



Peripheral Nerve Injury

Plymouth Hospitals **NHS**
NHS Trust

Injury Guideline

Action:	Major Trauma Centre Consultants, Middle Grades, and Juniors MTMC		
Info:			
Related documents:	British Orthopaedic Association Standards For Trauma (BOAST 5)		
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Introduction. All surgeons undertaking Musculoskeletal Trauma Surgery will be involved in the management of peripheral nerve injury, either as a result of injury or a postoperative complication. Nerve repair and complex nerve injuries (e.g. brachial plexus) is a specialist field but all surgeons involved in trauma surgery must be able to diagnose nerve injuries and identify those that need referral to a specialist. These standards have been taken from the recent BOAST 5 which provides evidence-based guidelines for peripheral nerve injury management and combined with local Derriford Hospital standard operating procedures.

1. A careful examination of the peripheral nervous and vascular systems must be performed and clearly recorded for all injuries. This examination must be repeated and recorded after any manipulation or surgery. It is essential to record something of all modalities of nerve function for each nerve potentially affected.

Motor: The examination of a muscle must be performed whilst palpating that muscle to record even the smallest volitional movement.

Touch: Record sensation to light touch as; normal, reduced, altered, painful

Sympathetics: Is there normal skin sweating or is the skin dry and red (sympathectomised)

Pain: Is there spontaneous neuropathic pain felt in any area? Is there evoked pain (light touch felt as pain) in any area?

Tinel Sign: Never forget if there is a nerve injury then a percussive examination from distal to proximal over the course of that nerve right up to the spine root will identify any Tinel sign of a degenerative injury. Record the location of the Tinel sign (the point where when tapped the patient relates distal tingling) and the nerve to which this distal territory belongs.

2. If a laceration is over the course of a major nerve or associated with a neurological deficit, the urgent advice of a surgeon who treats nerve injuries should be obtained. Basic science evidence strongly supports very urgent repair as this will give the best possible outcome.

Identifying Speciality Should Contact Plastic Surgery Registrar On Call Via Switchboard For All Routine Nerve Trauma Referrals.

3. Nerves will occasionally be damaged during surgery and recognition and urgent treatment is essential. Whatever the cause, if a divided or injured nerve is found at surgery, and the surgeon does not have the skills to perform a definitive repair then the patient should be discussed immediately with a surgeon experienced in nerve repair. The exposed nerve ends **SHOULD NOT** be tagged, debrided or loosely approximated. If possible photographic evidence should be taken to aid discussion at the very least a clear description of the injury entered into the operative notes.

Operating Surgical Team Should Contact Consultant Plastic Surgeon On-Call Via Switchboard.

4. Brachial plexus injuries should be discussed with a plexus/complex nerve injury specialist within 3 days of injury, or sooner if possible.

**Identifying Specialty Should Contact Royal National Orthopaedic Hospital Stanmore
Peripheral Nerve Injury Unit Co-Ordinator: 020 8909 5803 (Out Of Office Hours OR If No Reply- Call
020 8954 2300 And Ask For The PNI On Call Consultant)**

5. Neurophysiological investigations are rarely needed in the acute injury and requesting neurophysiology must not delay referral or treatment. MRI is not essential before surgery but can assist in preoperative planning. Referral should not be delayed to wait for a scan. In cases of plexus injury after high energy trauma (RTA etc.) an MRI of the cervical spine is instructive in assessing for avulsion injuries, if possible this should be performed with angiography to image the ipsilateral and contralateral carotid vertebral and the ipsilateral subclavian vessels.

**Guidance On The Requirement And Timing Of Nerve Conduction/EMG Studies Should Be On
A Case By Case Basis Through Early Discussion With Royal National Orthopaedic Hospital Stanmore
Peripheral Nerve Injury Unit.**

6. If a nerve injury is present with an unstable fracture or dislocation, the urgent priority (after life-saving interventions) is reduction and stabilisation of the skeleton.

7. When internal fixation of a fracture associated with a nerve injury is performed, in general, the nerve must be explored. Possible exceptions are an axillary nerve palsy associated with low-energy shoulder trauma and sacro-iliac screw fixation with a lumbosacral plexus injury.

8. If a nerve is explored during fracture surgery, this must be clearly recorded in the operation record including an indication of the nerve's relationship to any internal fixation device. Recording how the nerve feels across the area of injury in comparison to an uninjured segment of the nerve is a useful modality of assessment, (soft, rubbery hard etc)

9. When a nerve or vascular deficit is identified following surgery, immediate measures include loosening bandages, splitting Plaster of Paris splints (to the skin) and gentle repositioning of the limb. If these measures are ineffective, a senior surgeon should be alerted to decide whether urgent re-exploration is required.

10. Painful, postoperative paralysis **Must Be Explored Urgently**. It may be due to compartment syndrome or nerve compression from bone fragments, suture, haematoma or hardware.

11. Pain and progressing loss of sensation is the hallmark of critical ischaemia. Immediate surgical exploration is required. By the time paralysis occurs it is too late.

12. **Lead Single Specialty Team**

Consulting Speciality Upper Limb

Vascular: Proximal to (and including) forearm bifurcation.

Plastic Surgery: Distal to forearm bifurcation

Consulting Speciality Lower Limb

Vascular: Proximal to (and including) the tri-furcation

Plastic Surgery: Distal to the tri-furcation