ED QUICK QUIZ

WHAT IS THE DIAGNOSIS?

BACKGROUND

A 24 year old female presents as a standby after falling down a flight of stairs. A neighbour living in the flat down below her called the ambulance. He had heard screaming and shouting before hearing her fall. On arrival she is swearing and attempting to climb off the bed. A C spine immobilisation collar has been applied by the paramedics. On examination she has:

A- Patent

B- RR 30 oxygen sats 86% in RA

Obvious large contusion over the right anterior chest wall (yellow in colour)

Tenderness on palpation over the right lower lateral ribs

Trachea central with air entry reduced at the right base with no added sounds

C- BP 110/74 pulse 120

Warm and well perfused

HSI+II+0

No peripheral oedema

Abdomen- distended with a palpable fundal height and extensive contusions over her abdominal wall with tenderness throughout.

D- GCS 15

PEARL 4mm

Normal power and tone in all 4 limbs with bilateral downgoing plantars

CNII-XII intact

E- Temp 37^{o}C BSL 5.2 Smells strongly of alcohol

Logroll – no midline tenderness or obvious contusions

On questioning she tells you that she is 34 weeks pregnant, that she has had 1 glass of wine and tripped down the stairs. She lives with her boyfriend and denies any shouting before the injury. He is still at home. She is complaining of severe abdominal pains and at that moment has a large vaginal bleed.

QUESTIONS

1. What is her suspected diagnosis and what investigations does she require?
2. What additional considerations are there for trauma management in pregnancy?
3. Can her cervical spine be clinically cleared?
4. Are you concerned regarding the mechanism of injury?

ANSWER & DISCUSSION

1. Diagnosis

She is 34 weeks pregnant with severe abdominal pain and vaginal bleeding in the context of trauma. There are obvious contusions over the abdominal wall. The concern is placental abruption or uterine rupture. There is an immediate danger to both the mother and foetus. Urgent obstetric review is recommended. She should have 2 large bore cannula inserted and 6 units of blood crossmatched. Bloods including FBC, U&Es, LFTs, coagulation screen and VBG are required. A major obstetric haemorrhage protocol would be activated.

CXR in resus confirms multiple right sided lower rib fractures and a large right pneumothorax.

2. Trauma in pregnancy

- Enlarged uterus is more prone to injury and makes examination difficult.
- Bony pelvis less prone to fracture, however retroperitoneal haemorrhage may be massive due to increased vascularity.
- IVC compression occurs when supine causing hypotension, therefore it should be decompressed by the manual displacement of the uterus to the left.
- Diaphragm is higher resulting in decreased residual capacity and the more rapid development of hypoxia.
- Airway is difficult to control due to large breasts, neck oedema and obesity.
- May tolerate up to 35% blood loss prior to showing signs of hypovolaemia, however the foetus may be compromised prior to this.
- Higher risk of aspiration due to decreased oesophageal pressure, increased gastric pressure and prolonged gastric emptying.

3. Cervical spine clearance

In order to assess the need for imaging in cervical spine fractures we use 2 systems, which have now been integrated in RCEM guidance.

NEXUS guidance

Low risk criteria

- No posterior midline tenderness
- No evidence of intoxication
- Normal alertness level
- No focal neurological deficit
- No distracting injury

C spine rules

Low risk criteria

- Simple rear ended MVA
- Sitting in ED
- Ambulatory at any time
- Delay in neck pain
- Absence of midline tenderness

High risk criteria

- Age>65 years
- Dangerous mechanism of injury – fall from >1 metre or 5 stairs, ejection from motor vehicle, rollover MVA, high speed MVA, axial load to the head
- Paraesthesia in extremities

This patient is intoxicated, has distracting injuries and has a dangerous mechanism of injury. On examination she has no midline tenderness. She requires a CT scan of her C spine to exclude any bony injury. The obstetric emergency will take priority and she will need C spine precautions for an assumed C spine fracture during her operative management. This will make intubation more difficult as she requires in line immobilisation with an RSI and the view on laryngoscopy may be distorted. A right sided chest drain will also need inserted prior to positive pressure ventilation or she will develop a traumatic pneumothorax.

4. Mechanism of injury

I am concerned regarding the suggestion from her neighbour that there was arguing before the injury, which suggests potential verbal abuse. The older looking contusion on the right anterior chest wall may be from a previous episode of domestic abuse. The other possibility is that she was pushed down the stairs. She is also strongly smelling of alcohol when she is knowingly in the third trimester of pregnancy.

Social work require notification of her presentation to the emergency department as both herself and unborn baby are in danger. It would be useful to check whether she is already known to social services during this pregnancy or has other children known to them. It may be that she has been a previous victim of domestic violence or has other children in the care system. Does she have other children still at home with her abuser? The police will need informed if this is the case as they may be in immediate danger. There could

be a social work shared referral form already on the system in relation to her unborn baby or plans in place for placement into care immediately after birth. Social work standby should be contacted for a collateral history and advice regarding her current presentation. A shared referral form filled should then be completed on clinical portal. A patient label is put in the diary to ensure the referral form is chased up by the emergency department secretaries.