# CERVICAL SPINE/SPINAL INJURIES

Injury to the neck is a commonly seen problem in the A&E department.
Most injuries can be classified as either flexion or extension although the force may also contain a lateral or rotatory component. Spinal injuries may be stable or unstable. All cervical injuries are considered unstable until proven otherwise
Stable injuries are those where the posterior ligament complex, (interspinous and supraspinous ligaments) the neural arch (pedicles and laminae) and the facets (superior and inferior) are all intact. This stability obviously cannot be assumed in all patients with severe neck pain and/or neurological signs with apparently "normal" cervical spine x-rays.
In order to adequately assess any patient with a neck injury you must be able to quickly and carefully examine neurological function. 55% of all spinal injuries occur in the cervical region.
All patients who have been involved in a road traffic accident, fallen from a height, are unconscious or complaining of neck pain, must be assumed to have sustained a significant neck injury until proven otherwise. Their neck must be immobilised immediately with a semi rigid collar, sandbags and tape
Supervise any movement required e.g. log-rolling, trolley transfer.

Special points in the history include:
Exact mechanism of injury
Any neurological symptoms in the arms or legs

General examination must be thorough because spinal trauma is often associated with other injuries commonly affecting head and chest.
Specific signs of spinal injury should be sought including local bruising and tenderness, spinal deformity, e.g. gibbus or an increased interspinous gap and priapism, which indicates a high spinal cord lesion.

The Queen Elizabeth National Spinal Injuries Unit, Scotland has produced a transfer form indicating investigations/examination required for all patients referred/transferred to their care. These are available in the resus.

## Patterns of Spinal Cord Injury

### Spinal Shock

After severe spinal injury, spinal shock with generalised flaccidity below the level of the lesion supervenes. This may last from a few hours to a few weeks. (More commonly 24-48 hours). Its end is marked by a return of reflex activity in the spinal cord when the lesion is above the sacral segment, i.e. an upper motor neurone lesion. The anal and bulbocavernous reflexes are usually the first to return. The early presence of a brisk bulbocavernous with evidence of a complete lesion of the spinal cord carries a poor prognosis for the return of function.

### Incomplete Spinal; Cord Injury

Assessment of the level of completeness of spinal cord injury allows a prognosis to be made. If the lesion is complete from the outset, i.e. no sign of spinal cord function below the level of injury, recovery is far less likely than an incomplete lesion.

There are recognised patterns of incomplete lesions;

### Anterior Cord Syndrome

The anterior part of the spinal cord is usually injured by a flexion-rotation force to the spine producing an anterior dislocation or by a compression fracture of a vertebral body with bony encroachment on the spinal canal. There is often anterior spinal artery compression causing corticospinal and spinothalamic tract damage by a combination of direct trauma and ischaemia. This causes loss of power with reduced pain and temperature sensation below the level of the lesion.

### Central Cord Syndrome

This is typically seen in older patients with cervical spondylosis. A hyperextension injury often from relatively minor trauma, compresses the spinal cord between the irregular osteophytic vertebral body and intervertebral disc anteriorly and the thickened ligamentum flavum posteriorly.

The more centrally situated cervical tracts suffer the brunt of the injury so that classically there is flaccid (lower motor neurone) weakness in the arms and relatively strong but spastic (upper motor neurone) leg function.

### Posterior Cord Syndrome

Most commonly seen in hyperextension injuries with fracture of the posterior elements. There is contusion of the posterior columns, resulting in good power but profound ataxia due to proprioceptive loss.

**Please note** that there may be considerable overlap between the above syndromes.