

Application of the Prometheus pelvic splint

Background

Due to the proximity of the pelvis to major blood vessels and organs, pelvic fractures can be life-threatening because they can result in extensive haemorrhage. Usually fractures of the pelvis are caused by a traumatic, high-energy mechanism such as a motor vehicle crash, however in elderly patients they can occur from a simple fall.

As part of the out-of-hospital management of pelvic fractures, application of a pelvic splint aims to achieve the following:

- › Stabilise the pelvic fracture, approximating bone ends and reducing haemorrhage from blood vessels within the pelvis.
- › Continue stabilisation of the pelvis until definitive stabilisation can be achieved in hospital.

Indications

- › Suspected pelvic fracture where there are clinical signs of hypovolaemia. Assume that the pelvis is fractured if the patient has pain in the pelvic area, or is unable to report pain, and has a suitable mechanism of injury.
- › Cardiac arrest secondary to trauma, if pelvic injury is suspected.

Contraindications and cautions

Contraindications

- › None.

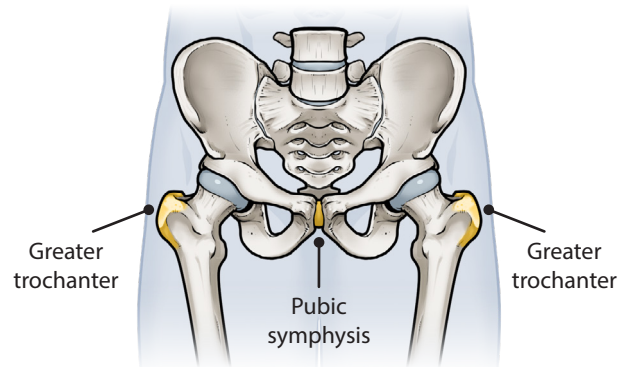
Cautions

- › Isolated neck of femur fractures should not have a pelvic splint applied as the pressure exerted on the greater trochanter may worsen pain and the severity of injury.

Procedure

- 1 Explain the procedure and gain informed consent if possible.
- 2 Ensure the patient has adequate pain relief prior to splint application.
- 3 Remove/cut off the patient's clothing around the pelvic area, leaving the underwear on.

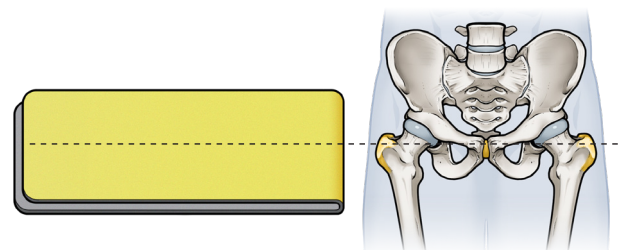
- 4 Identify patients greater trochanters.



- 5 Remove the pelvic splint from its packaging. Place the blue straps to one side and fold the band in half keeping the yellow on the outside.



- Take the yellow band and place the folded edge against the side of the patient, with the centre of the band in line with the greater trochanter, noting that this is over the area where pubic hair is usually present:



- 6 Fold the top half of the yellow band down to lie beside the patient's leg.



- 7 Perform a **minimal** movement log roll just enough to pass the band underneath the patient to the midline. Ensure to roll the patient as little as possible to prevent unnecessary loading on an unstable pelvis.



- 8 Gently, with a **minimal** movement log roll, roll the patient to the opposite way to retrieve the folded band, again with the least amount of angle required.
- 9 Once the band has been pulled through, ensure the greater trochanters are still aligned to the centre of the band. The black side of the band should be touching the patient with the yellow side being on the outer surface.
- 10 Take one end of the band and wrap around the patient.
- 11 Attach the blue triangular anchor to the outer surface of the band.



- 12 Ensure the centre of the blue triangle's edge is directly over the greater trochanter.
- 13 Cut any excess neoprene at the level indicated on the triangular anchor. This will allow greater access to the inguinal area.



- 14 Repeat steps 7–10 on the other side.
- 15 Ensure the blue buckle is central and apply tension to the two blue tapes until sufficient force to stabilise the pelvis has been applied. When the tapes are being pulled, ensure they are being pulled at equal tension simultaneously. This is best achieved by having a person each side pulling an end each.

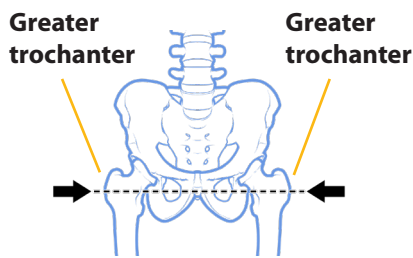


- 16 Secure blue tapes to the band to maintain desired tension.



- 17 Tie the patient's legs together at the point of the knees and ankles.

- 18 Record time of application and document the intervention on the ePRF.



Potential complications of the procedure

- › Pain.
- › Pressure areas. This is usually only a problem if the pelvic splint is on for a prolonged period.

Additional information

- › Minimise patient movement as much as possible to prevent unnecessary pain and movement of the pelvis.
- › If a scoop stretcher is required for extrication, apply the pelvic splint at the same time to minimise the number of times the patient is rolled
- › If a patient requires extrication from a vehicle, consider tying the patient's legs together prior to extrication and placing a pelvic splint on the stretcher so that the splint can be applied without additional movement.
- › Once applied to the patient the splint should usually not be removed until the patient is in hospital.
- › Do not spring the pelvis looking for signs of instability.
- › Do not use a sheet to wrap the pelvis unless this is the only option because a sheet can rarely be applied firmly enough.
- › Sometimes it is reported that application of a pelvic splint reduces the overall volume of the pelvic cavity and therefore restricts the volume of blood that can fill the space. The pelvis does not fill with blood as though it has been poured into a container, rather it spreads through tissues and extends into the abdominal retroperitoneum. Reducing the volume of the pelvis does not reduce the bleeding, instead the pelvic splint's main function is to stabilise the fracture and reduce further haemorrhage from the disrupted blood vessels.

Assessment information

If you are required to apply a pelvic splint as part of an assessment, the following table gives you an idea of what the assessor will be looking for.

Assessment	Competent
<p>1. Describe the indications for application of a pelvic splint</p> <p>A competent answer includes:</p> <ul style="list-style-type: none"> › Suspected pelvic fracture with clinical signs of internal bleeding. › Cardiac arrest secondary to trauma, if pelvic injury is suspected. 	
Assessment	Competent
<p>2. Describe the contraindications and cautions for the application of a pelvic splint:</p> <p>Contraindications:</p> <ul style="list-style-type: none"> › None. <p>Cautions:</p> <ul style="list-style-type: none"> › Isolated neck of femur fracture. 	
Assessment	Competent
<p>3. Demonstrate application of a pelvic splint</p> <p>A competent demonstration includes:</p> <ul style="list-style-type: none"> › Explain the procedure and gain informed consent if appropriate. › Ensure the patient has adequate pain relief prior to splint application. › Remove/cut off the patient's clothing around the pelvic area, leaving the underwear on. › Apply the pelvic splint safely and securely whilst minimising patient movement. › Tie the patient's legs together at the point of the knees and ankles. › Record time of application and document the intervention on the ePRF. 	