



Queensland Trauma Education

ABDOMINAL TRAUMA

# Blunt renal trauma assessment

Case Discussion  
Facilitator resource kit

## Queensland Trauma Education

The resources developed for Queensland Trauma Education are designed for use in any Queensland Health facility that cares for patients who have been injured as a result of trauma. Each resource can be modified by the facilitator and scaled to the learners needs as well as the environment in which the education is being delivered, from tertiary to rural and remote facilities.

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### Queensland Trauma Education

**Abdominal Trauma – Blunt renal trauma assessment: Case discussion – Facilitator resource kit**

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## About this training resource kit

This resource kit provides healthcare workers with the knowledge of how to effectively perform an assessment on a patient with blunt renal trauma injury.

### National Safety and Quality Health Service (NSQHS) Standards



### Target audience

Emergency department medical and nursing clinicians.

### Duration

30 minutes.

### Group size

Suited to small group participation.

### Learning objectives

By the end of this session the participant will be able to:

- Understand the approach to the assessment of a patient with blunt renal trauma.
- Identify blunt traumatic renal injury using severity grading and classification and understand the management strategies for patients with renal injury.

### Facilitation guide

1. Facilitator to deliver case discussion and utilise question and answer guide to promote discussion.
2. Incorporate the use of the American Association for the Surgery of Trauma (AAST) Renal trauma classification to reinforce diagnostic methods for renal injury classification.

### Supporting resources (in Printable Resources)

- CT image
- American Association for the Surgery of Trauma (AAST) - Renal trauma classification.
- Renal trauma grading diagrams
- Shock index calculator.

## Case discussion

### Case study

65yr old female is brought to your emergency department following a fall from a horse. She was wearing a helmet and did not hit her head when she fell. She was able to walk back to her property and called the ambulance.

She is otherwise healthy with no past medical history, no regular medications and no known allergies.

Her vital signs were within normal limits en route, with the ambulance crew administering 15mg IV Morphine, and 8mg IV Ondansetron.

On arrival to your ED, 3 hours post-injury:

- She is alert, GCS 15 with no neurological deficits. Her vital signs are: HR 90, BP 120/60mmHg, saturations 99% RA, respiratory rate 20, temp 36.7.
- She complains of pain in her R flank with a minor abrasion overlaying the area. The ambulance officers have not administered IV fluids.

## Question and answer guide

### 1. What clinical features constitute 'haemodynamic instability' in an adult patient? What are the clinical and diagnostic features of 'shock'?

- a. Systolic blood pressure < 90mmHg
- b. Vasoconstriction: cool, clammy, decreased capillary refill
- c. Altered conscious state
- d. Shortness of breath (SOB)
- e. Ongoing vasopressor/inotropic requirement
- f. Ongoing transfusion requirement > 4-6units Packed Red Blood Cells/24 hours
- g. Base Excess > -5mmol/l
- h. Shock index > 1

### 2. What does the term 'transient responder' mean?

The patient will show an initial clinical response to adequate fluid resuscitation, then subsequent signs of ongoing blood loss and perfusion deficits.

### 3. What clinical signs or injuries suggest a potential urogenital injury as a result of blunt trauma?

- a. Haematuria - present in 88-94% of renal tract injury. However, the presence of haematuria does not predict the grade of injury.
- b. Macroscopic-haematuria more frequently associated with high grade injuries.
- c. In the haemodynamically stable patient with microscopic-haematuria 0.1-0.5% of patients will have an associated significant renal. <sup>1-4</sup>
- d. Flank/abdominal pain/contusion.
- e. Rib fractures.
- f. Presence of pelvic injury.

### 4. What are the most common mechanisms of injury that lead to renal trauma? <sup>5</sup>

- a. Falls from height.
- b. Assault.
- c. Skiing/snowboarding events.
- d. Horse riding.
- e. PBC/MBC.

### 5. What information can an EFAST provide in suspected renal trauma?

- a. EFAST is effective and rapid to detect intra-abdominal free fluid.
- b. EFAST has low specificity and sensitivity in renal trauma (due to retroperitoneal location).

**6. What type of imaging scans should be performed in suspected blunt renal trauma? <sup>6</sup>**

- a. Contrast-enhanced CT scan associated with delayed urographic phase is the gold standard in hemodynamic stable or stabilized adults after blunt trauma when kidney or urinary tract injury is suspected. (GoR 1A)
- b. In blunt trauma, contrast-enhanced CT scan associated with delayed urographic phase must be performed in cases of macro- or microhematuria with hypotension and after high-energy deceleration trauma regardless of the presence of hematuria. (GoR 2B)
- c. Ultrasound, contrast-enhanced US and eco-Doppler (E-FAST excluded) are generally not recommended as diagnostic tools during the initial evaluation of adult patients with high energy trauma when multiple injuries and/or injury to the urinary tract and collecting system are suspected. (GoR 1C)
- d. Ultrasound, contrast-enhanced US, and echodoppler can be used in pregnant women and in the paediatric population as an alternative to CT scan in the presence of hemodynamic stability during the immediate assessment and in follow-up evaluations. (GoR 1C)
- e. Intravenous urography may be useful in unstable patients during surgery when a kidney injury is found intraoperatively or when CT-scanning is not available and a urinary tract injury is suspected. (GoR 2C)

**7. A CT is performed on this patient. Using the attached grading system (AAST), what severity of injury has she sustained?**

**(Image in Printable Resources)**

CT Findings: 1. Right kidney lacerations (fractures) through the cortex and medulla, with likely involvement of the collecting system; associated with the moderate surrounding haematoma. This is compatible with a grade 4 traumatic renal injury. No definite active bleeding identified.

A delayed CT is useful in this scenario as it can identify extravasation of contrast suggesting a collecting system injury.

## Acronyms and abbreviations

Term	Definition
EFAST	Extended focused assessment with sonography in trauma
CT	Computed tomography
PBC	Push bike crash
MBC	Motorbike crash

## References

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