



# Lumbar Spinal Stenosis: Does the Picture Match the Clinical Findings?

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## Lumbar Spinal Stenosis (LSS) - Definition (the Picture)

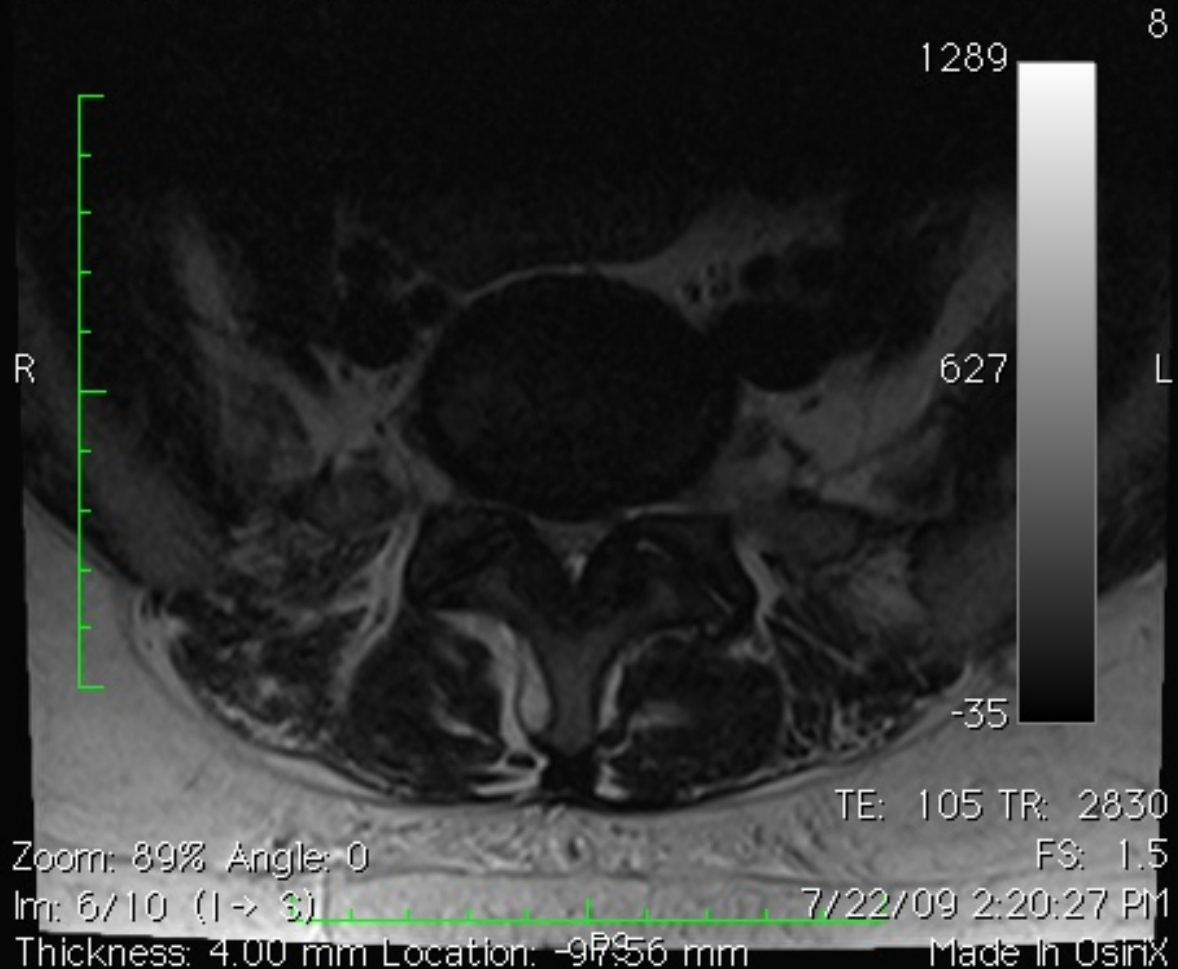
- Narrowing of the lumbar spinal canal
- Entrapment and compression of intraspinal vascular and nervous structures
- Relative (canal diameter 10-12 mm)\*
- Absolute (canal diameter <10 mm)\*
- Congenital (U.S. prevalence 4.71% relative and 2.62% absolute)\*\*
- Acquired (U.S. prevalence 22.5% relative and 8.4% absolute)\*\*
- 60-69 y/o: relative+absolute acquired LSS prevalence is 47.2% and 19.4%, respectively\*\*

\*Verbiest H. Pathomorphologic aspects of developmental lumbar stenosis. Orthop Clin North Am 1975.

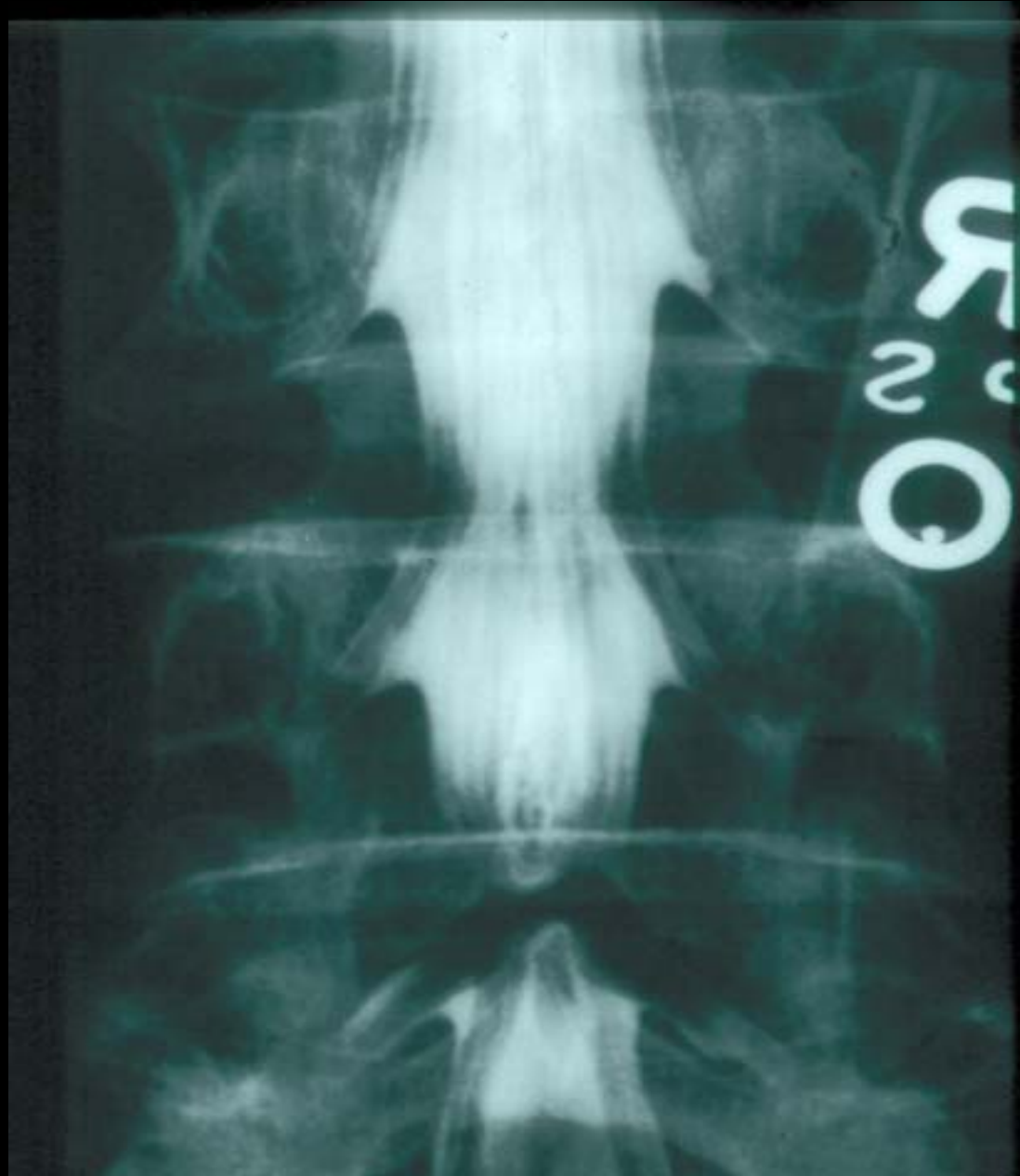
\*\*Kalichman L. Spinal Stenosis Prevalence and Association with Symptoms: the Framingham Study. The Spine Journal 2009.

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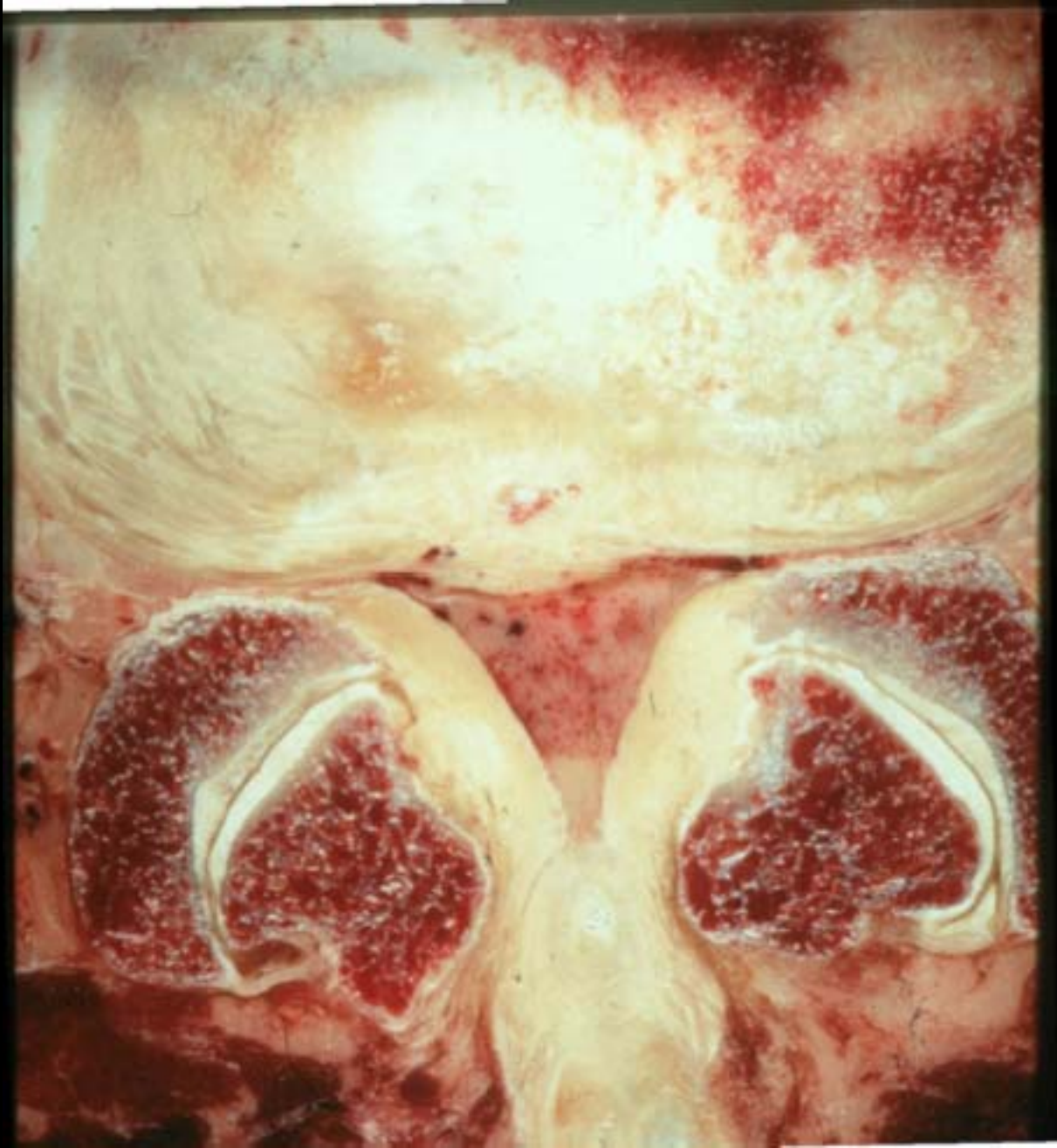
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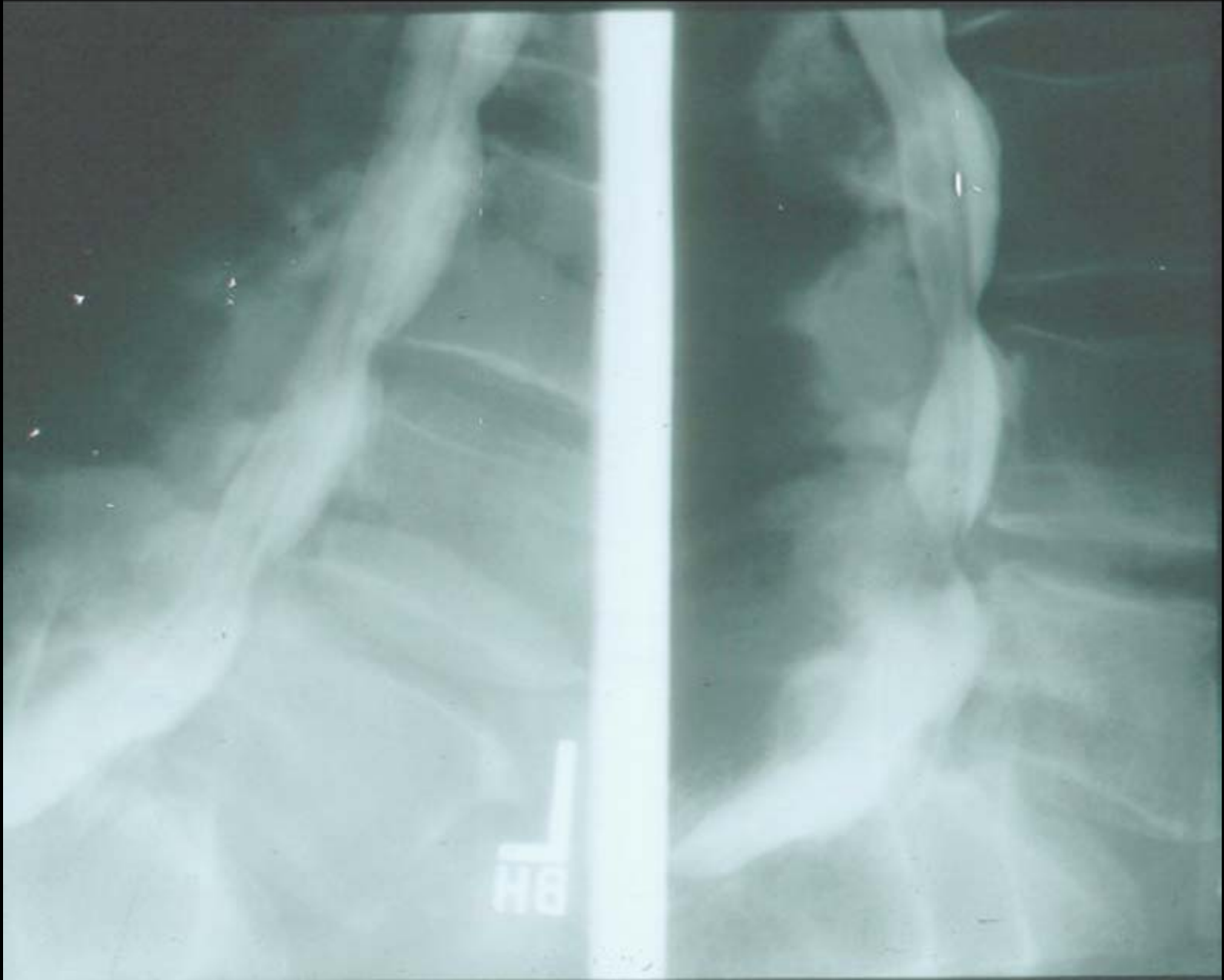
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# **Lumbar Spinal Stenosis (LSS) - Symptoms (the Clinical Findings)**

- Pain in the back and leg(s)
- Claudication caused by compression and ischemia of nerve roots

# Picture vs Symptoms

## Jonsson (1993). Symptoms and Signs in Degeneration of the Lumbar Spine. JBJS (Br.)

- Signs v. symptoms in disc herniation, lateral spinal stenosis, central spinal stenosis
- Lateral stenosis and disc herniation: pain at rest, at night, on coughing equally
- Positive SLR: more common in disc herniation than lateral stenosis, uncommon in central stenosis.
- Motor changes: most often in central stenosis
- Sensory changes: most common in disc herniation

## Picture vs Symptoms

### **Herno (1994). The Predictive Value of Preoperative Myelography in Lumbar Spinal Stenosis. Spine**

- The severity of myelographic findings (pre-operative myelography) is significantly related to the outcome of surgical decompression for lumbar spinal stenosis
- A-P diameter of spinal canal on lateral myelogram films < 12 mm.

# Picture vs Symptoms

## **Amundsen (1995). Lumbar Spinal Stenosis: Clinical and Radiologic Features. Spine, point of view.**

- Evaluation and relationship of clinical and radiologic characteristics of symptomatic LSS (100 patients).
- The radiologic changes more extensive than the clinical picture would suggest
- The degree of narrowing did not correspond to the degree of clinical affliction

# Picture vs Symptoms

## **Jonsson (1997). A Prospective and Consecutive Study of Surgically-Treated Lumbar Spinal Stenosis, Part I: Clinical Features Related to Radiographic Findings. Spine**

- Symptoms v. signs in central canal stenosis (surgical patients)
- Pain more intense and positive SLR more common in the young
- Reflex disturbances more common in the elderly
- The vertebral site for most severe LSS was higher with higher age
- Preoperative duration did not affect the severity of signs or symptoms
- More severe LSS meant a more severe reduction of walking ability
- No correlation between symptoms and radiographically-detected constriction

# Picture vs Symptoms

## Amundsen (2000). Lumbar Spinal Stenosis: Conservative or Surgical Management?

- Patients with sciatica, radiologic stenosis and nerve root compression, and no previous back surgery
- Mild symptoms - conservative care
- Severe symptoms - surgery
- The rest (best treatment not clear) - randomized to surgery or conservative care
- Conservative care reasonable for mild symptoms, less successful for severe symptoms
- Outcomes better with surgery than conservative care
- Good results from surgery are still obtained after conservative care.
- Surgery better in severe symptoms

# Picture vs Symptoms

## **Watters (2008). Degenerative Lumbar Spinal Stenosis: an Evidence-Based Clinical Guideline for Diagnosis and Treatment. The Spine Journal**

- LSS: clinical syndrome of buttock and or lower extremity pain, with or without back pain, associated with diminished space available for the neural and vascular intraspinal elements.
- Provocative features for symptoms: exercise, positionally-induced neurogenic claudication
- Palliative features: forward flexion, sitting, recumbency

# Picture vs Symptoms

## **Watters (2008). Degenerative Lumbar Spinal Stenosis: an Evidence-Based Clinical Guideline for Diagnosis and Treatment. The Spine Journal**

- Natural history (mild to moderate degenerative LSS) is favorable in one third to one half of patients. Rapid, catastrophic neurological decline is rare.
- Natural history (clinically or radiologically severe LSS) - insufficient information in literature
- No correlation between clinical findings and the degree of radiologic stenosis

# Picture vs Symptoms

## Personal Experience

- No direct correlation between the radiologic degree of spinal stenosis and the magnitude of patient's symptoms.
- Degenerative lumbar spinal canal stenosis is a slow process and therefore the size of the spinal canal is important, because it allows for neural plasticity
- Congenital narrow canals (short pedicle syndrome, etc.) contribute to a more rapid onset of symptoms in lumbar central stenosis

# Picture vs Symptoms

## Personal Experience

- For most patients, it takes a long time for central canal stenosis to become symptomatic.
- Even then, careful attention should be paid to other potential diagnoses (lumbar facet syndrome, vascular claudication, etc)
- The special case of L1/2

# Lumbar Z-Joint Syndrome

85 year old male.

Dominant complaint: low back pain, radiating to buttocks and hips, right more than left.

It wakes him up at night, and he turns from side to side, which makes his pain worse.

Pain aggravated by weight bearing, walking, bending to pick up something.

Alleviated by sitting on heating pad.

Shuffled gait, cane in left arm

Forward flexion limited to 60 degrees, pain center/right lumbosacral area at end ROM.

Extension limited with guarding and pain, especially right lumbosacral area.

Extension/rotation left and right create ipsilateral lumbosacral and buttock pain.

Normal neurological exam.

QuickTime™ and a  
decompressor  
are needed to see this picture.

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# The Special Case of L1/2

