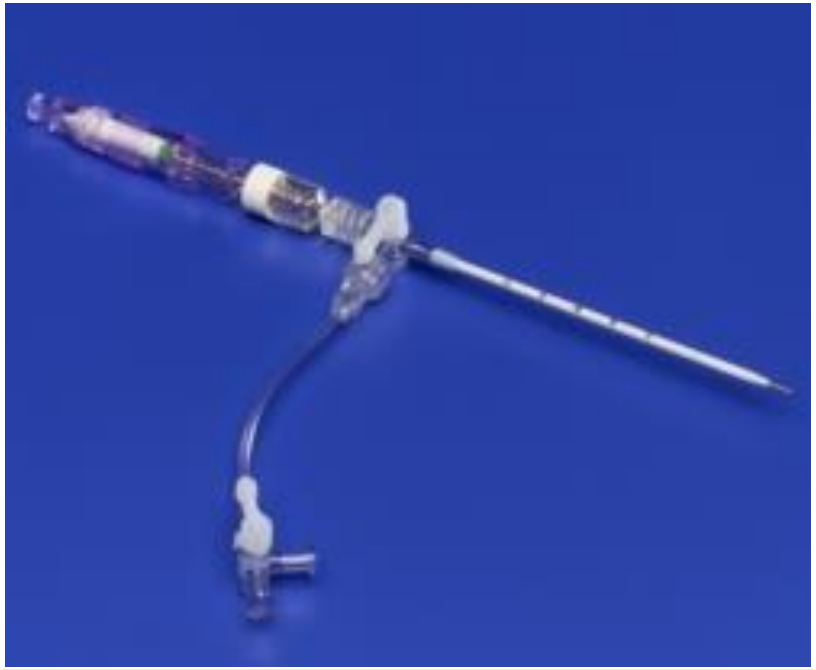


2nd Intercostal Space- Midclavicular Line



Case 1

- How would you decompress?
  - Could use standard cannula, often not long enough
  - Could use a Turkel needle, carried by Intensive Care Paramedics
  - Could perform an open finger thoracostomy



Case 1

St John
Here for Life

- Take home messages
  - Tension pneumothorax is rare, but decompression can be life saving
  - Must have shock to have tension pneumothorax
  - Traditional site is not ideal
  - 4th intercostal space in mid-axillary line is safest
  - IV cannula often not long enough
  - Alternative approach is Turkel needle or open finger thoracostomy

Case 2

- You are called outside your practice where a man has collapsed in his car
  - He is awake and saying “help me, help me”
  - He is very pale and appears short of breath
  - There is a strong smell of diarrhea and there appears to be diarrhea on his seat and on the floor of the car
  - What further information to you want?

Case 2

- You are called outside your practice where a man has collapsed in his car
  - He is awake and saying “help me, help me”
  - He is very pale and appears short of breath
  - There is a strong smell of diarrhea and there appears to be diarrhea on his seat and on the floor of the car
  - What further information to you want?
- What is your differential diagnosis?

Case 2

- What is your differential diagnosis?
  - Anaphylaxis
  - Hypovolaemic shock
  - Septic chock
  - Cardiogenic shock
- What would you do?

Case 2

- What would you do?
  - Get him out of the car, lie him flat, no role for raised legs
  - Ensure an ambulance has been called
  - Administer IM adrenaline, lateral thigh, 0.3-0.5 mg, repeat in 10 minutes if not rapidly improving
  - Gain IV access and administer IV fluid, minimum of one litre, may need 2-3 litres
  - What is the role for steroids and anti-histamines?

Case 2

- What is the role for steroids and anti-histamines?
  - Virtually none
  - Do not alter course of anaphylaxis
  - Divert attention from important therapies
  - May have a role for symptom relief (for example itch) once anaphylaxis clearly improving
  - Beware promethazine – drops BP and causes sedation, best not administered
- Twenty minutes later (two doses IM adrenaline and 2 litres IV fluid, still not improving
  - What would you do?

Case 2

- What would you do?
  - Administer IV adrenaline
  - In the absence of cardiac arrest be very cautious with IV adrenaline, particularly bolus administration
- Safest approach:
  - Place 1 mg of adrenaline into a 1 litre bag of fluid
  - Shake well and label
  - Administer as an IV infusion starting at 2 drops per second
  - If boluses required (and not in cardiac arrest) draw up 10 ml (0.01 mg of adrenaline) from this bag and administer
  - This is safe, easy and effective

Case 2

- Take home messages
  - Anaphylaxis may present without rash (initially)
  - Anaphylaxis may present with shock and diarrhea
  - Always consider anaphylaxis if sudden onset of shock
  - Priority is IM adrenaline , lateral thigh
  - Steroids and anti-histamines have virtually no role
  - Beware promethazine
  - IV adrenaline may be needed, place 1 mg of adrenaline into a 1 litre bag of fluid, safe, easy and effective

Case 3

- A parent carries a 4 year old child into your medical centre
  - Unconscious
  - Agonal gasping at around 4-6 breaths a minute
- What would you do?

Case 3

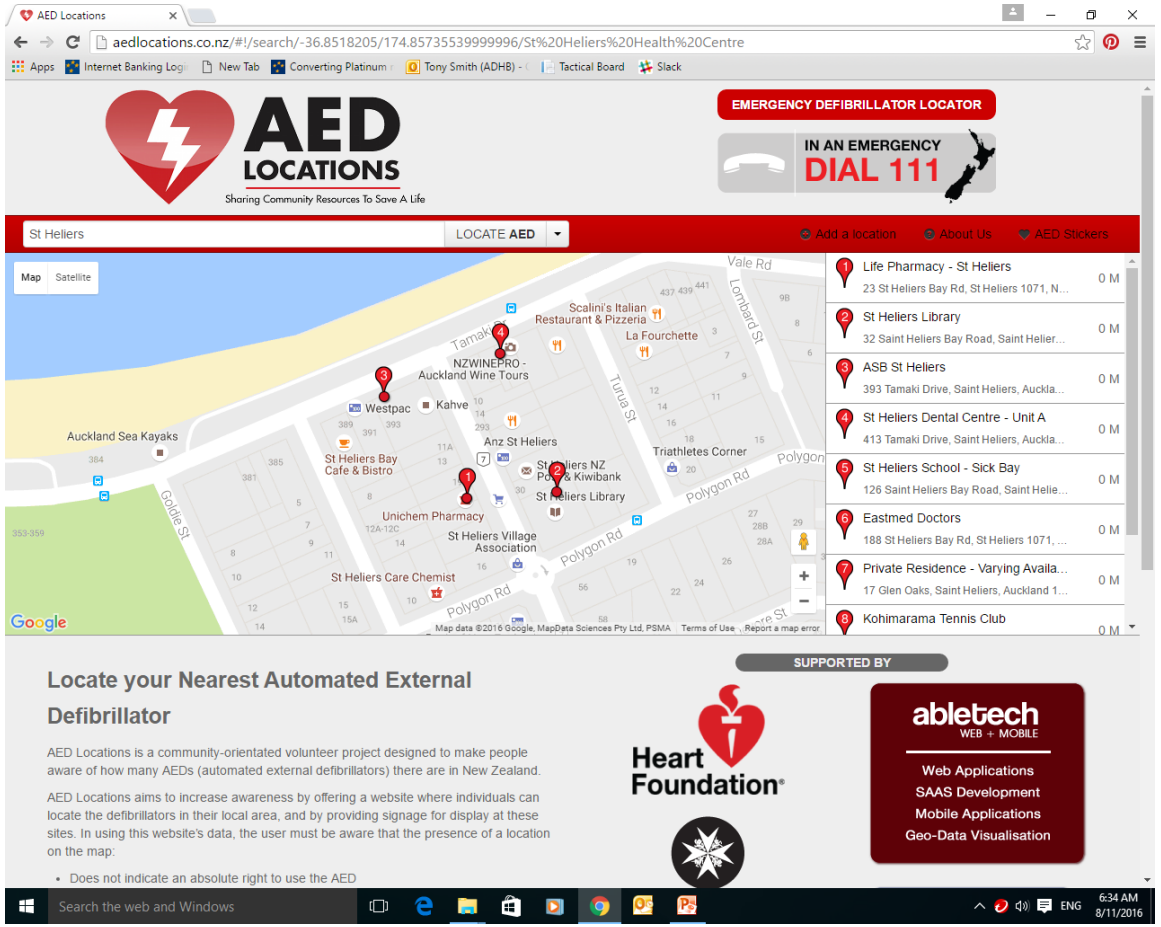
- What would you do?
  - Call for help
  - Start CPR, consider a 30:2 ratio but ratio not important, CPR is
  - Ensure an ambulance has been called
- What is the next priority?

Case 3

- What is the next priority?
  - Attach a defibrillator
- Does your medical practice have an AED?
- Do you know how to find the nearest AED?

Case 3

- Do you know how to find the nearest AED?
  - AED locations, free app



Case 3

- An AED is available
  - Adult pads only
  - Child weighs approximately 15 kg
- What would you do?

Case 3

- What would you do?
  - Attach and use the AED
  - This is safe
  - Much better than delaying defibrillation

Case 3

- What would you do?
  - Attach and use the AED
  - This is safe
  - Much better than delaying defibrillation
- You attach the AED and the rhythm is VT
  - Following one shock you get ROSC
  - You and your medical centre staff are heroes…
- The diagnosis turns out to be an inherited cardiac channel abnormality
  - Implanted defibrillator
  - Otherwise normal life

Case 3

- Take home messages
  - When SUDI is excluded, approximately 15% of children in cardiac arrest will be in a shockable rhythm
  - Attaching and using a defibrillator is a priority
  - Your medical centre should have an AED
  - AED locations is a very useful app

Thank you

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