

Table S1. Practical Clinical Positioning of Intradiscal Procedures in Extruded Non-Sequestered Lumbar Disc Herniation

Technique	Practical answer in extruded non-sequestered LDH	Evidence basis / directness	Best quantitative signal	Main safety concern / contraindication	Bottom-line clinical position
Targeted PLDD / standard PLDD	Yes, but mainly when the extruded component is non-sequestered, anatomically targetable, and not calcified. Standard PLDD is less certain because it relies more on intradiscal pressure reduction.	Direct but limited evidence for T-PLDD; mostly indirect or contained-disc evidence for standard PLDD.	In the T-PLDD series, modified MacNab success rates were 80.0%, 88.0%, 92.0%, and 92.0% at 1, 3, 6, and 12 months, respectively (8).	No serious complications or neurological sequelae were reported in the T-PLDD cohort (8). Avoid sequestered fragments, cauda equina syndrome, progressive motor deficit, and heavily calcified discs.	Most extrusion-oriented laser option; possible in selected cases, but supported by small-series evidence only.
Radiofrequency nucleoplasty / coblation	Possible in carefully selected uncontained or extruded non-sequestered discs, but patients should be counseled that response is variable and less predictable than in contained protrusions.	Direct but limited evidence from an uncontained-LDH cohort.	Radiating-pain NRS decreased from 9.0 ± 1.2 to 1.4 ± 2.0 ; excellent/good MacNab outcomes occurred in 29/41 patients (70.7%) (9).	No major complications were reported; 3/41 patients (7.3%) required subsequent surgery for persistent radiating pain (9). Avoid sequestered fragments and urgent surgical presentations.	Feasible and apparently safe in selected patients; best framed as a cautious intermediate option, not a surgical substitute.
Oxygen-ozone discolysis	Reasonable to discuss in selected non-sequestered extrusions without red flags, especially when the goal is a low-morbidity biologically active option; extrusion-specific controlled data remain limited.	Mostly indirect mixed-morphology clinical evidence, supported by biologic plausibility for macrophage-mediated resorption of exposed nucleus pulposus.	Large clinical experience and mixed-cohort trials support benefit in LDH, but extruded-specific subgroup estimates are generally unavailable. Bonetti et al. reported complete remission in 64/86 disk-disease patients (74.4%) after oxygen-ozone infiltration (21).	Overall morbidity is low in published series, but morphology-specific complication rates are inconsistently reported (18, 20). Use strict image guidance and appropriate concentration/volume.	Biologically plausible; should be presented as low-certainty, morphology-indirect evidence rather than proven extrusion-specific efficacy.
Gelified ethanol / Discogel	Possible when the lesion is non-sequestered and continuity is preserved; less dependent on pure pressure reduction than mechanical aspiration techniques.	Partly direct but mostly mixed-morphology observational evidence; some cohorts included non-contained herniations while excluding free fragments.	Bellini et al. reported significant improvement in 62/73 lumbar patients (85%) (10). Latka et al. reported 48% COMI and 54% VAS reduction at 1 year in the radicular-leg-pain cohort (12).	Bellini et al. reported leakage in 19 patients without clinical side effects (10). Avoid sequestered fragments, severe calcification, and urgent surgical indications.	Reasonable investigational/intermediate option in selected non-sequestered extrusions; evidence remains mainly observational.
Mechanical decompression devices / APLD / Dekompessor	No. These techniques should generally be avoided in extruded or uncontained discs because the displaced fragment is not reliably accessible by intradiscal aspiration; device technical guidance supports a contained-disc selection framework and excludes free fragments.	Evidence largely concerns selected contained herniations; available evidence does not establish benefit in extruded or sequestered lesions.	No consistent quantitative benefit is established for extruded lesions. Systematic review and clinical experience support only weak/limited or selected benefit for mechanical decompression in contained herniations (11, 32, 33).	Safety data mainly come from selected contained-disc populations. Free fragments are excluded in device technical guidance, and extrapolation to extruded or sequestered lesions is unsupported (23).	Avoid in extruded or uncontained lesions; evidence and manufacturer technical guidance primarily support selected contained herniations, with free fragments excluded (11, 23, 32, 33).

Note. This table is intended to support clinical interpretation, not to provide graded treatment recommendations. Evidence directness reflects whether studies explicitly included extruded or uncontained lumbar disc herniations, whether sequestered fragments were excluded or separately identifiable, and whether outcomes were reported for the target morphology. Findings from mixed protrusion/extrusion cohorts without subgroup reporting should be interpreted as indirect. All modalities should be considered only within a guideline-concordant pathway after conservative care and in the absence of cauda equina syndrome, progressive motor deficit, or other urgent surgical indications. Citation numbers correspond to the revised manuscript reference list after addition of the NICE guideline, SPORT trial, and Stryker Disc Dekompessor technical guide. LDH = lumbar disc herniation; PLDD = percutaneous laser disc decompression; T-PLDD = targeted PLDD; RF = radiofrequency; NRS = numeric rating scale; VAS = visual analog scale; COMI = Core Outcome Measures Index; APLD = automated percutaneous lumbar discectomy.