Protocol for Referral of Pelvic and Acetabular Fractures

North Bristol Trust

Date:	March 2012
Review date:	February 2016
Version (final or draft)	Final
Distribution:	Severn Major Trauma Network, Trauma Team Leaders, Trauma Team
Related guidelines:	
Further information:	
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Emergency Management of all Pelvic and Acetabular Fractures

Call the trauma team
Resuscitation according to **ATLS** protocol including **AP** radiograph of pelvis as part of the primary survey
Protect the Spine and pelvis at all times
Do not test for pelvic mechanical stability
Do not log roll patient until pelvis is cleared
Inspect and document any injuries to the perineum, rectum and vagina before application of a pelvic binder or pelvic sheeting

All Suspected Pelvic Ring Injuries

All suspected pelvic fractures or patients with blunt trauma and a systolic blood pressure < 110 mmHg should have a pelvic binder applied as part of their initial resuscitation. You ***should not*** wait for an AP pelvic X-ray. The pelvic binder should be applied centred over the greater trochanters. If a binder is not available then a sheet can be wrapped and tied around the pelvis and the knees.

In small children where a pelvic binder might be too big, a sheet, towel or large BP cuff can be improvised.

There is ***no indication*** for application of an emergency pelvic external fixator in the Emergency Department.

An AP pelvic radiograph ***must*** be performed as part of the primary survey and will help to confirm the diagnosis and classify the injury pattern

Management of Open Book Injury – Pelvic sheeting or pelvic binder applied in the Emergency Department as above.

Management of a Vertical Shear Injury - Skeletal traction using a distal femoral traction pin (protecting the knee joint) with additional pelvic binder (see above).

Management of Lateral Compression Injury – This rarely requires emergency stabilisation. There is no contraindication to applying a pelvic binder/sheet in a suspected lateral compression injury but other sources of haemorrhage should be sought. The binder should be removed once the diagnosis is made and haemodynamic stability is established.

Management of Continuing Haemorrhage

Please contact the trauma team at North Bristol if concerned. It is necessary to promptly instigate a massive transfusion protocol for continued haemorrhage

Angiographic Embolisation – This is indicated if the patient is still haemodynamically unstable from bleeding within the pelvis, if radiology expertise is available.

If in extremis consider pelvic packing after application of pelvic binder or a pelvic external fixator in the operating theatre.

Specific Injuries

Urological injuries - With all anteriorly displaced ring fractures, our protocol is to perform an ascending urethrogram prior to the insertion of a catheter and a cystogram once the catheter is in situ to detect any urological injury. If there is evidence of a urethral rupture then a urinary catheter should not be inserted before discussion with a Urological Specialist.

Open Pelvic Fracture – Wounds in the perineum, vagina or rectum require debridement and diversion of faeces with a defunctioning colostomy in an upper abdominal quadrant. Basic principles of care of open fractures apply, with antibiotic prophylaxis for infection and pelvic stabilisation by external fixation. Early diagnosis of an open pelvic injury is essential. It is mandatory to involve the on call general surgical consultant and/or gynaecologist as soon as the diagnosis is made.

Combined acetabular and pelvic ring injury
It is important to distinguish between pelvic and acetabular fracture, as the latter injury does not require external fixation, which will be ineffective and may interfere with later definitive surgical fixation. Acetabular fractures and fracture-dislocations can sometimes be made worse by application of a pelvic binder.

Acetabular Fractures

Resuscitation – According to ATLS Protocol, which includes an AP Pelvis radiograph as part of the primary survey. One should look for signs of hip dislocation, joint incongruity, associated femoral head or neck fracture and neurological injury.

Hip dislocation - Should be reduced within 6 hours and placed on skeletal femoral traction. Occasionally an anti-rotation boot is also required if the joint is very unstable. It is mandatory to perform a detailed neurological and vascular assessment of the limb(s) before and after reduction of a dislocation. If the hip is irreducible, remains highly unstable or a new neurological lesion develops after reduction, urgent advice should be sought from one of the pelvic and acetabular surgeons.

Ipsilateral acetabular fracture and femoral fracture – when stabilising the femoral fracture, avoid any incisions around the hip if possible, to avoid compromising later acetabular surgery. Alternatives to standard antegrade femoral IM nailing include temporary skeletal traction, external fixation, plate fixation or retrograde femoral nailing. If possible, please discuss the surgical plan with us.

Combined acetabular and pelvic ring injury

It is important to distinguish between pelvic and acetabular fracture, as the latter injury does not require external fixation, which will be ineffective and may interfere with later definitive surgical fixation of the acetabulum.

Investigation

Radiographs

Pelvic fracture	- AP, Inlet and Outlet views of whole pelvis
Acetabular fracture	- AP pelvis, Judet oblique views of whole pelvis
Spinal Series	- Thoracolumbar AP and lat views, or CT scanning of the entire spine, is recommended in all cases of displaced pelvic ring injuries and acetabular fractures.

A combined pelvic and acetabular fracture will require AP pelvis radiograph plus inlet/ outlet views and Judet oblique views of the whole pelvis.

If there is still suspicion of a pelvic fracture then a repeat AP radiograph should be performed after the binder is removed (as a binder can anatomically reduce an open book fracture)

CT Scan

All patients should undergo fine cut CT scans (2-3mm slice thickness) of the whole pelvis. Pelvic CT reconstructions do not replace Inlet and Outlet views as the resolution is inadequate and fracture lines can be missed.

DVT Prophylaxis

Our protocol is to start Clexane 40 mg od (or other LMWHeparin) within 24 hours of admission unless there is a contraindication, such as allergy to heparin, intracranial haemorrhage, an unstable spinal fracture or persisting haemodynamic instability. We advise the addition of Omeprazole (or another proton pump inhibitor) or Ranitidine for gastric cytoprotection. NSAIDs should be stopped and not used for analgesia.

Documentation

The patient should have a full neurological examination recorded and the findings on rectal and vaginal examinations noted. It is essential the findings of the primary and secondary surveys are clearly documented.

Referral

Please refer patients with pelvic trauma as soon as possible, preferably by the next working day as our target is to transfer the patient within 48 hours of injury. Even if the patient is not fit for transfer immediately, it is important that we are made aware, to facilitate the further management. Late referrals of patients may compromise subsequent care or result in further delay in arranging transfer and treatment. A succinct form outlining the pertinent information required when referring a pelvic fracture is attached (appendix 1)

Our initial point of contact is via the Orthopaedic Department at Southmead Hospital on 0117 414 1623 who would then direct you to one of the pelvic surgeons (Mr Ward, Mr Chesser, Mr Acharya,). Out of hours, the on-call Orthopaedic Registrar can be contacted. We welcome being contacted for emergency advice out of hours through Southmead Hospital switchboard (0117 9505050), who will then contact the nominated pelvic consultant.

A **referral form** outlining the pertinent information required when referring a pelvic and acetabular fracture is attached (**Appendix 1**). It is expected that the initial imaging will be completed in the referring hospital. Delay of referral greater than 24 hours can affect patient care and transfer.

Whilst awaiting transfer of the patient, the appropriate investigations and treatment of associated injuries should be pursued. If it is necessary to keep the pelvic binder on for a longer period of time, the binder should be released intermittently and pressure areas ***must*** be checked and documented regularly every 24 hours.

It is usually most appropriate for the patient to be transferred back to the referring hospital after pelvic surgery and we will arrange further outpatient follow up care at North Bristol where appropriate.

If you have any comments for clarification or suggestions for improvement, please let us know.

Guidelines amended and effective in March 2015