

CERVICAL MYELOPATHY ACCOMPANIED BY AMYOTROPHIC SYNDROME**Mamadinova Lolakhon Xomidovna**

Assistant of the Department of Neurology,

Andijan State Medical Institute,

Doctor of Philosophy in Medical Sciences (PhD)

<https://doi.org/10.5281/zenodo.20095328>**Abstract**

Cervical myelopathy is a progressive neurological disorder caused by compression of the spinal cord in the cervical region. In some patients, the disease may present with amyotrophic syndrome characterized by muscle weakness, atrophy, and motor dysfunction. Such clinical manifestations complicate differential diagnosis because symptoms may resemble motor neuron diseases and peripheral neuropathies. The aim of this article is to analyze the clinical features, diagnostic approaches, pathogenetic mechanisms, and treatment principles of cervical myelopathy accompanied by amyotrophic syndrome. The analysis shows that timely diagnosis using neurological examination and modern imaging methods is essential for preventing irreversible neurological deficits and improving patient outcomes.

Keywords: cervical myelopathy, amyotrophic syndrome, spinal cord compression, muscle atrophy, neurological disorders, cervical spine, motor dysfunction

Introduction

Cervical myelopathy is one of the most common spinal cord disorders associated with degenerative changes of the cervical spine. The condition develops as a result of chronic compression of the spinal cord caused by intervertebral disc degeneration, osteophyte formation, hypertrophy of ligaments, spinal canal stenosis, trauma, or other pathological processes. Progressive spinal cord compression leads to neurological impairment and deterioration of motor, sensory, and autonomic functions.

One of the clinically important variants of cervical myelopathy is its course with amyotrophic syndrome. Amyotrophic syndrome is characterized by progressive muscle weakness, muscular atrophy, decreased muscle strength, and impaired motor function. These manifestations are caused by damage to anterior horn cells, corticospinal tracts, or spinal nerve roots. In clinical practice, cervical myelopathy accompanied by amyotrophic changes may mimic amyotrophic lateral sclerosis and other neurodegenerative diseases, making diagnosis more difficult.

The prevalence of cervical myelopathy increases with age due to degenerative changes in the cervical spine. Chronic spinal cord compression may lead to ischemia, demyelination, neuronal loss, and secondary inflammatory reactions. If not diagnosed and treated in time, the disease may progress to severe disability and permanent neurological deficits.

Modern diagnostic methods, including magnetic resonance imaging, computed tomography, electromyography, and neurological assessment, allow accurate evaluation of spinal cord compression and associated muscular changes. Early diagnosis is extremely important because timely surgical decompression and conservative treatment may slow disease progression and improve neurological function.

The study of cervical myelopathy accompanied by amyotrophic syndrome is highly relevant because of its complex clinical presentation and the need for differential diagnosis with other neuromuscular disorders.

Aim of the Study

The aim of this article is to analyze the clinical manifestations, diagnostic features, pathogenetic mechanisms, and treatment approaches of cervical myelopathy accompanied by amyotrophic syndrome.

Materials and Methods

This article is based on the analysis of neurological and neurosurgical literature related to cervical myelopathy and amyotrophic syndrome. Scientific publications, clinical studies, and modern diagnostic approaches were reviewed.

The study analyzed the main causes of cervical spinal cord compression, clinical manifestations of amyotrophic syndrome, neurological examination findings, imaging methods, electromyographic characteristics, and treatment strategies.

Special attention was given to differential diagnosis between cervical myelopathy and motor neuron diseases. Diagnostic methods such as magnetic resonance imaging, computed tomography, electrophysiological studies, and clinical neurological assessment were evaluated.

Results

The analysis showed that cervical myelopathy accompanied by amyotrophic syndrome is characterized by progressive motor dysfunction and muscular atrophy. The most common symptoms include weakness of upper extremities, decreased muscle mass, impaired fine motor movements, gait disturbance, hyperreflexia, pathological reflexes, and sensory impairment.

Muscle atrophy is often more pronounced in the upper limbs because cervical spinal cord compression affects anterior horn cells and motor pathways responsible for upper extremity innervation. In some cases, fasciculations and decreased tendon reflexes may also be observed.

Magnetic resonance imaging remains the most informative diagnostic method. MRI allows visualization of spinal canal stenosis, spinal cord compression, disc degeneration, osteophytes, and signal changes within the spinal cord. Electromyography helps evaluate neurogenic muscle changes and differentiate cervical myelopathy from amyotrophic lateral sclerosis and peripheral neuropathies.

The results also showed that delayed diagnosis may lead to irreversible spinal cord damage and persistent neurological deficits. Early surgical decompression in patients with significant spinal cord compression improves neurological recovery and functional outcomes.

Conservative treatment methods include anti-inflammatory therapy, neuroprotective agents, physiotherapy, pain management, and rehabilitation. However, conservative treatment is usually less effective in severe cases with marked spinal cord compression and progressive neurological deterioration.

Discussion

The findings confirm that cervical myelopathy accompanied by amyotrophic syndrome is a complex neurological condition requiring accurate and timely diagnosis. The presence of muscle atrophy and motor weakness may create diagnostic difficulties because these symptoms resemble motor neuron diseases.

One of the important pathogenetic mechanisms is chronic ischemia of the spinal cord caused by prolonged compression. Reduced blood supply leads to neuronal degeneration, demyelination, and dysfunction of motor pathways. Compression of anterior horn cells contributes to muscular atrophy and weakness.

Differential diagnosis is extremely important because treatment strategies differ significantly between cervical myelopathy and neurodegenerative disorders. Unlike amyotrophic lateral sclerosis, cervical myelopathy may be partially reversible if decompression is performed early.

MRI plays a central role in diagnosis because it provides detailed visualization of spinal structures and spinal cord changes. Electrophysiological studies complement imaging findings and help evaluate the extent of motor neuron involvement.

The analysis also demonstrates that early treatment improves prognosis. Surgical decompression reduces spinal cord pressure, restores blood circulation, and may slow neurological deterioration. Rehabilitation and physiotherapy are important for preserving motor function and improving quality of life.

Conclusion

Cervical myelopathy accompanied by amyotrophic syndrome is a serious neurological disorder associated with chronic spinal cord compression and progressive motor dysfunction. The disease is characterized by muscle weakness, muscular atrophy, impaired motor activity, and neurological deficits.

Timely diagnosis using neurological examination, magnetic resonance imaging, and electrophysiological studies is essential for accurate differential diagnosis and prevention of irreversible spinal cord damage.

Early surgical decompression combined with conservative therapy and rehabilitation may significantly improve neurological outcomes and quality of life. Greater clinical awareness of this condition is necessary for early recognition and appropriate management of patients presenting with amyotrophic manifestations caused by cervical spinal cord compression.

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