

Cervical Disc Herniation

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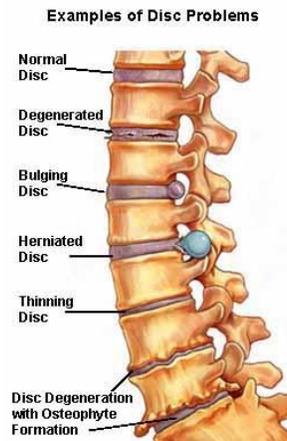
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Anatomy

- The spine is made up of a series of connected bones called **vertebrae**. Between each pair of vertebrae there is a rubbery tissue called the **disc** that acts as a cushion, or shock absorber. The disc protects the vertebral bones, allows motion, and maintains the height between the vertebrae to leave room for the nerves to exit on either side.

What is a disc herniation?

- A disc herniation occurs when the softer inner disc material ruptures, or herniates, through the outer disc wall, similar to the filling being squeezed out of a jelly donut, resulting in pressure on the spinal cord or exiting nerve roots. The terms “**disc herniation**”, “**ruptured disc**” or “**slipped disc**” all mean the same thing and may be used interchangeably.



Cervical vs. lumbar disc herniation – an important distinction!

- Although the spinal column runs from the neck all the way down to the tailbone, the spinal *cord* begins in the neck but ends about 2/3 of the way down. The lower part of the spine houses nerve roots, but no spinal cord.
- What this means is that a **cervical disc herniation may affect the spinal cord in the neck** (Figure 1), whereas a **lumbar disc herniation almost never does** (Figure 2), since there is no spinal cord below the L1-2 level.



Figure 1
Cervical disc herniation



Figure 2
Lumbar disc herniation

What symptoms are associated with a cervical disc herniation?

- It may be helpful to think of the cervical spine as having a “highway” as well as “exits” off the highway. Symptoms related to a herniated cervical disc will depend on whether the “highway” (**spinal cord**) or “exits” (**exiting nerve roots**) are being affected.
- There are 2 resultant syndromes that may occur as a result of a herniated cervical disc depending on whether the spinal cord (“highway”) or nerve roots (“exits”) are affected.

1. Cervical disc herniation with nerve root compression (“Exits” are narrowed).

Symptoms will vary from person to person but may include:

- Pain that radiates down the arm (**radiculopathy**)
- Numbness or tingling in the arm
- Arm weakness
- Neck pain or headaches
- Pain near the shoulder blade

2. Cervical disc herniation with spinal cord compression (“Highway” is narrowed).

This is termed **cervical myelopathy**. Left untreated, cervical myelopathy may result in **permanent injury** to the spinal cord and, thus, often requires a more aggressive treatment plan. Symptoms of spinal cord compression may include all of the above as well as:

- Awkward or stumbling gait
- Difficulty with fine motor skills in the hands
- Tingling or "shock" type feelings down the back or into the legs

What causes a cervical disc herniation?

- Cervical disc herniation most often results from general, age-related “**wear and tear**” of the spine. Genetics, **smoking**, and a number of occupational activities also lead to accelerated disc degeneration as well.
- Occasionally, an injury, such as a fall or a motor vehicle accident, may result in acute injury to the disc. Subsequently, pain and other symptoms can develop when the damaged disc pushes into the spinal canal or nerve roots.

How is a cervical disc herniation diagnosed?

- **The symptoms of a cervical herniated disc often resembles other disorders**, such as carpal tunnel syndrome or problems with the rotator cuff, so confirming the diagnosis is of paramount importance prior to formulating a treatment plan.
- The first step in diagnosis is always to take a complete history and administer a thorough physical examination. Most commonly, an **MRI** is ordered which readily identifies the presence and extent of any cervical disc problems. Additional studies, such as an **EMG/Nerve conduction study (NCS)**, may be considered if there is suspicion of a pinched nerve at the elbow, wrist, or elsewhere which may mimic the symptoms of a cervical disc herniation.

What are the treatment options?

1. Nonsurgical Treatment

For isolated neck pain or problems at the level of the nerve root (radiculopathy) **80 - 90% will resolve without surgery**. Typical non-surgical modalities may include:

- Physical therapy
- Medrol dose pack - Steroids pills to reduce the swelling and inflammation
- NSAIDs (Non-steroidal anti-inflammatory drugs)
- Analgesics (pain medications)
- Steroid injections
- Cervical collar for a short period of immobilization

2. Surgical treatment

- When symptoms progress or do not resolve with conservative treatment, surgery may be recommended. Surgery is also typically recommended in cases of spinal cord compression with associated symptoms.
- Factors such as patient age, how long the problem has persisted, other medical problems, previous neck operations, and expected outcome are considered in planning surgery.
- Indications for surgical treatment may include:
 1. Evidence of spinal cord compression
 2. Persistent symptoms following a period of non-surgical management
 3. Severe pain and disability
 4. Progressive or persistent weakness or numbness
- In experienced hands, surgery for a cervical disc herniation is very reliable and has a high rate of success (**greater than 90% in resolving arm pain**).
- The most common approach for cervical disc surgery is **anterior** (from the front of the neck) and typically involves one of the following:
 - Anterior cervical discectomy and fusion (ACDF)
 - Cervical disc replacement
 - Cervical corpectomy