

SPONDYLOSIS

Presented by Odalonu Emmanuel. I

SPONDYLOSIS

A general term for age-related wear and tear of the spinal discs.

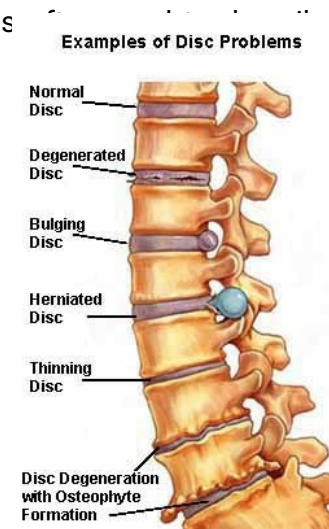
Spondylosis is common and worsens with age. This condition is degenerative arthritis (osteoarthritis) of the spine.

Spondylosis may be applied nonspecifically to any and all degenerative conditions affecting the disks, vertebral bodies, and/or associated joints of the lumbar spine[1].

- Low back pain (LBP) affects approximately 60–85% of adults during some point in their lives.

Definition/Description

- Not a clinical diagnosis but instead a descriptive term utilized to designate spinal problems.
- Encompasses numerous associated pathologies including spinal stenosis, degenerative spondylolisthesis, osteoarthritis, ageing, trauma and just the daily use of the intervertebral discs, the vertebrae, and the associated joints.[2]
- The lumbar region the most affected, because of the exposure to mechanical stress.



LUMBAR SPONDYLOSIS

Definition/Description

Lumbar spondylosis is a complicated diagnosis.

- Degenerative changes can be seen on radiographs but are common in all ages, making diagnosis challenging.
- 85.5% of individuals aged 45–64 years show lumbar spine osteophytes.[1]
- Even without trauma, young individuals may show degenerative changes.[1]
- 10% of women aged 20–29 display disk degeneration.[1]
- Despite being common in those over 40, lumbar spondylosis appears in 3% of 20–29

year-olds.[1]

- High rates of asymptomatic degeneration in the young complicates causality in pain diagnosis.[1]

Clinically Relevant Anatomy

Spondylosis (degeneration of the lumbar spine)

- Generally initiates from the intervertebral disc which cause progressive biochemical and structural changes to take place, leading to a modification in the physical properties of elasticity and mechanical resistance.
- Disc lesions cause pathological changes in the vertebral bodies, where osteophytes appear,
- Most osteophytes are anterior or lateral in projection. Posterior vertebral osteophytes are less common and only rarely impinge upon the spinal cord or nerve roots.[3][4]



Lumbar Anatomy

The lower back (where most back pain occurs) includes the five vertebrae in the lumbar region and supports much of the weight of the upper body. The spaces between the vertebrae are maintained by intervertebral discs that act like shock absorbers throughout the spinal column to cushion the bones as the body moves. Ligaments hold the vertebrae in place, and tendons attach the muscles to the spinal column. Thirty-one pairs of nerves are rooted to the spinal cord and they control body movements and transmit signals from the body to the brain.

- The spine extends from the skull to the coccyx and includes the cervical, thoracic, lumbar, and sacral regions. The lumbar spine consists of 5 moveable vertebrae (numbered L1-L5). The lumbar vertebrae, as a group, produce a lordotic curve[1]
- The intervertebral discs are responsible for the mobility without sacrificing the supportive strength of the vertebral column. The intervertebral discs, along with the laminae, pedicles and articular processes of adjacent vertebrae, create a space through which spinal nerves exit.
- The complex anatomy of the lumbar region is a remarkable combination of these strong vertebrae (with their multiple bony elements) linked by joint capsules, and flexible ligaments/tendons, large muscles, and highly sensitive nerves. It also has a complicated innervation and vascular supply.

Characteristics/Clinical Presentation

Patients with lumbar spondylosis have pain in the axial spine.

- The location of these degenerate changes is not surprising as nociceptive pain generators that were identified within facet joints, intervertebral disks, sacroiliac joints, nerve root dura and myofascial structures.

These changes may peak in different clinical presentations such as

- Spinal stenosis
- Disk herniation
- Bulging of the ligamentum flavum
- Spondylolisthesis
- Lumbar Radiculopathy



All the above result in a constellation of pain symptoms encompassed in the term neurogenic claudication (NC).

- It may include (to varying extents) lower back pain, leg pain, as well as numbness and motor weakness to lower extremities that worsen with upright stance and walking, and improve with sitting and supine positioning[1]

Clinical presentations of radiculopathy may emanate from spondylosis, all of which can be explained by the degenerative process. eg Hypertrophic changes to the superior articular process may intrude upon nerve roots within the upper nerve root canal, dural sac, or prior to exiting from next lower intervertebral canal, depending on their projection[1]

Causes

The main cause of degeneration of the spine is the natural aging process. As we age, the bones of the spine suffer wear and tear, so spondylosis is much more common after the age of 50 to 60.

This wear and tear from aging tends to especially impact the intervertebral discs, which are located between the vertebrae and act as shock absorbers, providing flexibility to carry out movements such as walking, running or jumping, among others.

In addition to age, there are also other possible causes related to habits and lifestyle that can

favor the appearance of spondylosis:

- Poor postural hygiene
- Excess weight or obesity
- Sedentary lifestyle
- Excessive high impact exercise

It is also true that certain genetic abnormalities can be a risk factor in the development of spondylosis.

Symptoms

The most notable symptom of lumbar spondylosis is pain. This can occur in a localized way, in the lumbar area, or radiate to the lower extremities. If the pain is radiating, it is most likely because there is compression of a nerve.

Low back pain, leg pain and/or other signs of nerve compression are the most common symptoms. Pain or tingling symptoms that extend outward to the hip or down the leg can result from compression or inflammation of nerves, a condition referred to as lumbar radiculopathy. For example, a person may have pain in their knee and think it is injured, but later learn that this pain is caused by spondylosis that is compressing a nerve which extends down to the knee. Irritation of the sciatic nerve in particular, is quite common, and is commonly known as sciatica.

Treatment

Because back pain is an unrelated finding of lumbar spondylosis, seek the real cause of the patient's back or sciatica-type symptoms. [4] Do not assume that the patient's symptoms are related to osteophytosis. Look for an actual cause of a patient's symptoms. If actual symptomatic nerve root impingement occurs, 2 days of absolute bed rest is indicated. If that does not solve the problem, then surgical excision is indicated. Medication is not indicated in the absence of complications.

Surgery is indicated only for complications (eg, for impingement-documented sciatica that is unresponsive to 2 days of absolute bed rest) of lumbar spondylosis. Surgery is not indicated if no complications (eg, impingement) of lumbar spondylosis are present.

NURSING ASSESSMENT, INTERVENTION, AND MONITORING

Preoperative

- Surgical procedure

- Informed consent (obtained by surgeon)
- Expected outcomes (postoperative and long term)
- Required preoperative testing
- Discontinuation of medications (e.g., herbal products, NSAIDs, anticoagulants, aspirin, warfarin, clopidogrel bisulfate)

Perioperative

- Explain to patient where and when to arrive as well as surgery time.
- Instruct patient on eating and drinking restrictions.
- Instruct patient on medications to be taken the morning of the surgery with a sip of water.
- Remind patient to wear comfortable clothing and to leave jewelry and valuables at home.
- Remind patient to remove dentures, partial plates, eyeglasses, contact lenses, nail polish, and sculptured nails.

Intraoperative

- Plan for equipment needs
- Potential 3-D stereotactic guidance system
- Specialty table
- May need fluoroscope in room

Postoperative

1. Neurological assessment

- Strength and sensation assessment as compared with preoperative status
- Special attention to the neurological assessment and correlation to the operative intervention
- Patients with diabetes and obesity are at higher risk of postoperative complications, particularly wound infection. Measures to maintain glycemic control and deep vein

thrombosis prophylaxis is particularly important in patients with these risk factors.

2. Mobility

- Patient should mobilize quickly unless ordered differently due to complication (e.g., CSF leak).
- Instruct and help patient to roll to side and bring legs down while simultaneously rising from the bed with the torso. This minimizes twisting at the waist.
- Instruct and help patient to rise from a chair using the legs rather than the back.

3. Bracing

- The decision whether to brace and the type of brace used to use varies widely.
- The decision is dependent on the surgery performed, bone quality, and physician preference.
- If braces are ordered, patient should be given specific guidelines regarding use.

4. Pain Control

- ☒ Methods to reduce postoperative pain vary according to clinical practice preferences. Patient-controlled analgesia (PCA) and patient-controlled epidural analgesia (PCEA) provide good overall patient satisfaction. The only clinical advantage of PCEA over PCA for spine fusion patients was the lower quantity of opioids consumed, although the PCEA group experienced significantly more side effects than the PCA group did. There were no other significant differences. Therefore, the patient or physician can select either postoperative pain management delivery system.

Reference: https://www.physio-pedia.com/Lumbar_Spondylosis