Acute paraplegia

General information

Entities causing spinal cord compression usually present as paraplegia or -paresis (or quadriplegia/paresis), urinary retention (may require bladder ultrasound or checking a post-void residual to detect), and impaired sensation below the level of compression. May develop over hours or days. Reflexes may be hyper- or hypoactive. There may or may not be a Babinski sign. Excluding trauma, the most common cause is compression by tumor or bone.

Etiology

Some overlap with myelopathy.

1. in infancy (may produce “floppy infant syndrome”)

a) spinal muscular atrophy (the most severe form is called Werdnig-Hoffmann disease and is usually fatal within months): a rare autosomal recessive congenital disease of childhood with degeneration of anterior horn cells. Only rarely evident at birth (where it presents as a pauc- ity of movement), produces weakness, areflexia, muscle and tongue fasciculations with normal sensation. Usually starts in proximal muscles and muscles of respiration. Severe cases progress over the first year or two to quadriplegia.

a) Disease progression was halted in 60% of cases associated with mutation of the SMN1 gene on chromosome 5 (which codes for survival motor neuron (SMN) protein) with intrathecal administration of SpinrazaTM (nusinersen) an orphan drug that costs $125,000 U.S. per injection or $750,000 per year.

b) spinal cord injury during parturition: a rare sequela of breech delivery

c) congenital myopathies: e.g. infantile acid maltase deficiency (Pompe disease)

d) infantile botulism:ileus,hypotonia, weakness,mydriasis,Clostridium botulinum bacteria and toxin in feces

2. traumatic spinal cord injury

a) major trauma: diagnosis is usually evident

b) minor trauma: may cause cord injury in setting of spinal stenosis, may→central cord syndrome

c) atlantoaxial dislocation: from major trauma or due to instability from tumor or rheumatoid arthritis

3. congenital

a) extradural spinal cord compression by bone secondary to cervical hemivertebra(symptoms not present at birth, may develop decades later, occasionally after minor trauma)

b) cervical stenosis (usually with superimposed spondylosis):quadriplegia or central cord syndrome may follow minor trauma

c) achondroplastic dwarfism: spinal stenosis (animal model: dachshund)

d) syringomyelia:usually presents with central cord syndrome

4. metabolic a) combined system disease

b) thallium poisoning: usually causes sensory and autonomic symptoms, quadriplegia and dysarthria may be seen in severe cases

c) central pontine myelinolysis

5. infectious

a) epidural spinal infection(abscess or empyema)

b) post-viral(or post-vaccination):maybe a transverse myelitis

6. peripheral neuromuscular disorder

a) Guillain-Barrés syndrome:classically an ascending paralysis,but paraparesis mimicking a spinal cord lesion is an unusual variant

b) myopathies

7. neoplastic: spinal cord tumors

8. autoimmune

9. vascular

a) acute pontomedullary infarction: age usually >50 yrs.Patient is quadriplegic, alert, with bulbar palsies (eye movement abnormalities, impaired gag, and speech)

b) spinal cord infarction:including AVM,radiation myelopathy...

10. miscellaneous compressive: including epidural hematoma, bony compression, epidural lipomatosis

11. functional:hysteria,malingering

12. bilateral cerebral hemisphere lesion(involving both motor strips):e.g.post-cerebral irradiation or parasagittal lesion. Will not have sensory level