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## Lumbosacral Facet Syndrome

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## Introduction

Low back pain is one of the most common musculoskeletal complaints encountered in clinical practice. It is the leading cause of disability in the developed world and accounts for billions of dollars in healthcare costs annually. Although epidemiological studies vary, the incidence of low back pain is estimated to be 5% to 10% with a lifetime prevalence of 60% to 90%. Most occurrences of low back pain are self-limited and will resolve without intervention beyond brief periods of rest, activity modification, and physical therapy. Approximately 50% of cases will resolve within 1 to 2 weeks. Ninety percent of cases will resolve in 6 to 12 weeks.

Lumbosacral facet syndrome refers to a clinical condition consisting of various patient-reported symptoms, including mechanical back pain, radicular symptoms, and neurogenic claudication, secondary to either acute or subacute trauma, or secondary to the degenerative cascade affecting the posterior spinal elements. The facet joint degenerates secondary to repetitive overuse and everyday activities that can eventually lead to microinstability and synovial facet cysts that generate and compress the surrounding nerve roots.

## Etiology

Lumbosacral facet syndrome can occur secondary to repetitive overuse and microtrauma, spinal strains and torsional forces, poor body mechanics, obesity, and intervertebral disk degeneration over the years. This notion is supported by the strong association between the incidence of facet arthropathy and increasing age.

In some instances, an inciting event such as trauma or whiplash injury can be identified, although trauma patients tend to develop cervical facet arthropathy more commonly than lumbosacral facet syndrome. The role of trauma remains controversial in the literature. The irritation of the degenerative zygapophyseal joint over time leads to inflammation, which is perceived as low back pain.

## Epidemiology

Low back pain is the second greatest cause of absenteeism behind upper respiratory tract infections in the workplace. Approximately 25 million people miss 1 or more days of work due to low back pain, and more than five million are disabled from it. Patients with chronic back pain account for 80% to 90% of all healthcare expenditures. The cited prevalence of lumbosacral facet arthropathy is highly variable in the literature and has been listed as ranging from 5% to greater than 90%. Many of the studies investigating the prevalence of facetogenic pain used a combination of history, physical exam, and radiologic imaging which has been shown to be relatively unreliable in establishing a diagnosis. This likely accounts for the wide range seen in estimated prevalence. A trend that has been consistent throughout studies, however, is that the prevalence of lumbosacral facet syndrome tends to increase with age. A 2004 study by Manchikanti et al. found that of 397 patients screened, 198 (50%) obtained an initial positive response to medial branch block with lidocaine. Of those patients, 124 patients (31%) reported "definite pain relief" when they received treatment with a repeat medial branch block using bupivacaine.

## Pathophysiology

The spine consists of seven cervical, 12 thoracic vertebrae, five lumbar, five sacral, and four coccygeal bones. The lumbar facets are composed of the inferior articular process of the vertebra above and the superior articular process of the vertebra below. The zygapophyseal joints serve to stabilize the spine and prevent injury by limiting the spinal range of motion. The facet joints are true synovial joints. The articular surface is contained in a cartilaginous sheath over an encapsulated fibrous capsule. Like other cartilaginous joints, the lumbar facets are prone to degradation over time and can cause chronic low back pain when irritated. The sensory innervation of the facet is supplied by the medial branch of the posterior rami of the spinal nerve at the level of, and the level above, the facet joint. For example, The L3-L4 medial branch receives innervation from the L2 and L3 medial branch nerves. Noxious stimulation of the medial branches is caused by degenerative changes in the facet joint, which results in facet pain and lumbosacral facet syndrome.

## History and Physical

Low back pain and other degenerative spinal conditions can present with varying degrees of pain, disability, radiculopathy, and neurologic deficits that the clinical picture can be ambiguous for even skilled clinical practitioners.

In the majority of presentations, facetogenic lumbosacral pain often presents secondary to chronic pain alone. An exception to this theme can be seen in the setting of rather large synovial cysts causing direct mechanical compression and creating ensuing inflammation to further irritate the surrounding nerve roots.

Historically, lumbosacral facet loading during a physical exam has been used to diagnose facetogenic pain. This maneuver is performed by having the patient extend and rotate the spine. This serves to increase pressure on the facet joints thus eliciting a pain response. However, studies have shown that facet loading is unreliable in diagnosing facetogenic pain. Additionally, paraspinal muscle tenderness has been shown to be weakly associated with facetogenic pain, although this finding is considered to be non-specific.

## Evaluation

Physical examination can be useful in ruling out other causes of chronic low back pain; however, studies have shown that physical exam is relatively nonspecific. Degenerative changes in the facet joints can be visualized in radiologic studies. In patients with chronic low back pain, degenerative changes on CT scan are cited to range from 40% to 85%. Studies have shown MRI to be more than 90% sensitive and specific in visualizing facet degeneration. Due to the poor correlation between history, physical exam, and lumbosacral facet syndrome, diagnostic blocks are considered to be the mainstay in establishing a diagnosis. Of note, false positive results have been documented to be as high as 25% to 40% in the lumbar spine. Because of this, it is recommended that two diagnostic medial branch blocks are performed to confirm a diagnosis. A positive response is considered to be greater than 80% pain relief post-procedure.

## Treatment / Management

Treatment for lumbosacral facet syndrome usually includes a multidisciplinary approach. If the diagnosis is uncertain, consideration is given to performing diagnostic medial branch blocks.

### Nonoperative Treatment

Nonoperative management includes oral medications such as NSAIDs, acetaminophen, and oral steroids during acute flares. Additionally, weight loss and physical therapy have demonstrated successful outcomes.

More invasive nonoperative modalities that can be considered include a CT-guided aspiration. The literature is controversial with respect to the overall effectiveness of this modality. Patients should also be counseled regarding the risk of facet cyst recurrence and return of symptoms even after the aspiration is performed.

### Surgical Treatment

- Indications for surgical intervention include:
  - Symptoms refractory to nonoperative modalities (e.g. 3 to 6 month trial)
  - Large associated synovial facet cyst correlating with clinical exam and presentation
    - Laminectomy with decompression is the classic first line treatment for symptomatic, intraspinal synovial cysts
    - The literature also supports the utilization of facetectomy, decompression, and instrumented fusion (as opposed to a simple "lami decompression")

### Minimally invasive techniques

Other management modalities include facet injections, radiofrequency denervation of the medial branch nerves.

### Pearls and Other Issues

Complications of facet interventions are rare. However, cases of spinal anesthesia, dural puncture with associated headache, and transient numbness and dysesthesias have all been described in the literature. Overall, lumbosacral facet syndrome is recognized as a relatively common cause of low back pain. The prevalence increases with age, and treatment is typically conservative. For refractory cases, intra-articular steroid injections and diagnostic medial branch block followed by radiofrequency ablation are commonly used. For refractory cases, surgical intervention may be considered.

### Questions

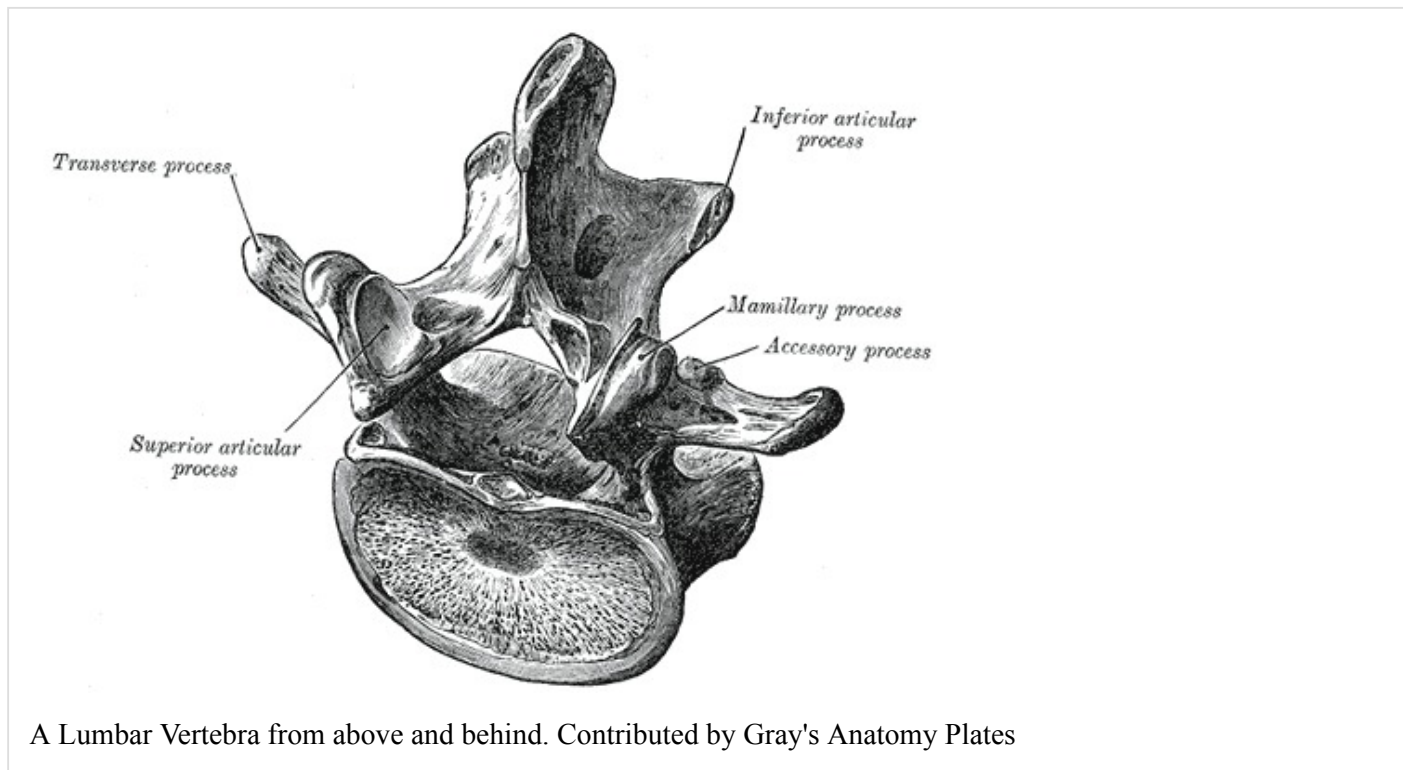
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## Figures



A Lumbar Vertebra from above and behind. Contributed by Gray's Anatomy Plates

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