Peninsula Trauma Network Guideline

Peninsula Trauma Network

Pelvic Injury Guidelines

Approved and Issue Date	Review Date	Version
September 2021	August 2023	V5

Purpose

Following the national introduction of Regional Trauma Networks, Major Trauma Centres (MTCs) are required to have a policy for patients requiring treatment for Pelvic Injuries due to major trauma.

The purpose of this Guideline is to provide direction and guidance for actions from key individuals and organisations within the Peninsula Trauma Network to improve the patient pathway and ensure that patients are transferred to the definitive point of care as quickly and safely as possible.

Who should read this document?

Trauma Network Clinical and Governance Directors
TU and MTC Clinical Leads for Major Trauma
Trauma Team Leaders
All Clinicians Transferring Patients to Specialist Centres
Acute Trust Lead Nurses
Rehabilitation specialists

Key Messages

Pelvic fractures, either in isolation or in combination with other injuries may result in immediate life-threatening haemorrhage and long-term disability. Early use of pelvic binders, administration of tranexamic acid (TXA), initiation of massive transfusion protocols and use of haemorrhage control techniques are vital strategies for the successful management of patients with life threatening haemorrhage due to pelvic fracture.

Core accountabilities	
Owner	Peninsula Orthopaedic Trauma Network
Review	PTN Advisory Group
Ratification	PTN Advisory Group
Dissemination (Raising Awareness)	All PTN Acute Trusts, South Western Ambulance Service NHS Foundation Trust, Devon Air Ambulance, Cornwall Air Ambulance, UK Search and Rescue Service (Southwest).
Compliance	All Parties

Links to other policies and procedures

PTN Automatic Acceptance & Secondary Transfer Policy
PTN Safe Transfer of the Critically Ill Patient Policy
Peninsula and Severn Trauma Networks Paediatric Combined Policy

Version History		
V1	Miss Cheryl Baldwick	Orthopaedic Major Trauma Lead, NDDH
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V3	Dr Tony Hudson	Peninsula Trauma Network Clinical Director
V4	Dr Tony Hudson	Peninsula Trauma Network Clinical Director
V5	Mark Brinsden	Peninsula Orthopaedic Trauma Network Chair

The Network is committed to creating a fully inclusive and accessible service. Making equality and diversity an integral part of the business will enable us to enhance the services we deliver and better meet the needs of patients and staff. We will treat people with dignity and respect, promote equality and diversity and eliminate all forms of discrimination, regardless of (but not limited to) age, disability, gender reassignment, race, religion or belief, sex, sexual orientation, marriage/civil partnership and pregnancy/maternity.

An electronic version of this document is available on The PTN website. Larger text, Braille and Audio versions can be made available upon request.

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1 Introduction

Pelvic fractures, either in isolation or in combination with other injuries may result in immediate life- threatening haemorrhage and long-term disability. Careful consideration must be given to both the emergency management of the patient and potential operative intervention for fracture stabilisation.

This guideline applies to adult patients presenting to Trauma Units or the MTC (i.e. age 16 years or older). Patients aged less than 16 years presenting with pelvic injuries should be resuscitated in line with standard age-appropriate guidelines and discussed with the Trauma Team Leader (TTL) at the Paediatric Major Trauma Centre as soon as possible. The contact number for the Paediatric MTC TTL is 0300 0300 789.

In the context of major trauma, pelvic fractures are usually high-energy injuries with potential for associated significant vascular & visceral injuries. When discussing "stability", differentiation must be made between the haemodynamic status of the patient and the mechanical stability of the fracture. Assessment of the mechanism & injury pattern is necessary to guide appropriate early management.

2 Purpose

This guideline is intended for use by TU clinical teams to assist with the initial assessment, resuscitation and transfer (or referral) for definitive care of adult patients with high energy pelvic fractures.

3 Duties

This guideline highlights the key management strategies from national guidelines and the local referral processes that clinical teams within the Peninsula Trauma Network are expected to utilise to ensure the rapid and effective management of patients with high energy pelvic injuries.

4 Guideline

4.1 Pre-hospital Recommendations

All patients who are shocked **and** have a pelvic ring injury should have a pelvic binder applied at point of injury. In patients who have suspected combined pelvic ring and lower limb long bone fracture, it is recommended that a pelvic binder is applied first followed by application of long bone splintage. Traction devices are not contra-indicated but must be used with caution. Use of Tranexamic acid should be considered and should be given as soon as possible, ideally within one hour of injury. Suspected major pelvic fractures should be transported direct to Major Trauma Centre (MTC) where timelines allow. It should be noted that a pelvic binder is a haemorrhage control device. Where the patient is not shocked no binder is required.

1. NICE Reference NG 37 1.1.7 and NG 39 15.3
2. BOAST Reference Audit Standard 1.

4.2 Emergency Department Initial Management

The initial management is directed at identification and treatment of massive haemorrhage. Each Hospital is to have its own protocols in place to address emergent haemorrhage control as it is dependent on the facilities & expertise available at each Trust. Patients with suspected pelvic fractures should not be log rolled before pelvic imaging unless there is an emergent need to provide postural drainage of the airway or there is a suspicion of occult penetrating injury in the presence of haemodynamic instability. The overarching network guideline is detailed below.

4.3 Fluid resuscitation & transfusion

Patients with continuing haemorrhage & evidence of shock should be treated with volume replacement, including early use of blood and fresh frozen plasma. The Massive Transfusion Protocol (MTP) in the treating unit should be triggered. Use of Tranexamic acid should be considered.

4.4 Imaging

Contrast CT should be the first-line imaging for adults with suspected high energy pelvic fractures. AP pelvis views may be performed initially for haemodynamically stable patients in whom there are no other indications for CT imaging. Further imaging with inlet, outlet or Judet views are not required during the initial management phase.

Contrast studies of the genito-urinary system should be performed if there is suspicion of injury to the urethra or bladder.

4.5 Haemorrhage Control

4.4.1 Reduction in pelvic volume

External splinting with a pelvic binder should be considered in shocked patients, particularly in AP compression (open book) injuries, to reduce pelvic volume and aid tamponade. In patients with lateral compression & vertical shear injuries care must be taken to avoid causing secondary damage to pelvic viscera. Traction may aid reduction in vertical shear fractures. There is no place for external fixation of the pelvic ring in the Emergency Department. Packing of haemodynamically unstable open pelvic ring injuries with haemostatic gauze (e.g. Celox) should take place in the Emergency Department.

4.4.2 Surgical Haemorrhage Control

In the small group of patients who are too haemodynamically unstable to tolerate CT scanning and therefore Secondary Transfer; Trauma Laparotomy and proximal control followed by Extra-Peritoneal Pelvic Packing (including a crest frame) plus or minus Embolisation or Ligation should be carried out in the Trauma Unit. Following this Damage Control Surgery, patients should be transferred via the Secondary Transfer Protocol.

The majority of haemodynamically unstable patients will tolerate advanced imaging and transfer prior to surgery and should be transferred via the Secondary Transfer Protocol with a binder and MTP in place.

4.6 Pelvic binder removal

Pelvic binders should be removed as soon as possible in non-shocked patients. Binder removal can take place prior to CT imaging. All shocked patients with a binder in situ

must be discussed with the TU T&O team prior to removal. All patients who have a binder on at the time of the trauma CT scan should have a 'binder off' plain film (AP Pelvis), if the CT scan does not demonstrate any pelvic injury. If binder on imaging has defined the pelvic injury then a 'binder off' plain film is not required.

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4.7 Secondary Transfer Guidelines

Please see Peninsula Trauma Network Secondary Transfer Guidelines for detail description.

In summary there is an automatic acceptance policy for the patient cohort highlighted above, trauma units should alert the MTC Trauma Team Leader that the patient is on route via

01752 437247

Discussion between the emergency & surgical teams at the Trauma Unit and the MTC Trauma Team Leader may be helpful in determining the best approach for an individual patient though is not required for Secondary Transfer.

4.8 Trauma and Orthopaedic Management

T&O initial management runs concurrently with the trauma call; documentation of neurovascular status, and type of VTE prophylaxis indicated should be carried out. In patients with a fracture dislocation of the hip, closed reduction under GA with application of skeletal traction should be carried out in the TU, with stability of the hip joint documented. In the rare situation of irreducible dislocation, the patient should be transferred emergently to the MTC with skeletal traction in situ. Nice guidance NG 37.

4.9 Tertiary Transfer Guidelines

Some patients with multiple injuries will be transferred early to the MTC. In Trauma Units with pelvic surgeons, definitive treatment of the pelvic fracture may be at the admitting unit unless the patient needs to be transferred to the MTC for management of other injuries. Trauma Units' T&O Service may wish to discuss the patient with the MTC Pelvic and Acetabular Service for consideration of transfer for definitive treatment, even if the patient has an isolated pelvic fracture. The referral should be sent via email to

Plh-tr.pelvic-trauma@nhs.net

The referral should include an ATMIST summary and the name of the referring Trauma & Orthopaedic Consultant.

4.10 Definitive Fracture Treatment

Wherever the definitive pelvic and acetabular surgery is provided the treating Trust is required to provide BOA standards level of care.

4.11 Management of Associated Injuries

The pelvis should be examined for any evidence of open wounds, which should be explored. Pelvic fractures which are open to viscera, perineum, groin or buttock should be treated by cystostomy and bowel diversion by experienced urologists & general surgeons.

There should be a high index of suspicion of urinary tract injury.

Pelvic/sacral fractures may result in damage to the sacral nerves affecting bladder, bowel and sexual function. Appropriate screening should be carried out in the acute phase by an appropriate clinician and counselling provided. Management plans and any necessary referrals should be made.

4.12 Review Schedule and Rehabilitation Plan

Clear written rehabilitation guidance including rehabilitation prescription should return with the patient to the local Trauma Unit. Follow-up of the pelvic fracture will usually be with the operating surgeons.

Clear written rehabilitation guidance including anticipated weight bearing plans, return to driving/work/activity advice provided via a rehabilitation prescription, which should return with the patient to the local Trauma Unit or rehabilitation service. Follow-up of the pelvic fracture will usually be with the operating surgeons

4.13 Summary

Pelvic Injuries are to be treated to BOA Standards and NICE guidelines utilising the Network secondary and Tertiary Transfer protocols.

5 Overall Responsibility for the Document

The Peninsula Trauma Network Advisory Group is responsible for developing, implementing and reviewing this guideline.

6 Consultation and Ratification

The review period for this document is set as default of three years from the date it was last ratified, or earlier if developments within or external to the Peninsula Trauma Network (PTN) indicate the need for a significant revision to the procedures described.

This document will be reviewed by the PTN Advisory Group and ratified by the PTN Director and Clinical Governance Lead or Executive Board as deemed appropriate. Non-significant amendments to this document may be made, under delegated authority from the PTN Director, by the nominated owner. These must be ratified by the PTN Director.

Significant reviews and revisions to this document will include a consultation with named groups, or grades across the Peninsula Trauma Network. For non-significant amendments, informal consultation will be restricted to named groups or grades who are directly affected by the proposed changes.

7 Dissemination and Implementation

Following approval and ratification, this guideline will be published on the PTN website (public facing or secure as deemed appropriate) and all staff will be notified through the PTN normal notification process, currently via email to Trauma Clinical Leads.

PTN Website: http://www.peninsulatraumanetwork.nhs.uk

Document control arrangements will be noted and kept current on the PTN guideline list maintained by the PTN management team.

The document owner will be responsible for agreeing the training requirements associated with the newly ratified document with the named PTN Director.

8 Monitoring Compliance and Effectiveness

Monitoring and compliance will be reviewed via the PTN Governance form submissions and discussion at the monthly PTN Governance teleconference.

This is a requirement of the NHSE Major Trauma Quality Indicators and compliance will be reviewed via the annual Network Peer Review process and/or National Quality Surveillance Team (QST) peer review for MTCs. If concerns are raised, these will be notified to the relevant Chief Executive and Trauma Leads will be required to provide timely action plans to resolve the concerns. These concerns will be reviewed by the PTN Management Team and fed back to relevant parties. Concerns raised by the National QST peer review for MTCs will be fed back through the appropriate channels.

9 References and Associated Documentation

1. BOA Audit Standards for Trauma. The Management of Patients with Pelvic Fractures. January 2018

2. NICE guideline 37. Fractures (complex): assessment and management. Last updated November 2017