



Queensland
Trauma Education

EXTREMITY TRAUMA

Femoral traction splint

Case discussion

Facilitator resource kit

CSDS



Clinical Skills Development Service



Queensland Trauma Education

The resources developed for Queensland Trauma Education are designed for use in any Queensland Health facility that cares for patients who have been injured as a result of trauma. Each resource can be modified by the facilitator and scaled to the learners needs as well as the environment in which the education is being delivered, from tertiary to rural and remote facilities.

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Queensland Trauma Education

Extremity trauma – Femoral traction splint: Case discussion – Facilitator resource kit Version 1.0

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About this training resource kit

This resource kit provides clinicians with the knowledge for use including indications and contraindications for traction splint application in femoral fractures following injury.

National Safety and Quality Health Service (NSQHS) Standards



Target audience

Emergency department medical and nursing clinicians.

Duration

30 minutes.

Group size

Suited to small group participation.

Learning objectives

By the end of this session the participant will be able to:

- Describe the indications for femoral traction splint application
- Recognise the complications associated with the use of femoral traction splints
- Understand the process for application of a femoral traction splint

Facilitation guide

1. Facilitator to issue participant resource kit to learner.
2. Facilitator to use supporting documents to promote discussion regarding the use of femoral traction splints
3. Supporting video resources may be used to demonstrate splint application (will require a digital device to play resources)
4. Supplementary procedural skill to support learning

Overview of Femoral traction splints

Femoral traction splints are used to secure the leg in an improved or near reduced position. The traction occurs by using the device to distract the proximal end of the splint against the pelvis to the ankle. When correctly applied, traction splints reduce haemorrhage and aid in limb immobilisation to assist in reducing pain. Traction splints have become smaller and more portable to be used in the pre-hospital and emergency environment.

Further reading

Trauma/Orthopaedic splinting – Slishman femoral traction	
Organisation	QAS Clinical Practice Procedure
Link	https://bit.ly/3fEFvq2

Trauma/Orthopaedic splinting – CT-EMS femoral traction	
Organisation	QAS Clinical Practice Procedure
Link	https://bit.ly/3ql3Ph3

Evaluation of commercially available traction splints for battlefield use	
Publication	Journal of Special Operations Medicine
Link	https://bit.ly/3FHPKV5

Prehospital management of lower limb fractures	
Publication	Emergency Medicine Journal
Link	https://bit.ly/3FHk3eg

Supporting resources

CT6 application video	
Source	Queensland Ambulance Service (QAS)
Link	https://youtu.be/L1-hWv6yYpY

STS Slishman application video	
Source	SP Services
Link	https://youtu.be/hbIU6IIYQI4

Donway femur splint video	
Source	John Mackenzie
Link	https://vimeo.com/115932565

Sager splint application video	
Source	Orthocycle Foundation
Link	https://www.youtube.com/watch?v=uaWUbYer0io

Case discussion

Case study

A 31yo male is transported to ED following a motor bike crash. In ED, an Xray demonstrates that he has sustained an oblique left mid shaft femoral fracture with shortening.

The orthopaedic team request a traction splint be applied prior to operative management.

Question and answer guide

1. What is the role of femoral traction splint application?

- Improve patient pain
- Immobilises the limb preventing further damage to surrounding tissues/structures
- Improve fracture alignment to reduce risk of – haemorrhage, fat embolism, infection, longer term complications including malalignment, shortening and DVT.

2. In which fracture pattern is traction splinting most useful?

- An isolated fracture of the midshaft femur is most suitable for traction splinting.
- Additional fractures in the leg may be less effective, upper 2/3rd tibial fractures better than lower 1/3rd

3. What fractures are contraindicated in the use of traction splint?

- Fractures of ankle/feet- as unable to apply support straps to create traction
- Partial amputation or avulsion with only marginal tissue connecting the distal limb

4. Can traction splints be used for open or closed fractures?

A traction splint can be used with either open or closed femoral fractures.

5. What are potential complications of femoral fractures?

- Haemorrhage
- Fat embolism
- Infection
- Malalignment/shortening/pain
- Deep venous thromboembolism

6. What traction splints are available? Use videos or equipment to demonstrate

- Donway traction splint
- Thomas splint
- Sager splint
- CT6 splint
- Kendrick splint
- Slishman splint

7. Describe clinical assessment of the limb prior to application of traction splint.

- Localisation of fracture site – pain, swelling, tenderness, deformity/shortening
- Associated pelvic, knee, ankle/foot injury
- Peripheral perfusion
- Neurological status- motor and sensory assessment of sural, saphenous, peroneal and tibial nerves.

8. What assessment occurs post application?

- Pain level
- Position of fracture – clinical and with repeat Xray
- Neurovascular exam distal limb
- Pressure area risk assessment

9. What complications may occur from a femoral traction splint device?

- Pain at fracture site and application points
- Incomplete reduction of femoral fracture
- Damage to other structures from under-recognition of associated injury (pelvic, knee, ankle fractures)
- Skin damage
- Neurovascular compromise from ankle strap or inappropriate traction

Supporting documents

The following supporting documents are provided for this case discussion.

L femur Xray



Case courtesy of Dr Benoudina Samir, Radiopaedia.org, rID: 22120

References

1. Davis DD, Ginglen JG, Kwon YH, et al. EMS Traction Splint. [Updated 2021 Jul 26]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK507842/>
2. Lee, C., & Porter, K. M. (2005). Prehospital management of lower limb fractures. *Emergency medicine journal : EMJ*, 22(9), 660–663. <https://doi.org/10.1136/emj.2005.024489>

4.

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