

Percutaneous cement discoplasty



Percutaneous **cement discoplasty** (PCD) is a **minimally invasive** surgical **procedure**, that can provide a segmental stabilizing and indirect **decompression** effect in case of severely degenerated discs characterized by **vacuum phenomenon**.

The objective of a study of Kiss et al. was to evaluate the effects of PCD on spinopelvic radiological parameters and their associations with the clinical outcome.

Retrospective analysis of prospectively collected dataset of 28 patients (112 lumbar segments) who underwent single- or multilevel PCD was performed. Spinopelvic, intrasegmental and intersegmental parameters were measured on lumbar X-rays pre-, postoperatively and 6 months after the surgery. Correlations between radiological parameters and clinical outcome data were determined.

Sacral slope significantly increased ($p < .001$), and pelvic tilt ($p < .05$) was decreased after the PCD procedure. Segmental and total lordosis ($p < .05$, $p < .05$) disc and foraminal height showed significantly increase ($p < .001$, $p < .001$) after procedure. Pain and disability (ODI) significantly decreased due to PCD. An association was found between postoperative increase in SS and improvement in ODI ($r = 0.39$, $p < .05$). The change in low back pain was correlated with segmental scoliosis correction ($p < .001$). Moderate correlation was detected between the increase in disc height and ODI ($p < .05$) as well as leg pain ($p < .01$).

PCD is an effective minimally invasive technique to treat axial pain and disability related to severe lumbar disc degeneration. The study showed that an improvement in lumbar alignment and a significant indirect foraminal decompression could be achieved with the procedure. These changes can significantly contribute to the pain relief and increase in the patients' functional capacity ¹⁾.

Sola et al. described a percutaneous technique to treat advanced degenerative disk disease in elderly patients.

A step-by-step technical description based on there experience in selected cases.

Postoperative imaging results are presented as well as indications and recommendations.

They conclude that percutaneous discoplasty can result as an alternative minimal invasive strategy for the treatment of advanced degenerative disk disease ²⁾.

The percutaneous cement discoplasty (PCD) technique was introduced by Varga et al. to treat dynamic (and angular) instability of the symptomatic lumbar segment by injecting bone cement (polymethylmethacrylate, PMMA) into the disc spaces showing vacuum phenomena via a posterolaterally positioned Jamshidi needle.

A total of 81 patients were treated with PCD in a tertiary care referral center over a 6-year period. The current study includes the first group of 47 consecutive patients to complete a pre- and postoperative questionnaire booklet regarding leg and back pain using the visual analog scale (VAS) and the Oswestry disability index (ODI) questionnaire.

A total of 130 discs in these 47 patients were treated with PCD. The majority of patients reported a reduction in their lower back and leg pain (69 and 66 %, respectively; $p < 0.02$) postoperatively. At 6-month follow-up, 61 % of patients had a minimum 10-point reduction in their ODI scores ($p < 0.01$).

Elderly patients with symptomatic dynamic foraminal stenosis and vacuum phenomenon in the intervertebral disc are suitable candidates for PCD, particularly if they represent high-risk patients for open surgery ³⁾.

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Kiss L, Varga PP, Szoverfi Z, Jakab G, Eltes PE, Lazary A. Indirect foraminal decompression and improvement in the lumbar alignment after percutaneous cement discoplasty. *Eur Spine J.* 2019 Jun;28(6):1441-1447. doi: 10.1007/s00586-019-05966-7. Epub 2019 Apr 20. PubMed PMID: 31006068.

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Sola C, Camino Willhuber G, Kido G, Pereira Duarte M, Bendersky M, Mereles M, Petracchi M, Gruenberg M. Percutaneous cement discoplasty for the treatment of advanced degenerative disk disease in elderly patients. *Eur Spine J.* 2018 Mar 23. doi: 10.1007/s00586-018-5547-7. [Epub ahead of print] PubMed PMID: 29569159.

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Varga PP, Jakab G, Bors IB, Lazary A, Szövérfi Z. [Experiences with PMMA cement as a stand-alone intervertebral spacer. Percutaneous cement discoplasty in the case of vacuum phenomenon within lumbar intervertebral discs]. *Orthopade.* 2015 Feb;44(2):124-31. doi: 10.1007/s00132-015-3092-1. German. PubMed PMID: 25715774.

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