



Title CSOP Pelvic Trauma

Version No: 2.4

Effective date: 11/02/2022

APPROVALS

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Next Review Date:	February 2024		

HISTORY

Effective Date	Version No.	Summary of Amendment
Dec 2012	2.0	Reformatted no changes
Dec 2014	2.1	Review and minor amendments to sections marked
June 2017	2.2	Review
July 2019	2.3	Changed from specific hospitals to 'MTC'. Inclusion of FPHC algorithm for pelvic binder application. Straight leg raise. IV antibiotics. Addition of Annex D.
October 2021	2.4	Review

REFERENCES

Document Reference Number	Document Title
Annex A	Pelvic Anatomy
Annex B	T-POD
Annex C	SAM
Annex D	Prometheus



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1. Purpose

Injury to the pelvis can result in major haemorrhage and needs to be identified and managed appropriately in the pre- and in-hospital settings.

Moving the patient can cause further bleeding.

This CSOP provides guidance on the recognition of pelvic injury, splinting of suspected pelvic fractures and the triage of patients to appropriate centres.

Where there is a high suspicion or evidence of an unstable pelvic fracture, the patient should be conveyed to a Major Trauma Centre.

2. Definitions/Acronyms:

Abbreviations	Definitions
CSOP	Clinical Standard Operating Procedure
RTC	Road Traffic Collision
IV	Intra venous
NIBP	Non Invasive Blood Pressure
CT	Computed Tomography
ASIS	Anterior Superior Iliac Spine
GCS	Glasgow Coma Score
SBP	Systolic Blood Pressure

3. Scope

Early suspicion, identification, and management of a pelvic fracture in the pre-hospital environment are essential to reduce blood loss and the risk of hypovolaemic shock. Pelvic fractures are a marker of significant injury and are frequently associated with major intra-abdominal and vascular injuries.

External pelvic splintage has a proven track record in reducing venous bleeding from unstable fractures and therefore associated morbidity and mortality from pelvic injuries.



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4. Pre-hospital Assessment

4.1 Mechanism of injury

Suspect a pelvic fracture in the following patients:

- Front seat occupants in high-speed head on road traffic collisions (RTC) or patients sitting on the side of impact with intrusion
- Motorcyclist RTC, especially where there is suggestion or evidence of impact with the petrol tank.
- Pedestrian RTC
- Fall from height
- Crush injury to pelvic region

4.2 History

If the patient is conscious they should be asked directly if they have any pain in the pelvic area including the lower back, hips and groin.

4.3 Examination

Examination for signs of a pelvic fracture may be unreliable in patients who have a reduced GCS, signs of shock, spinal cord injury or another distracting injury. If there is any suspicion from the mechanism or history, patients with reduced consciousness should be treated as having a presumed pelvic injury.

Signs of pelvic fracture on inspection:

- Obvious deformity or asymmetry
- Bruising and swelling of the bony prominences, pubis, perineum or scrotum
- Leg length discrepancy or rotational deformity of one or both lower limbs (without a fracture in that extremity)
- Wounds over the pelvis suggesting an open fracture
- Bleeding from the patient's rectum, vagina or urethra
- Incontinence of urine or stool



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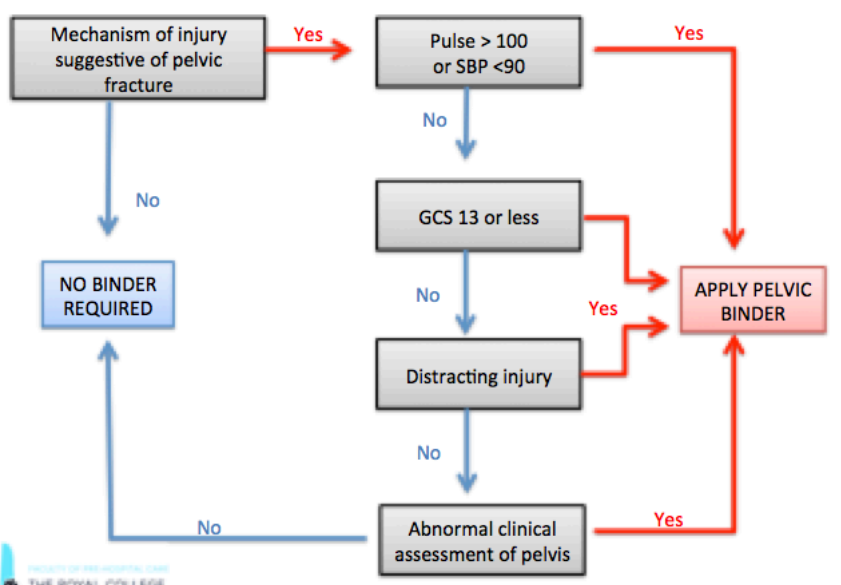
Note that fractures of the acetabulum and / or dislocation of the hip are common, often presenting with the leg held in flexion and internal rotation. These are seldom unstable, and do not benefit from splintage with a pelvic binder.

The pelvis must not be ‘sprung’ to test for tenderness or instability. This test has been proven to be unreliable in detecting pelvic injury and risks disturbing a clot allowing further life-threatening haemorrhage. Gentle palpation over the pelvic ring is permitted to assess for tenderness in an awake patient.

Awake, alert patients who have no pain on palpation of the pelvis, and no co-existing lower limb or spinal injuries can be asked to straight leg raise (SLR) each limb in turn as the final part of examination. A lack of pain in the pelvis or lower back on SLR rules out an unstable fracture of the pelvis in an alert, awake patient.

4.4 Cardiovascular status

Suspect a pelvic fracture in any patient with hypotension following blunt trauma.



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A pelvic splint may not be required in a small group of selected patients despite a suitable mechanism as per the FPHC guidelines (see above).

5. Interventions

5.1 Pelvic splintage

Apply pelvic splintage early to conserve a clot. A pelvic binder is a circulatory treatment intervention rather than a packaging device.

Commercial devices (such as the T-POD, SAM splint, or Prometheus splint) are the preferred methods of immobilising the pelvis. They must be applied directly to the skin, not over clothing and should be centred at the level of the greater trochanters. Aim for the belt to apply firm pressure with the ability to insert fingers under the belt. A poorly applied splint may actually over-compress the fracture or open the pelvis further. In the case of the SAM Belt it is not necessary to apply the belt until the buckle 'clicks' as this may apply too much tension.

In all cases internally rotate the feet and strap together with a figure of eight bandage.

A Kendrick traction device can be used in conjunction with a pelvic splint in patients with suspected pelvic injury and femoral fracture as it does not rely on pelvic counter-traction – apply the pelvic splint first.

Wounds over the pelvis should be treated with removal of any gross contaminants, irrigation and the application of a saline soaked dressing before application of the splint.

5.2 Minimal movements

In patients with suspected pelvic fractures, movements should be kept to a minimum. This includes avoiding a traditional log roll of the patient to 90 degrees to allow examination or positioning on a spinal board. A log roll will cause disruption of clot and potential compression of the fracture with further soft tissue and vascular injury.



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Version No: 2.4

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Use a 10-20 degree roll each side to insert each blade of an orthopaedic scoop stretcher. Apply the patient skin to scoop. The majority of patients can be safely transported on the scoop, on an ambulance or air ambulance trolley or within a vacuum mattress.

To insert a pelvic splint avoiding excessive movements there are several options:

Patient supine (on back):

- Use the orthopaedic scoop stretcher and a 10-20 degree roll to position the splint under the patient (preferred method)
- Slide splint under small of back or knees and see-saw down or up (associated with some patient movement and incorrect splint position)
- Stand over the patient and lift the pelvis gently upwards just enough to slide the splint under the buttocks (manual handling risk in larger patients)

Patient on front or side:

- Cut off patient's clothes from the back. Roll the patient onto their back onto a pre-prepared orthopaedic scoop blade with the pelvic splint positioned at the correct level. Perform a 10-20 degree log roll to pull the splint through and position the other blade of the scoop.

5.3 Fluid resuscitation

The patient will require at least one large bore IV access for analgesia. Fluids should be given according to the Clinical SOP on Fluid Replacement for non-compressible haemorrhage.

If the patient has a suspected pelvic fracture and is hypotensive, consider activating the Massive Transfusion Protocol at the receiving Major Trauma Centre.

5.4 Antibiotics

Open pelvic fractures associated with wounds to the lower abdomen, groin, buttocks, perineum, or rectum require the pre-hospital administration of antibiotics such as Co-amoxiclav as soon as practicable after injury (ideally within one hour).



Title CSOP Pelvic Trauma

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6. Triage and handover to ED

Per the ambulance service Major Trauma Triage Tool, a suspected unstable pelvic fracture triggers at stage 2 to convey to a Major Trauma Centre

X-rays and CT scanning can be performed through a pelvic binder. Pelvic splintage should not be removed until a full radiological study has excluded an unstable pelvic injury or alternative methods of pelvic stabilisation have been applied. After a normal CT with a binder in-situ, the patient will require plain x-rays out of the binder to confirm the absence of a fracture.

References

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