

## Module 5: Lumbar Degeneration

### Case presentation: *Lumbar degeneration assessment*

Participants should discuss the clinical assessment of patients presenting with back pain with or without features of neurological compromise, the indications for imaging and other investigations and the natural history of acute and chronic degenerate back pain in the absence of neurological compromise or demonstrable instability.

### Lecture: *Clinical and x-ray assessment of degenerative back pain*

Cover the clinical and radiographic assessment of patients presenting with degenerative conditions of the lumbar spine.

Also cover the clinical features of instability or neural compromise and the identification of “red flags”, the influence of confounding factors such as compensation, depression, and other comorbidities such as diabetes and obesity. Consider the use of injections and other investigations, such as EMG, to confirm the origin and nature of symptoms.

Discuss the use of nonoperative interventions, physical therapy and core stabilization, and the identification of features indicating more significant pathology, especially instability and neural compromise.

### Learning outcomes

- Obtain a relevant history and perform a screening clinical examination for lumbar degenerative disease
- Outline the role and interpretation of investigations used to assess degenerative conditions of the lumbar spine
- Exclude or differentiate symptoms related to lumbar degeneration from other nonspinal pathology (hip, SI joint, knee, etc)
- Initiate appropriate nonoperative interventions in the management of symptoms related to lumbar degeneration

### Lecture: *Natural history of lumbar degenerative disease—indications for surgery and outcomes*

Address the incidence, economic impact and the natural history of acute and chronic back pain in the absence of neurological compromise or instability.

Discuss the evidence regarding the indications for and outcomes of surgical treatment of degenerative disease of the lumbar spine in the absence of instability or neural compromise.

Review relevant literature regarding the outcome of motion preserving and lumbar fusion surgery in the treatment of this condition. This should include the evidence regarding the use of interspinous spacers, “dynamic” stabilization, disc replacement, and fusion, both anterior and posterior.

Also discuss the role of investigations such as discography and facet injections in the assessment of these patients, features of psychological disturbance, and principles of management of chronic pain.

### **Learning outcomes**

- Describe the natural history of lumbar degenerative disease
- Identify indicators for consideration of surgical intervention
- Outline the evidence regarding the surgical treatment of degenerative disease of the lumbar spine in the absence of instability or neural compromise
- Identify patients with significant psychological issues
- Recognize the importance of a multidisciplinary approach to the management of chronic pain

### **Case presentation: *Lumbar radiculopathy***

Participants should discuss the clinical assessment of patients presenting with sciatica due to focal nerve root compression. They should discuss the natural history, nonoperative treatments and injections, and appropriate investigations.

### **Lecture: *Natural history, nonoperative, and operative treatment of lumbar radiculopathy***

Outline the natural history of patients presenting with sciatica, the appropriate timing and nature of radiographic investigation, medical management, and the use of injections such as epidural steroid injections.

Also cover “red flags” such as evidence of cauda equina compromise or neural compression due to malignant disease and then the evidence-based indications for surgical intervention. Also address etiology related to foraminal compromise but the focus of this presentation should be in relation to the management of acute disc herniation.

Participants should also have an understanding of the surgical treatment of this condition, the surgical approach, outcomes, and common complications.

### **Learning outcomes**

- Describe the natural history of sciatica due to disc herniation
- Request and interpret appropriate radiographic investigations
- Outline the evidence regarding the surgical treatment of disc herniation and relevant complications (recurrence, back pain, discitis)
- Outline the appropriate surgical management of these patients, including timing and type of surgery

### **Case presentation: *Lumbar spinal canal stenosis***

Participants should discuss the clinical assessment of patients presenting with symptoms of canal stenosis. Cover the differentiation of spinal stenosis and vascular claudication, facet arthritis and degeneration, diabetes, and SI joint, hip, and knee pain.

**Lecture: *Clinical and radiographic assessment of lumbar spinal canal stenosis***

Outline the typical history of patients presenting with spinal claudication or radicular symptoms due to spinal canal stenosis.

Outline the key differentiating clinical features of canal stenosis compared with degenerative back pain, vascular claudication, and hip and knee arthritis.

Discuss the type and timing of appropriate investigations and diagnostic tests and treatments, such as epidural injections. Discuss the indications and techniques used to decompress the canal surgically. Focus discussion on decompression (laminectomy) alone as the issue regarding the indications will be covered in the lecture "Indications for fusion in patients undergoing surgical treatment for lumbar canal stenosis".

**Learning outcomes**

- Describe the natural history of lumbar spinal canal stenosis
- Request and interpret appropriate radiographic investigations
- Discuss the evidence regarding the surgical treatment of lumbar canal stenosis in the absence of instability by decompression alone
- Outline the appropriate surgical management of these patients, including timing and type of surgery
- Identify and manage common complications such as dural tear, epidural hematoma, iatrogenic instability, and aggravation of degenerative back pain

**Case presentation: *Lumbar degenerative spondylolisthesis***

Participants should discuss the clinical assessment of patients presenting with symptoms of canal stenosis in association with mechanical instability.

Here the focus should be on being able to identify factors indicating clinical and radiographic features of instability of the spine and the need for fusion/stabilization in association with decompression.

**Lecture: *Lumbar degenerative spondylolisthesis indications for fusion***

The focus of this lecture should be the identification of features of instability or other pathology that indicates the need for stabilization/fusion in association with decompression in patients presenting with lumbar canal stenosis.

Features such as gas or fluid in the facet joints, the orientation of the facet joints, the presence of a degenerative spondylolisthesis with evidence of instability or a significant risk of this developing postoperatively should be covered.

The evidence regarding the indications for fusion in these patients must be addressed.

The use of interspinous spacers and the evidence regarding their use in these patients should also be covered.

Also consider indications for DVT prophylaxis in patients undergoing spinal surgery.

### **Learning outcomes**

- Identify the clinical and radiographic features of instability in patients presenting with lumbar spinal canal stenosis
- Discuss the evidence in relation to this treatment
- Outline the surgical techniques appropriate to manage this condition
- Identify and manage common complications relating to the management of this condition

### **Case presentation: *Lumbar spondylolisthesis***

Participants should discuss the clinical assessment of patients presenting with symptoms of spondylolisthesis. They should discuss the incidence, natural history, nonoperative treatments and injections, appropriate investigations, and the evidence-based indications for surgical intervention.

### **Lecture: *Natural history and indications for surgery–lytic spondylolisthesis***

Discuss the classification of spondylolisthesis, the incidence and natural history of lytic spondylolisthesis, and the indications for surgical intervention.

Outline the indications for surgical intervention and the objectives of treatment, decompression of neural elements, stabilization of the spine and the achievement of a solid fusion, and the maintenance or restoration of normal sagittal balance.

The focus of the discussion should be related to low-grade (Grade I and II) spondylolisthesis, but should also present treatment options for high-grade slips and the principles of treatment.

### **Learning outcomes**

- Identify the clinical and radiographic features of a lytic spondylolisthesis
- Discuss the evidence in relation to the surgical treatment of this condition
- Describe the surgical techniques appropriate to manage low-grade spondylolisthesis
- Outline the treatment options for high-grade spondylolisthesis
- Identify and manage common complications relating to the management of this condition