# Lumbar disc reherniation prevention with a bone-anchored annular closure device: 1-year results of a randomized trial

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## Abstract

**Background:** The risk of recurrent herniation after lumbar discectomy is highest during the first postoperative year. The purpose of this study was to determine whether implantation of a bone-anchored annular closure device (ACD) following limited lumbar discectomy reduced the risk of recurrent herniation and complications during the first year of follow-up compared to limited lumbar discectomy alone (Controls) and whether this risk was influenced by patient characteristics.

**Methods:** In this randomized multicenter trial, patients with symptomatic lumbar disc herniation and with a large annular defect following limited lumbar discectomy were randomized to bone-anchored ACD or Control groups. The risks of symptomatic reherniation, reoperation, and device- or procedure-related serious adverse events were reported over 1 year of follow-up.

**Results:** Among 554 patients (ACD 276; Control 278), 94% returned for 1-year follow-up. Bone-anchored ACD resulted in lower risks of symptomatic reherniation (8.4% vs. 17.3%, P=.002) and reoperation (6.7% vs. 12.9%, P=.015) versus Controls. Device- or procedure-related serious adverse events through 1 year were reported in 7.1% of ACD patients and 13.9% of Controls (P=.009). No baseline patient characteristic significantly influenced these risks.

**Conclusions:** Among patients with large annular defects following limited lumbar discectomy, additional implantation with a bone-anchored ACD lowered the risk of symptomatic reherniation and reoperation over 1 year follow-up. Device- or procedure-related serious adverse events occurred less frequently in the ACD group. These conclusions were not influenced by patient characteristics.