Cervical degenerative disc disease is generally discussed in terms of cervical spondylosis, a term which is sometimes used synonymously with cervical spinal stenosis.

Spondylosis usually implies a more widespread age-related degenerative condition of the cervical spine including various combinations of the following:

1. Congenital cervical spinal stenosis (the shallow cervical canal)
2. Degeneration of the cervical intervertebral disc producing a focal stenosis due to a cervical bar which is usually a combination of:
   a. Osteophytic spurs (hard disc in neurosurgical jargon)
   b. And/or protusion of the intervertebral disc material (soft disc)
3. Hypertrophy of any of the following (which also contribute to canal stenosis):
   a. Lamina
   b. Dura
   c. Articular facets
   d. Ligaments, including
Increased stenosis in extension is more common than flexion (based on MRI studies \(^2\)) and cadaver studies), largely due to posterior inbuckling of ligamentum flavum \(^3\).

**Posterior longitudinal ligament**: may include ossification of the posterior longitudinal ligament \(^4\). May be segmental or diffuse. Often adherent to dura.

Ossification of the ligamentum flavum \(^5\) (yellow ligament).

4. Cervical **subluxation**: due to disc and facet joint degeneration.

5. Altered mobility: severely spondylotic levels may be fused and are usually stable, however there is often hypermobility at adjacent or other segments.

6. Telescoping of the spine due to loss of height of vertebral bodys. Shingling of laminae.

7. Alteration of the normal lordotic curvature \(^6\) (NB: the amount of abnormal curvature did not correlate with the degree of myelopathy)

a. reduction of lordosis including:

Straightening

Reversal of the curvature (kyphosis): may cause bowstringing of the spinal cord across ostophytes

b. exaggerated lordosis (hyperlordosis): the least common variant (may also cause bowstringing).

Although the majority of individuals > 50 yrs old have radiologic evidence of significant degenerative disease of the cervical spine, only a small percentage will experience neurologic symptoms \(^7\).

see **Cervical disc herniation**.

see **Cervical spinal stenosis**.

**Pathophysiology**

see **Cervical degenerative disc disease pathophysiology**.

**Clinical Features**

see **Cervical Degenerative Disc Disease Clinical Features**
Degenerated disc, C5-C6 with osteophytes

Outcome

see Cervical degenerative disc disease outcome.

Case series

2018

Of 145 patients with cervical spondylosis and dizziness, 116 underwent anterior cervical decompression and fusion and 29 underwent conservative treatment. All were followed up for one year. The primary outcomes were measures of the intensity and frequency of dizziness. Secondary outcomes were changes in the modified Japanese Orthopaedic Association (mJOA) score and a visual analogue scale score for neck pain.

There were significantly lower scores for the intensity and frequency of dizziness in the surgical group compared with the conservative group at different time points during the one-year follow-up period (p = 0.001). There was a significant improvement in mJOA scores in the surgical group.

This study indicates that anterior cervical surgery can relieve dizziness in patients with cervical spondylosis and that dizziness is an accompanying manifestation of cervical spondylosis.

1998

Muhle et al. determined the dynamic changes of the spinal canal during flexion and extension in patients with cervical spondylosis.

Forty-six patients were studied inside a whole-body magnetic resonance (MR) scanner with between 50 degrees of flexion and 30 degrees of extension, using a positioning device. At neutral position (0 degree) and maximum flexion and extension sagittal T2-weighted turbo spin echo sequences were acquired.

A significant (P < or = 0.05) increase of spinal stenosis was found at extension (48%, 22 of 46 patients) when compared with flexion (24%, 11 of 46). Cervical cord compression was diagnosed at flexion in 5 patients (11%) and at extension in 9 patients (20%). Concerning the number of patients with cervical cord compression at flexion and extension, significant differences (P < or = 0.05) were
found in patients with degenerative changes at four segments compared with patients with one segment involvement.

Magnetic resonance imaging identified a significant percentage of increased spinal stenosis at flexion and, especially, at extension, which was not observed at neutral position (0 degree). Flexion and extension MR imaging demonstrates additional information using a noninvasive technique concerning the dynamic factors in the pathogenesis of cervical spondylotic myelopathy.  