

QUESTIONS & ANSWERS

A CASE OF RADIATING LOW BACK PAIN

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THE CASE

Mrs. FS, 50 year-old, presented to the Emergency Department (ED) with sudden low back pain. The pain radiates to the right hip and the posterior aspect of the right knee. The pain was rated as 10/10 by the patient and described to be pricking in nature. The pain is increased by standing and relieved by rest. In the ED she was given an injection that relieved her pain for a couple of hours. The next day she presented again with the same pain.

There is no history of trauma. No urinary incontinence. No fever or weight loss.

She works as a nurse in the operating room.

Her past medical history is positive for 6-year history of stiffness in the back when she stands from a sitting position. The stiffness lasts from 1 to 5 minutes.

There is no similar family history.

Exam of hips and knees revealed full range of motion with no pain.

The straight leg raise was positive at 45 degrees.

The right knee and right ankle reflexes were +2.

Lumbar spine X-rays were requested (Figure 1).

The most likely diagnosis is :

- A. Referred pain from the hip
- B. Bulging of L4 disc
- C. Spondylolysis of L4
- D. Spinal stenosis
- E. Spondylolysis and spondylolisthesis of L5



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DISCUSSION

The clinical picture is typical of disc disease. The X-rays reveal spondylolysis of L5 with secondary grade I spondylolisthesis of L5 over S1. Spondylolisthesis is the forward translation of one vertebra relative to another. Spondylolisthesis is classified into : congenital, isthmic, degenerative, traumatic. Isthmic spondylolisthesis, or spondylolisthesis due to a lesion of the pars interarticularis (spondylolysis), is the most common type of spondylolisthesis and is found in 4-8% of general population [1]. While spondylolysis is twice as common in males, females are more likely to have a progressive slip [2].

Adults with isthmic spondylolisthesis usually present with back and lower extremity pain as their main complaints. The back pain is mechanical that is exacerbated by activity and relieved by rest. Leg pain has been reported in 50% to 100% of adults having operative intervention for isthmic spondylolisthesis. The back pain usually radiates to posterior thigh or buttock. Hamstring tightness can be associated with positive straight leg raise even in the absence of sciatica as in our patient. Objective evidence of neurologic deficit, however, is seen less frequently than subjective leg complaints, typically afflicting L5 nerve distribution [3].

Most of the patients who present with low back pain are self limiting and respond to conservative therapy. In the absence of red flags, imaging studies are rarely needed [4].

Due to her severe pain, X-ray of the back was requested. The lateral view is especially useful for detecting spondylolisthesis. The pars defect may or may not be visualized on the lateral view, and bilateral oblique views may be obtained to visualize the pars defect, which has the appearance of a Scottie dog with a collar (Figure 2). The degree of slippage is measured as the percentage of distance the anteriorly translated vertebral body has moved forward relative to the superior end plate of the vertebra below :

- Grade 1 : 1-25% slippage
- Grade 2 : 26-50% slippage
- Grade 3 : 51-75% slippage
- Grade 4 : 76-100% slippage
- Grade 5 : Greater than 100% slippage

In patients with isthmic spondylolisthesis, non-operative treatment is successful in the majority of cases. In those with symptoms refractory to conservative therapies, surgical intervention can be successful in alleviating symptoms [5]. The patient was admitted for pain control. Conservative measures (intravenous non steroidal inflammatory medication, and later on steroid epidural injection) failed to control her severe pain.

Spondylolysis and spondylolisthesis are seen with equal frequency in both asymptomatic people and symptomatic people [6], and the degree of forward slippage is in no way correlated with the degree of patient pain or disability. Therefore, magnetic resonance imaging (MRI) of the back was requested to look for spine



Figure 2

pathology other than spondylolisthesis. MRI revealed right foraminal annular tear at L5-S1 with disc protrusion abutting the L5 nerve. Careful correlation of the clinical picture with neuroimaging data help in revealing the structural abnormalities and will assist in the surgery-related decision-making process. Eventually she was operated on because of spinal instability and the intractable pain.

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