Combining Percutaneous Image Guided Lumbar Decompression (PILD) with Interspinous Fixation Device (Posterolateral Arthrodesis) for Degenerative Instability with Ligamentum Flavum Hypertrophy: A Retrospective Case Series of 4 Patients



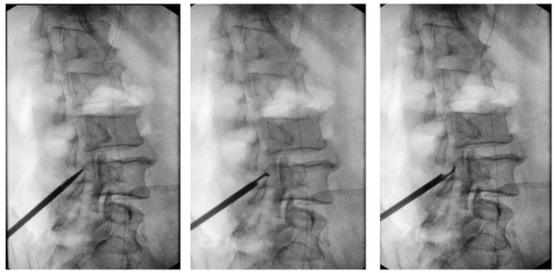
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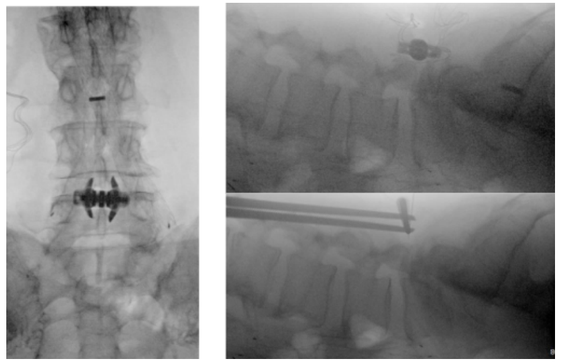
Introduction: Lumbar spinal stenosis due to ligamentum flavum hypertrophy frequently coexists with degenerative segmental instability. Percutaneous image guided lumbar decompression (PILD) treats the stenotic component, while interspinous fixation (Minuteman) provides posterolateral arthrodesis for instability; performing both in a single minimally invasive session may address the full pathology without open surgery.

Objective: To describe outcomes of combined, same session PILD plus Minuteman versus staged and sequential MILD then surgery approaches in patients with degenerative lumbar instability and ligamentum flavum hypertrophy.

Materials and Methods: Retrospective review of 4 patients treated at a single VA pain management practice. Patient 1 (82M) underwent MILD alone, obtaining 8 to 9 months of 80% relief before recurrence, then staged posterolateral arthrodesis with Minuteman. Patient 2 (83M) underwent MILD alone, achieving 90% relief for only 2 months, then open L2/3 laminectomy; only qualitative outcomes were recorded. Patients 3 (76M) and 4 (45M) each underwent same session combined MILD and Minuteman, Patient 3 adjacent to a prior fusion and Patient 4 at L4/5. VAS and ODI were recorded at baseline and available follow up for Patients 1, 3, and 4.



Contralateral oblique view: percutaneous image guided lumbar decompression (PILD)



Interspinous fixation device Minuteman G6, AP and lateral views

"Combined MILD and Minuteman produced VAS improvement from 8 to 3 with pain free ambulation by postoperative day 2"

Pt	Age/Sex	Approach	VAS (base→final)	ODI (base→final)	F/U	Notes
1	82/M	MILD, then staged Minuteman	8→1	24→14	3 mo	MILD relief 8 to 9 mo, recurred
2	83/M	MILD only, then open laminectomy	NR	NR	N/A	MILD relief 2 mo; surgery required
3	76/M	Same session MILD and Minuteman (ASD)	8→3	31→21	3 mo	Adjacent to prior fusion
4	45/M	Same session MILD and Minuteman (L4/5)	8→3	31→21	1 mo	Pain free ambulation

Results: Patient 1: VAS improved from 8 to 1 and ODI from 24 to 14 at 3 months after staged Minuteman, with sustained relief. Patient 2: after a short lived response to MILD (90% relief for 2 months), the patient underwent open L2/3 laminectomy and was subsequently reported pain free; no VAS/ODI values were documented. Patient 3: VAS improved from 8 to 3 by postoperative day 2 and ODI from 31 to 21 at 3 months, with resolution of leg heaviness at a level with adjacent segment disease. Patient 4: VAS improved from 8 to 3 by postoperative day 2 and ODI from 31 to 21 at 1 month, with pain free ambulation. No device related complications were reported.

Conclusion: In this small series, combining MILD decompression with Minuteman interspinous fixation and posterolateral arthrodesis, whether simultaneously or in a staged fashion, provided durable relief in patients with degenerative lumbar instability and ligamentum flavum hypertrophy, including at a level with adjacent segment disease, and may reduce the need for subsequent open surgical decompression when performed together at the index procedure.



REFERENCES:
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2. Skoblar M, Hedman T, Rogers AJ, Jasper GP, Beall DP. Instrumented Posterior Arthrodesis of the Lumbar Spine: Prospective Study Evaluating Fusion Outcomes in Patients Receiving an Interspinous Fixation Device for the Treatment of Degenerative Spine Diseases. J Pain Res. 2023;16:2909 to 2918.

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