Objective: To compare clinical results and radiologic results of two fusion techniques.

Method: Between April 2007 and December 2009, 20 patients underwent stand-alone anterior lumbar interbody fusion(ALIF) and 21 patients underwent mini-transforaminal lumbar interbody fusion(mini-TLIF) in our hospital. The mean follow up periods were 9.2 and 11.1 months. Inclusion criteria for patients were degenerative disc disease with foraminal stenosis, low grade degenerative spondylolithesis. We performed clinical and radiologic evaluation postoperatively. Clinical outcomes were graded using the visual analogue scale (VAS) scores and Oswetry disability index (ODI). Radiologic outcomes were evaluated on plain and dynamic radiographs. Segmental kyphotic angle, whole lumbar kyphotic angle, disc height, foraminal height and width were used as parameters to evaluate radiographic change in the 2 treatment groups.

Result: The mean VAS scores for back and leg pain decreased from 5.9 and 5.85 to 1.9 and 1.85 in the stand-alone ALIF group (P=0.000, P=0.000) and from 6.1 and 7.4 to 2.3 and 1.6 in the mini-TLIF group. (P=0.000, P=0.000) The mean ODI improved from 45.8% to 17.9% in the stand-alone ALIF group (P=0.000) and from 54.3% to 27.6% in the mini-TLIF group (P=0.000). In both groups, the VAS scores for back and leg and ODI significantly changed postoperatively. Statistical analysis revealed no significant difference between groups in VAS score for back and ODI. (Statistical significance test was done by Mann-Whitney U-test) (P=0.654, P=0.667). But, difference of VAS score for leg between preoperative and postoperative periods was significant between groups. (P=0.026) Statistical analysis in stand-alone ALIF group, changes in the disc height, segmental kyphotic angle, whole lumbar kyphotic angle, foraminal width and foraminal height between the preoperative and postoperative periods were significant. (P= 0.000, P=0.000, P=0.000, P=0.000) In mini-TLIF group, changes in the disc height, foraminal width and foraminal height between the preoperative and postoperative periods were significant. (P=0.001, P=0.000, P=0.002). The amount of change between preoperative and postoperative disc height, segmental kyphotic angle, foraminal width and height demonstrated significant intergroup differences. (P=0.000, P=0.000, P=0.015, P=0.001).

Conclusion: Although our study was limited due to small scale and short follow up periods. In our study, the stand-alone ALIF group demonstrated significant radiologic advantages in improvement of disc height, segmental kyphotic angle and foraminal height compared with the mini-TLIF group. In contrast, the mini-TLIF group demonstrated significant radiologic advantages in improvement of foraminal width and clinical advantage in improvement of VAS score for leg compared with the stand-alone ALIF group. But, improvement of VAS score for back and ODI did not demonstrated significant differences between groups.