

The syndrome of peripheral motor neurone (lower, alpha-motor neurone)

The damage is at the level of the alpha motor neurone and lower.

The basic features of each level of peripheral lesions are shown in Fig. 1.

Fig. 1

Lower motor neuron → muscle weakness and fasciculation in the area by the range of lesion

Roots → muscle weakness and fasciculation in area radicularis
→ lesion of sensation in area radicularis

Nerve → muscle weakness and eventually lesion of sensation in area nervina

Neuromuscular junction → muscle fatigue without sensory disturbances

Muscle → muscle fatigue without sensory disturbances

Note 1

Area nervina – area of one nerve supply

Area radicularis - area of one root supply

The clinical manifestations - general

Within the peripheral system, symptoms can vary depending on which part of the periphery is affected predominantly. It is understood that general manifestations of peripheral impairment are usually present (see Tab. 1).

Tab. 1. The basic difference between the peripheral and central disabilities

Parameter	The peripheral lesions	Central lesions (with predominant impairment of pyramidal pathways after remission of the acute stage)
The proprioceptive reflexes	<i>Decreased or absent</i>	<i>Increased</i>
The muscle tone	<i>Decreased (flaccid paresis)</i>	<i>Increased (spasticity)</i>
The pyramidal irritative phenomena (Spastic signs)	<i>Absent</i>	<i>Present</i>
The sensitivity disturbances	<i>If they are present, so in the corresponding distribution (area nervinae, radicales or with distal maximum)</i>	<i>If they are present, they are extensive, whole limbs</i>
The muscle atrophy	<i>Yes, from an early stage in the respective distribution</i>	<i>Only in the late stages</i>
Twitching (fasciculation)	<i>Yes</i>	<i>No</i>
Muscle weakness	<i>In the respective distribution</i>	<i>In the respective distribution</i>

The clinical manifestations - of each level of peripheral lesions

Damage of muscle

- muscle weakness (location depends on the distribution of disability)
- atrophy, hypertrophy, pseudohypertrophy (replacement of dysfunctional muscle tissue in some types of muscular dystrophy)
- hypotonia
- reduced (but may be normal) proprioceptive reflexes
- no sensory loss, but it can be a pain (myositis, rhabdomyolysis)

Disability of the neuromuscular junction

- muscular fatigue, weakness, depending on the previous exercise
- no sensory loss
- no pain
- normal muscle tone
- normal proprioceptive reflexes
- normal muscle trophic

Affection of the peripheral nerves

- muscle weakness, hypotonia and hyporeflexia, hypotrophy of muscles (peripheral "weak" paresis) in the distribution area nervina with prolonged condition
- sensory loss in the distribution area nervina or in "glove, sock distribution" (not always present, depending on whether the affected nerve has a sensitive component)
- can be a pain

Affection of plexus

- Muscle weakness, hypotonia and other manifestations of weak paresis
- sensory disturbances in the distribution of inadequate area nervina or radicularis (is the larger, plurisegmental)

Affection of roots**Affection of posterior root**

- sensory loss and possibly pain in the distribution area radicularis
- decreased the proprioceptive reflexes (if not compensated by the neighboring roots supplying the same muscle)
- no weakness
- not muscle twitching

Affection of front root

- muscle weakness, hypotonia and other manifestations of weak paresis in the distribution area radicularis
- muscle twitching
- no sensory loss
- no pain

At the root disability are usually combined handicap of posterior and of front root.

Affection of lower motor neuron

- muscular weakness, hypotonia and other manifestations of flaccid paresis in the area corresponding of the range of affected anterior horn cell may not match the area radicularis
- otherwise identical finding as the of front disability root