ACCU KIT OF THE WEEK

THE ROYAL LONDON HOSPITAL

Pelvic Binder

JM January 2021

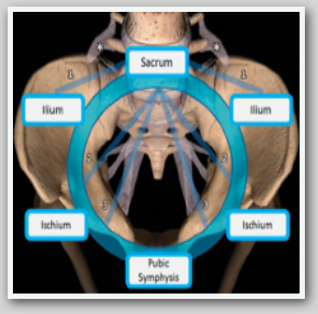
What?

This is the SAM splint pelvic binder.

When should it be applied?

Suspected pelvic ring fractures which may result in haemodynamic instability.

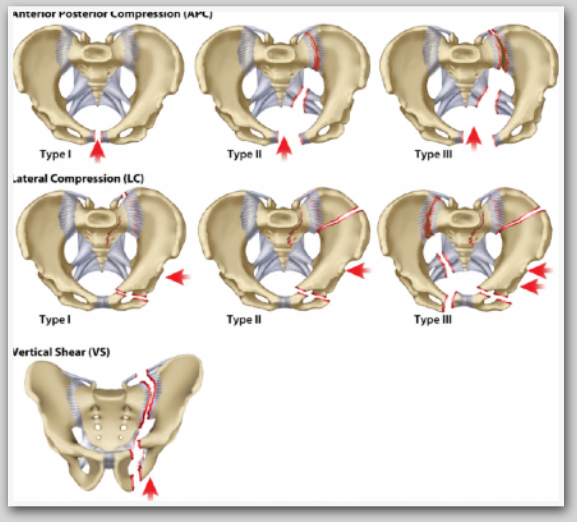
Tell me about pelvic ring fractures



Disruption of the pelvic ring classically happens in two places. They are associated with high energy trauma and haemodynamic instability. There are three main fracture patterns .

1 Anterior-Posterior Compression. This occurs when a person is crushed front-back- this can be from head-on motor vehicle collisions, falls or crush injuries. The injuries here are often ligamentous, classically at the pubic symphysis and SI joint (e.g. 'open book'). APC fractures are sometimes complicated by haemorrhage from arterial injury as well as venous plexus disruption. The volume of the pelvis can be greatly expanded allowing copious concealed blood loss. They are the primary fracture type which benefits from external splintage.

2 Lateral compression. These are commonly caused by side-impact motor vehicle collisions or falls onto one side. Lateral compression of the pelvis causes inward rotation of the hemi-pelvis and instability.



3 Vertical Shear. During injury, energy is transmitted up one limb and passes through one side of the pelvis. This commonly happens when someone falls from height landing on one foot.

How does it work?

The binder provides circumferential external compression. The binder (1) reduces the volume of the pelvis, enabling earlier tamponade (2) provided skeletal stabilisation which reduces pain, and reduces disruption of clot formation. It is applied prehospital or in the ED. The splint should sit over the femoral greater trochanters. The straps are tightened until the pelvis is reduced.

What are the risks?

Incorrect placement can make bony displacement worse- in some pelvic fractures (particularly LC), the disruption may be exacerbated by correct placement. The main concern is pressure necrosis of underlying skin and soft tissue. Genitals are also at risk of injury. These risks increase as the duration of application increases.

When should it be removed?

The primary aim for this device is providing heamodynamic stability. It should be removed as soon as possible- (1) If the injury is not amenable to reduction from external circumferential compression (as directed by trauma team leader) (2) After damage-control surgical stabilisation of the pelvis, in theatre. (3) Sometimes the pelvis is packed but stabilisation is not possible and the binder is left on in ACCU. There should be clear instructions for removal based on estimated time taken for clot formation. The device should rarely be used for longer than 12 hours. If there are no obvious plans for removal, contact the the ED TTL/ACCU consultant/Trauma consultant.If removed on ACCU, a senior clinician should be present with plans in place for dealing with possible further blood loss.