Pelvic Fracture Management

1. The pelvic binder CAN be left in place for up to 24 hours unless the patient has severe neurological deficit or a major soft tissue injury.

2. Examine carefully for open wounds, especially perineum. Wounds should be covered and managed in accordance with **BOAST Open Fracture Guidelines.** Local antibiotic guidelines should be followed.

3. If unilateral pelvic injury: log-roll to opposite side
   If bilateral pelvic injury: avoid log-roll, if possible, use a scoop stretcher

4. Discussion with Interventional Radiology (IR) may be appropriate to guide management.

5. Identify and manage any other injuries as appropriate.

6. All suspected pelvic fractures should be reviewed by the local on-call orthopaedic team, who will consider referral to the GM Pelvic Service as per the guidance below.

7. All polytraumatised patients require a post-binder X-ray after resuscitation, even in the presence of a 'negative' CT scan because a well-applied pelvic binder can mask a pelvic ring injury. If there is haemodynamic instability, reapply the binder. For binder removal, follow local trust guidance.

8. Injury to the bladder or urethra should be diagnosed and managed according to **BOAST: Management of Urological Trauma Associated with Pelvic Fractures**

9. Regarding VTE, apply mechanical prophylaxis.
   Check coagulation, consider bleeding risk and seek senior clinical opinion before starting chemical prophylaxis.

10. Open pelvic fractures associated with wounds to the lower abdomen, groin, buttocks, perineum, anus (including sphincters) and rectum require urgent assessment by a consultant general or colorectal surgeon and wound debridement as per the Open Fractures BOAST.

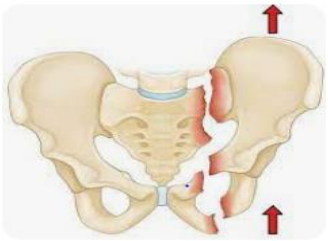
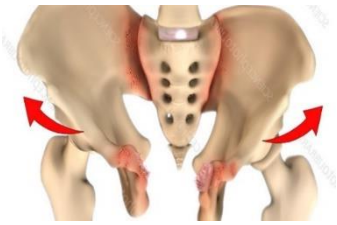
    Clinically and/or radiologically proven or suspected injuries to the anus and/or rectum may initially require construction of a de-functioning stoma. Nursing care of wounds to the perineum or buttocks may also require a de-functioning stoma, although this is unlikely to be necessary for open pelvic fractures associated with wounds to the groin or lower abdomen alone[1].

Further information can be found in the British Orthopaedic Association guidance BOAST - The Management of Patients with Pelvic Fractures (January 2018) including guidance from the Association of Surgeons of Great Britain and Ireland (ASGBI) and The Association of Coloproctology of Great Britain and Ireland (ACPGBI) for stoma formation with open pelvic fractures.

[1] BOA Guidance: The Management of Patients with a Pelvic Fracture (2018)

Stratification of pelvic injury severity post orthopaedic review

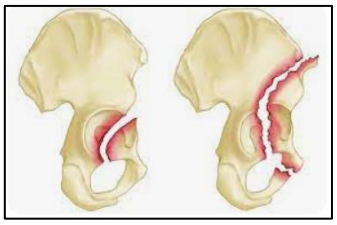
RED STREAM
These patients require TTL to TTL discussion and in some cases, discussion with Interventional Radiology may be necessary.
Discussions with the TTL can take place 24/7 via the following contact numbers. **MRI: 0161 276 4012** **SRH: 0161 206 2226/ 206 5354** **All pregnant patients refer to MRI.** **All paediatric patients refer to RMCH.**
In cases of haemodynamic instability, patients may be identified as *'surgeon waiting'* and immediate emergency transfer should be arranged.

Vertical Shear Fractures	
	- Follow BOAST guidelines for management. - Check binder is correctly applied. - Consider vaginal, rectal, and perineal injuries. - Follow local antibiotic guidelines for timely administration. - Clinical input by senior ED and Orthopaedic on call on suspicion or diagnosis of fracture. - Consider traction when early definitive surgery or temporary surgical stabilisation (emergency screws or external fixation) cannot be performed. - TTL - TTL and refer to pelvic trauma surgeon.
Open Book Pelvis Fractures	
	- Manage haemodynamic instability - Apply pelvic binder at trochanters level - Massive Haemorrhage Protocol (MHP) activation - Early administration of TXA - Consider other injuries (bladder, bowel, perinium, vessels) - Clinical input by senior ED and Orthopaedic on call on suspicion or diagnosis of fracture. - TTL- TTL and refer to pelvic trauma surgeons.

AMBER STREAM

The following classification of patients may require MTC input, but do not require immediate, blue light transfer to the MTC. Interventions such as wound assessment, antibiotic administration and splinting should take place at the initial receiving site.

Acetabular Fractures



- Review by senior ED and orthopaedic in call team who will consider urgent referral to the GM Pelvic Service
- If haemodynamically unstable, consider IR
- Consider TTL – TTL referral in very unstable fractures or associated injuries

If haemodynamically stable:

- Consider other injuries
- Consider need to transfer in discussion with GM Pelvic Team
- Relax binder, observe haemodynamic stability, and post binder x-ray

Lateral Compression Fractures

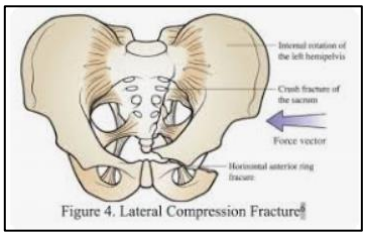


Figure 4. Lateral Compression Fracture[1]

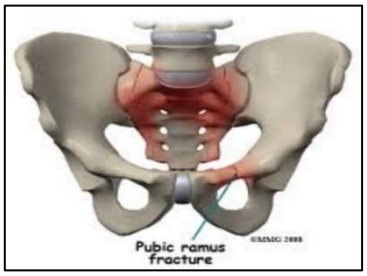
- Review by senior ED and orthopaedic in call team who will consider urgent referral to the GM Pelvic Service
- If haemodynamically unstable, consider IR
- Consider TTL – TTL referral in very unstable fractures or associated injuries

If haemodynamically stable:

- Consider other injuries
- Consider need to transfer in discussion with GM Pelvic Team
- Relax binder, observe haemodynamic stability, and post binder x-ray

GREEN STREAM
The following classification of patients should be managed locally and may be treated conservatively. Consider hydration and bowel care to prevent delirium.
Local orthopaedic on call team to review and refer to GM Pelvic Service for management decision.

Stable Lateral Compression (LC1) and Pubic Ramus Fractures



Low energy injury: A pelvic or sacral insufficiency fracture which commonly accompanies a simple pubic ramus fracture will at least cause back pain and may result in an unstable pelvis.

In high energy injury or in younger patients; pubic rami fracture may be associated with pelvic ring injury, lateral. compression type 1 (LC1) or type 2 (LC2).

In cases where Urgent CT has not already been performed. CT should be requested in:

- Symptomatic older patients (pain and reduced mobility)
- High energy injury in older patients
- All younger patients with pubic rami or suspected pelvic ring injuries

Local orthopaedic on call team to review and refer to GM Pelvic Service for management decision.

Urethrogram /Cystogram

Investigation in the ED after pelvic fracture

- In the absence of any concerning features, in particular blood at the meatus, or any history of haematuria since accident, **a single, gentle attempt** at passing a urinary catheter may be undertaken. ANTT should be observed, and the procedure performed **by an experienced surgeon**: this is not the time to teach the technique.

    i. If clear urine drains, then all good

    ii. If there is any element of blood staining in the fluid draining from the catheter, then a contrast study (retrograde cystogram) is mandated.

    iii. Retrograde cystogram: inject 100ml diluted (50% saline, 50% contrast) IV contrast medium into the catheter. Clamp catheter and then take AP pelvis x-ray (or CT if the patient is having one).

- If there is any blood at the meatus prior to catheterisation, or any history of haematuria since accident, then a retrograde urethrogram is indicated before attempts at catheterisation.
- Retrograde urethrogram: use 50ml diluted (50% saline, 50% contrast) IV contrast medium in bladder syringe. Insert size 10 Foley catheter so that balloon is just past the meatus then gently inflate balloon with 5mls saline. Hold in place whilst assistant injects contrast into catheter and take AP pelvis x-ray.
- Urethrogram positive: call Consultant Urologist. Decisions now very difficult. If a suprapubic catheter is needed suggest discussion with the pelvic and acetabular surgeons as this will have major implications for any internal fixation.
- Retrograde urethrogram negative: Catheterise. If haematuria is present, perform retrograde cystogram.

**Principles apply for children but always consult Consultant Paediatric Surgeon