

Hull University Teaching Hospitals NHS Trust

Referral Criteria for Medical CT Radiation Exposures

Trauma & Emergency Department Referrals

The Ionising Radiation (Medical Exposure) Regulations 2017

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INTRODUCTION

This document is written to ensure that departmental process conforms with the Ionising Radiation (Medical Exposure) Regulations 2000 (IRMER 2000).

PURPOSE

1. *Referral Criteria:* This document ensures the CT department is compliant with regulation 4(3a) of the Ionising Radiation (Medical Exposure) Regulations 2017. It provides advice for referrers of patients for x-ray examinations to the CT department at Hull University Teaching Hospitals NHS Trust
Valid clinical indications are listed but are not exhaustive.
Referrers are also advised to access I refer through e learning for health.
(<http://www.e-lfh.org.uk/home>)
Or discuss with a Consultant Radiologist

PROCEDURES

History	Scan Request	Question needing to be answered
Head injury - (see Appendix I)	Head / Brain	? Haemorrhage
Major Trauma – Haemodynamic instability CT study; high suspicion of vascular injury and active arterial bleed	Whole body including head and Cervical Spine	? Haemorrhage / Organ damage / Bony Injury
Major Trauma - Haemodynamic stability; severely injured patient but low suspicion for vascular injury / active arterial bleed	Whole body including head and Cervical Spine	? Haemorrhage / Organ damage / Bony Injury
Major Trauma with lower limb fractures	Whole body including head, Cervical Spine and lower limb (See Appendix II)	? Haemorrhage / Organ damage / Bony Injury
Blunt Orbital trauma	Orbits	Persistent clinical concern for fracture, for surgical planning
Orbital Trauma - Penetrating Injury	Orbits	Suspicion of IOFB with clinical evidence of ocular penetration
Cervical spine Trauma See Appendix III	Cervical Spine	? Bony / Cord Injury
Thoracic and Lumbar spine trauma See Appendix IV	Thoracic and / or Lumbar spine	? Bony / Cord Injury
Penetrating Chest trauma.	Chest	? Lung / Mediastinal / Pleural pathology / Thoracic cage injury
Blunt Abdominal Trauma	Abdomen and Pelvis	? Organ damage
Penetrating Abdominal Trauma		? Organ damage
Blunt Renal Trauma with haematuria		? Organ damage

CT IRMER Procedures

History	Scan Request	Question needing to be answered
Abdomen Pain Bowels not opened for days	Abdomen and Pelvis	? Obstruction
Abdomen Pain Recent Abdominal Surgery, Pyrexial		? Collection? Abscess ? Infection
Abdomen Pain Pyrexial		? Acute appendicitis
Abdomen Pain		? Perforation
Abdomen Pain		
Severe Gynaecological pain		? Ovarian Torsion

PROCESS FOR MONITORING COMPLIANCE

Regular audit shall take place to ensure referrers are providing radiology with sufficient clinical history to justify CT examination. Results shall be presented to CTOG / RPA

REFERENCES

Royal College of Radiologists (2012) iRefer 7th Ed. Royal College of Radiologists http://portal.e-lfh.org.uk/myElearning/Index?HierarchyId=0_28429 accessed 18/01/2016

National Institute for Clinical Excellence (2023) NICE Guideline CG232 Head Injury 2023. National Institute for Clinical Excellence <https://www.nice.org.uk/guidance/ng232> accessed 21/08/2023

Appendix I

CT Brain Scan: Referral Criteria for CT Following Head Injury

CT Brain scans are performed for patients with head injury following the NICE Guideline CG232 Head Injury 2023.

CT Brain should be performed following the summary of the guidelines as below:

Patients having warfarin treatment

For patients (adults and children) who have sustained a head injury with no other indications for a CT head scan and who are having warfarin treatment, perform a CT head scan within 8 hours of the injury.

Adult patients:

Emergency CT within One Hour of arrival at ED

Head Injury and one (or more) of the following risk factors

- GCS less than 13 on initial assessment in the emergency department.
- GCS less than 15 at 2 hours after the injury on assessment in the emergency department.
- Suspected open or depressed skull fracture.
- Any sign of basal skull fracture (haemotympanum, 'panda' eyes, cerebrospinal fluid leakage from the ear or nose, Battle's sign).
- Post-traumatic seizure.
- Focal neurological deficit.
- More than 1 episode of vomiting.

Urgent CT with Eight Hours of arrival at ED

Head Injury and have experienced some loss of consciousness or amnesia since the injury with one (or more) of the following risk factors

- Age 65 years or older.
- Any history of bleeding or clotting disorders.
- Dangerous mechanism of injury (a pedestrian or cyclist struck by a motor vehicle, an occupant ejected from a motor vehicle or a fall from a height of greater than 1 metre or 5 stairs).
- More than 30 minutes' retrograde amnesia of events immediately before the head injury.

Children

Emergency CT within One Hour of risk factor being identified.

1. Head Injury and one (or more) of the following risk factors

- Suspicion of non-accidental injury
- Post-traumatic seizure but no history of epilepsy.
- On initial emergency department assessment, GCS less than 14, or for children under 1 year GCS (paediatric) less than 15.
- At 2 hours after the injury, GCS less than 15.
- Suspected open or depressed skull fracture or tense fontanelle.
- Any sign of basal skull fracture (haemotympanum, 'panda' eyes, cerebrospinal fluid leakage from the ear or nose, Battle's sign).
- Focal neurological deficit.
- For children under 1 year, presence of bruise, swelling or laceration of more than 5 cm on the head.

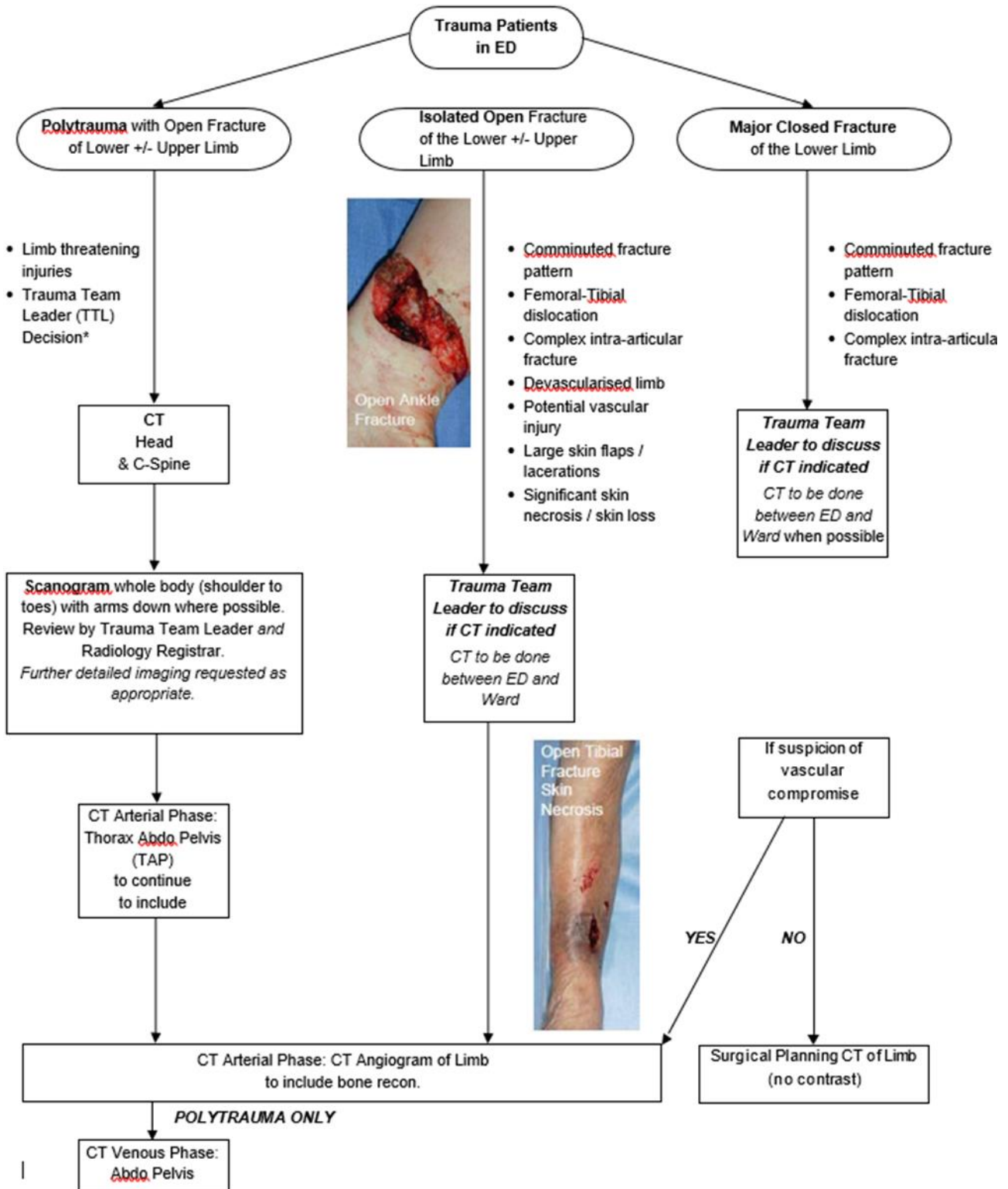
2. Head injury and have more than 1 of the following risk factors (and none of those above)

- Loss of consciousness lasting more than 5 minutes (witnessed).
- Abnormal drowsiness.
- Three or more discrete episodes of vomiting.
- Dangerous mechanism of injury (high-speed road traffic accident either as pedestrian, cyclist or vehicle occupant, fall from a height of greater than 3 metres, high-speed injury from a projectile or other object).
- Amnesia (antegrade or retrograde) lasting more than 5 minutes
- Any current bleeding or clotting disorder

3. Head injury and have only 1 of the risk factors in 2 and none of those in 1 should be observed for a minimum of 4 hours after the head injury. If during observation any of the risk factors below are identified, perform a CT head scan within 1 hour:

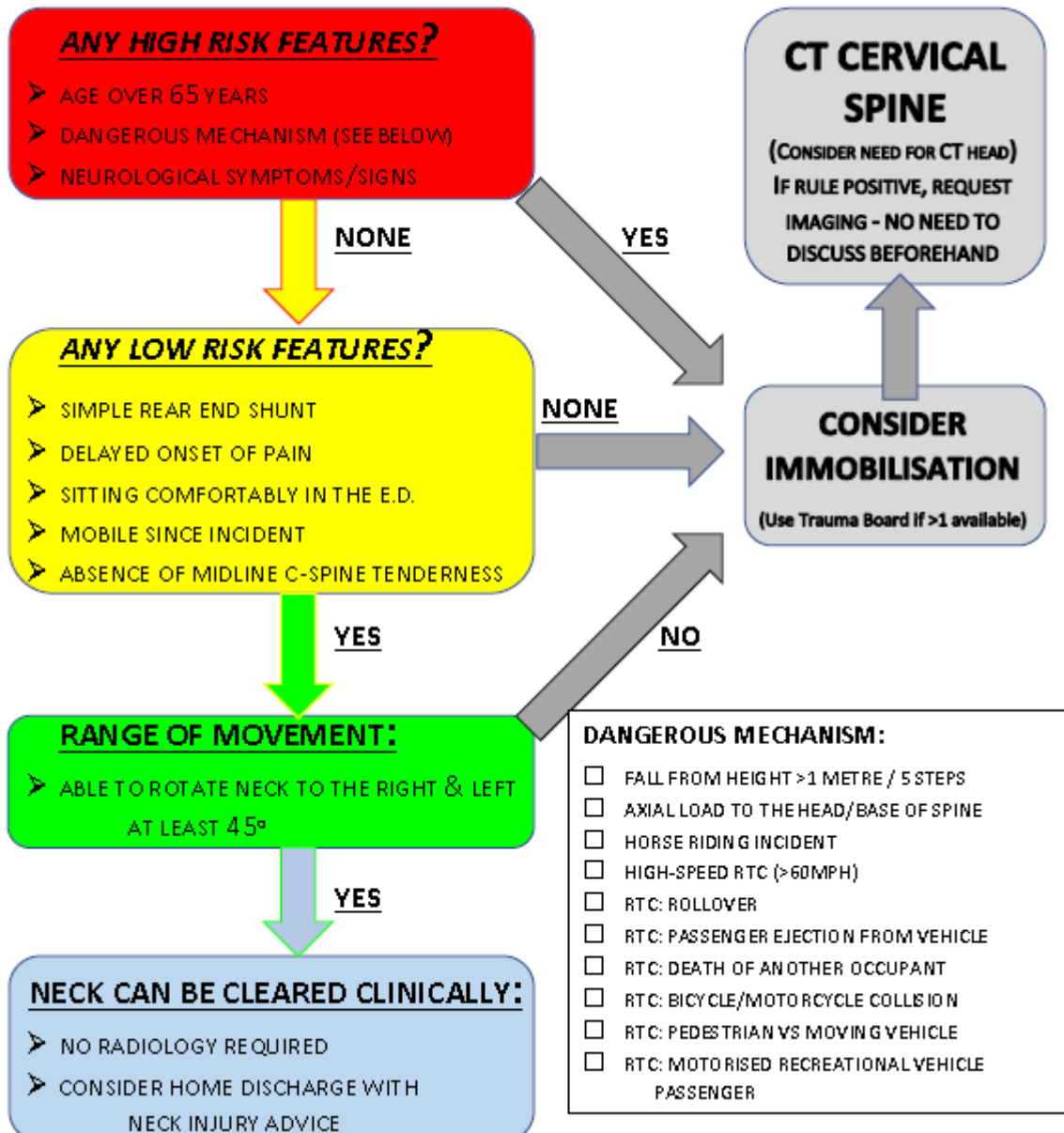
- GCS less than 15.
- Further vomiting.
- A further episode of abnormal drowsiness.

APPENDIX II



APPENDIX III

CT Cervical Spine Trauma Referral Guidance



APPENDIX IV

CT Thoracic / Lumbar Spine Trauma Referral Guidance

