

## CLINICAL MANIFESTATIONS OF CERVICAL SPINE OSTEOCHONDROSIS

**Isakov B.M.**

*Andijan Medical Institute*

**Abstract:** Cervical spine osteochondrosis is a chronic degenerative condition affecting intervertebral discs, vertebral bodies, and adjacent structures in the neck region. This article reviews the clinical manifestations, including pain syndromes, neurological deficits, and vascular complications. Diagnostic challenges, stage-dependent symptomatology, and their correlation with imaging findings are discussed. Tables summarize the main clinical signs, symptom patterns, and differential diagnosis.

**Keywords:** cervical spine osteochondrosis; clinical manifestations; neck pain; cervicobrachial syndrome; cervical radiculopathy; cervical myelopathy; vertebrobasilar insufficiency; autonomic symptoms; degenerative disc disease; nerve root compression; spinal cord compression; vascular complications; referred pain; neurological deficits; stage-dependent symptoms; differential diagnosis; cervical segment degeneration; musculoskeletal disorders; spinal pathology.

### Introduction

Cervical spine osteochondrosis is one of the most common degenerative spinal disorders, particularly prevalent in adults over 40 years old (Bogduk, 2005; Kuorinka et al., 1991). The disease is characterized by intervertebral disc degeneration, osteophyte formation, and subsequent mechanical and neurological compromise of cervical segments.

Patients may present with a wide range of clinical manifestations due to involvement of vertebral bodies, discs, facet joints, neural foramina, and vascular structures (Resnick, 2002). Symptoms can vary depending on the stage of degeneration and may affect musculoskeletal, neurological, and vascular systems.

Early recognition of clinical signs is critical for timely intervention and prevention of severe complications such as cervical radiculopathy, myelopathy, or vertebrobasilar insufficiency (Andersson, 1999).

The objective of this article is to provide a comprehensive review of the clinical manifestations of cervical spine osteochondrosis, their correlation with anatomical and imaging findings, and to summarize current knowledge in the form of practical tables for clinical application.

## Pain Syndromes in Cervical Osteochondrosis

### Localized Neck Pain

Neck pain is the most common symptom of cervical osteochondrosis, resulting from:

- Disc degeneration and loss of intervertebral height;
- Facet joint arthropathy;
- Muscular spasm and ligamentous tension (Bogduk, 2005).

### Characteristics:

- Typically dull or aching;
- May be exacerbated by movement;
- Often accompanied by stiffness, especially in the morning or after prolonged static posture.

**Table 1.**

**Local and referred pain patterns in cervical osteochondrosis.**

| Pain Type            | Location                | Characteristics      | Possible Mechanism                 |
|----------------------|-------------------------|----------------------|------------------------------------|
| Local cervical pain  | Posterior neck          | Dull, persistent     | Facet joints, disc degeneration    |
| Cervicobrachial pain | Neck, shoulder, arm     | Radiating, tingling  | Nerve root compression             |
| Headache             | Occipital region        | Aching, tension-like | C2-C3 joint involvement            |
| Inter-scapular pain  | Between shoulder blades | Dull, intermittent   | Referred from lower cervical discs |

### Cervicobrachial Syndrome

Cervicobrachial pain refers to radicular pain along the upper limb due to nerve root compression. Symptoms include:

- Pain radiating from neck to shoulder and arm;
- Paresthesia, numbness, or weakness in dermatomal distribution;
- Reflex changes in affected segments (White & Panjabi, 1990).

### Stage-dependent manifestations:

| Stage | Clinical Features                                       |
|-------|---------------------------------------------------------|
| I     | Occasional tingling, mild pain in neck/shoulder         |
| II    | Persistent radicular pain, mild sensory deficits        |
| III   | Severe pain, pronounced sensory and motor deficits      |
| IV    | Chronic radicular pain with muscle atrophy and weakness |

## Neurological Manifestations

### Cervical Radiculopathy

Radiculopathy arises from compression of cervical nerve roots by osteophytes, disc protrusions, or foraminal narrowing (Kettler & Wilke, 2006). Clinical signs include:

- Dermatomal sensory loss;
- Motor weakness in specific myotomes;
- Reflex reduction or asymmetry;
- Positive Spurling or cervical compression test.

### Cervical Myelopathy

Advanced osteochondrosis can lead to spinal cord compression. Symptoms include:

- Gait disturbances;
- Hand dexterity impairment;
- Hyperreflexia, spasticity, and pathologic reflexes (Babinski, Hoffman).

**Table 2.**

**Neurological manifestations by level of compression**

| Level | Sensory Deficit        | Motor Deficit           | Reflex Changes            |
|-------|------------------------|-------------------------|---------------------------|
| C4-C5 | Shoulder, upper arm    | Deltoid weakness        | Biceps reflex diminished  |
| C5-C6 | Lateral arm, thumb     | Biceps, wrist extensors | Biceps reflex diminished  |
| C6-C7 | Middle finger          | Triceps weakness        | Triceps reflex diminished |
| C7-T1 | Ring and little finger | Hand intrinsic muscles  | Finger flexor reflex      |

## Vascular and Autonomic Complications

### Vertebrobasilar Insufficiency

Degenerative changes of cervical vertebrae may lead to compression of the vertebral artery, causing:

- Dizziness or vertigo;
- Visual disturbances;
- Syncope episodes;
- Nausea (Resnick, 2002; Modic et al., 1988).

### Autonomic Symptoms

Autonomic nervous system involvement may manifest as:

- Tinnitus;
- Palpitations;
- Temperature dysregulation in the upper limbs;
- Headaches associated with postural changes.

**Table 3.****Common vascular and autonomic symptoms**

| Symptom                | Possible Mechanism             | Clinical Relevance                 |
|------------------------|--------------------------------|------------------------------------|
| Dizziness              | Vertebral artery compression   | Risk of falls                      |
| Visual disturbances    | Impaired posterior circulation | May require urgent evaluation      |
| Tinnitus               | Sympathetic nerve involvement  | Quality-of-life impact             |
| Upper limb paresthesia | Segmental ischemia             | Correlation with nerve compression |

**Stage-Dependent Clinical Manifestations****Table 4.****Summary of clinical features by stage**

| Stage | Pain Patterns                  | Neurological Signs             | Vascular/Autonomic Symptoms        |
|-------|--------------------------------|--------------------------------|------------------------------------|
| I     | Mild, occasional               | None or minimal                | None                               |
| II    | Persistent local and radicular | Mild sensory deficits          | Occasional dizziness               |
| III   | Severe pain, radicular         | Motor weakness, reflex changes | Vertigo, tinnitus                  |
| IV    | Chronic pain                   | Muscle atrophy, myelopathy     | Frequent vascular/autonomic events |

**Differential Diagnosis**

Clinical manifestations of cervical osteochondrosis may mimic other conditions:

- Cervical spondylolisthesis;
- Thoracic outlet syndrome;
- Peripheral neuropathies;
- Cervical disc herniation without degeneration (Jensen et al., 1994).

**Table 5.****Differential diagnostic features.**

| Condition                | Key Differentiating Feature                      |
|--------------------------|--------------------------------------------------|
| Thoracic outlet syndrome | Pain aggravated by arm elevation, vascular signs |
| Peripheral neuropathy    | Symmetrical distal sensory loss                  |
| Cervical disc herniation | Acute onset, localized motor deficit             |
| Osteochondrosis          | Chronic, stage-dependent, imaging correlation    |

## Clinical Relevance

Understanding the spectrum of clinical manifestations is critical for:

- Early recognition of cervical osteochondrosis;
- Determining the severity of neurological compromise;
- Planning conservative or surgical management;
- Monitoring progression and therapy response (Boos et al., 2002; Kettler & Wilke, 2006).

## Conclusion

Cervical spine osteochondrosis presents with a wide spectrum of clinical manifestations, including local and radicular pain, neurological deficits, and vascular or autonomic symptoms. Accurate recognition of stage-dependent signs, combined with imaging findings, allows for timely diagnosis, appropriate management, and prevention of severe complications. Comprehensive assessment improves patient outcomes and guides individualized therapeutic strategies.

## References

1. Andersson, G. B. J. (1999). Epidemiological features of chronic low-back pain. *The Lancet*, 354(9178), 581–585.
2. Bogduk, N. (2005). *Clinical Anatomy of the Lumbar Spine and Sacrum*. 4th edition. Elsevier.
3. Boos, N., et al. (2002). Classification of disc degeneration: a study of 600 lumbar discs. *Spine*, 27(17), 1826–1833.
4. Jensen, M. C., et al. (1994). Magnetic resonance imaging of the lumbar spine in people without back pain. *New England Journal of Medicine*, 331(2), 69–73.
5. Kettler, A., & Wilke, H. J. (2006). Review of existing grading systems for cervical and lumbar disc degeneration. *Eur Spine J*, 15, 705–718.
6. Kuorinka, I., et al. (1991). Standardized Nordic questionnaires for the analysis of musculoskeletal symptoms. *Appl Ergon*, 18, 233–237.
7. Modic, M. T., et al. (1988). Degenerative disc disease: assessment of changes in vertebral body marrow with MR imaging. *Radiology*, 166(1), 193–199.
8. Resnick, D. (2002). *Diagnosis of Bone and Joint Disorders*. 4th edition. Philadelphia: Saunders.
9. White, A. A., & Panjabi, M. M. (1990). *Clinical Biomechanics of the Spine*. 2nd edition. Lippincott.