L5 Pars Interarticularis Fracture Following Interspinous Decompression Device Placement

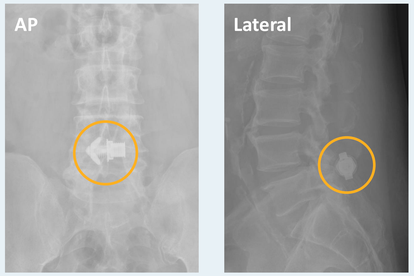
A Case Report

George Walbridge, D.O. • Justin Buck, D.O. • Nikhil Bhana, M.D. • Neal Coleman, M.D.
University of Florida Health

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Introduction

Interspinous decompression devices are a minimally invasive treatment option for lumbar spinal stenosis and degenerative spondylolisthesis, with favorable clinical outcomes and low complication rates. By immobilizing and stabilizing the affected segment, the device reduces pain from lumbar spinal stenosis, degenerative disc disease, and degenerative spondylolisthesis. **We present a rare case of an L5 pars interarticularis fracture following device placement.**



Lumbar radiographs. Rings mark the interspinous decompression device.
These devices are placed between adjacent spinous processes and secured or expanded in situ, often via a threaded mechanism, to increase interspinous distance and indirectly decompress the spinal canal and neural foramina.

Case Report

- **Presentation**
  68-year-old man with chronic low back pain despite multimodal treatment. Diagnosed with lumbar spinal stenosis with neurogenic claudication and L4-5 spondylolisthesis.
- **Failed injection**
  Epidural steroid injection did not help. Repeat MRI: new potential bilateral L5 nerve root impingement.
- **Device placement**
  Posterolateral placement of an interspinous decompression device was performed without intraoperative complication.
- **Follow-up**
  Radicular pain resolved; axial low back pain to the buttocks persisted. MRI: device in place, stenosis, and L5 pars edema.
- **Diagnosis and outcome**
  CT confirmed an L5 pars interarticularis fracture. No acute intervention; pain improved as it healed. The patient continued to be followed in the outpatient setting for pain and any complications.

Discussion

Interspinous decompression devices are an effective, minimally invasive treatment for spinal stenosis and spondylolisthesis. Reported complications include spinous process fractures, dural tears, implant migration, and revision surgery; **a pars interarticularis fracture does not appear to have been previously reported in the literature.**
Excessive distraction or device oversizing is a proposed mechanism for increased stress across the pars and subsequent fracture. A calibrated torque-limiting instrument could provide objective feedback on distraction force during placement and help standardize device application to reduce this risk.

TAKE-HOME

Pars fracture may represent a rare, previously unreported complication of interspinous device placement.

This de-identified case report is exempt from University of Florida IRB review; informed consent was obtained for publication.

References 1. Linton AA, Hsu WK. Curr Rev Musculoskelet Med. 2022;15(4):259-271. doi:10.1007/s12178-022-09760-9. 2. Mansfield JT, Wroten M. Pars interarticularis defect. StatPearls. 2023. 3. Onggo JR, et al. J Spine Surg. 2021;7(3):394-412. doi:10.21037/jss-21-57. 4. Yadhati A, et al. J Surg Case Rep. 2017;2017(2):rjx007. doi:10.1093/jscr/rjx007. 5. Rosen C, et al. Spine. 1991;16(6 Suppl):S234-S238. doi:10.1097/00007632-199106001-00011.