A 47-YEAR-OLD WOMAN WAS REFERRED to physical therapy with a diagnosis of lumbar radiculopathy. She reported a 2-year history of persistent left lumbosacral and lower extremity pain with no prior injury or intervention. Standing greater than 5 minutes and walking greater than 4 blocks were painful. She had some lower extremity pain relief with flexion in sitting. Weight-bearing flexion/extension radiographs showed no change in a 13-mm (at L5-S1) spondylolisthesis measured with a neutral posture (FIGURE 1). Physical therapy with a focus on flexion-biased stabilization exercises was initiated. After failing to improve after 6 weeks, her referring physician ordered magnetic resonance imaging, which revealed a 6-mm spondylolisthesis in a supine position.

To assist in our clinical decision making, the physical therapist performed an anterior stability test of L5 on S1,1,2 with the patient positioned in sidelying with the hips flexed at 70° and 90° (FIGURE 2) under C-arm fluoroscopy. The test demonstrated a palpable shift of S1 posteriorly that was measured on imaging as a change from a 13-mm to a 17-mm spondylolisthesis (FIGURE 3).

The physical therapist continued stabilization treatment based on clinical findings. After 4 weeks, the standing left leg pain improved, but symptoms of gastrocnemius weakness, dorsal and lateral foot numbness, diminished Achilles reflex, and decreased ambulation tolerance continued. The patient subsequently had an L5-S1 surgical fusion, with resolution of lower extremity complaints after 6 to 8 weeks.

Although controversial, flexion/extension radiographs are the standard for diagnosing instability.3 The patient may not be willing or able to move to end range due to pain or muscle guarding. In this case, the anterior stability test was a valuable manual assessment test confirmed by C-arm fluoroscopy and warrants further research. * J Orthop Sports Phys Ther 2016;46(9):810. doi:10.2519/jospt.2016.0415

Assessment of Lumbar Spine Instability Using C-Arm Fluoroscopy

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References