Clinical: Evaluation of new biologic treatment
191
Minimally Invasive Lumbar Fusion (XLIF) Using a βTCP-HA Bone Graft Substitute (FormaGraft):
Fusion Rates out to 2 Years
W.B. Rodgers¹, E.J. Gerber¹, J.A. Rodgers²
¹Spine Midwest, Inc., Jefferson City, MO, United States, ²Spine Midwest, Inc., Research, Jefferson City,
MO, United States

Summary: The use of a beta-tricalcium phosphate/hydroxyapatite (FormaGraft) with bone marrow
aspirate (BMA) was prospectively studied in 57 consecutive 1- and 2-level XLIF procedures. Outcomes
were encouraging; XLIF has proven to be a safe and effective procedure, and now 24-month results
using βTCP-HA bone graft substitute confirm fusion, maintenance of improvements, and overall patient
satisfaction.
Introduction: Good short-term outcomes after XLIF have been shown, however, no reports to date have
focused specifically on fusion rates associated with XLIF, or on the graft materials used in XLIF. Issues
related to early resorption and hospital cost with bone morphogenic protein in lumbar fusions have fueled
continued evaluation of other bone graft substitutes.
Methods: The use of a beta-tricalcium phosphate/hydroxyapatite (FormaGraft) with bone marrow
aspirate (BMA) was prospectively studied in 57 consecutive 1- and 2-level XLIF procedures.
Radiographic outcomes were evaluated to demonstrate fusion and were compared with clinical results.
Results: Patient age ranged from 25-79yrs (average: 55.9yrs). Primary diagnoses included stenosis(31),
DDD(12), spondylolisthesis(8), and HNP(6). Comorbid conditions included previous spine
surgery(47.4%); smokers(40.35%); diabetes(22.81%); chronic steroid use(8.77%); obesity/morbid
obesity(52.6%). 64 levels were treated: 50=1-level, 7=2-level; 1@T8-9, 4@L1-2, 6@L2-3, 16@L3-4, 37@L4-5. Graft included equal amounts by volume FormaGraft and BMA, aspirated from the adjacent
vertebral body under lateral exposure. All included supplemental fixation. Hgb change and hospital stay
averaged 1.20g and 1.04days. Complications included one iatrogenic HNP requiring secondary
decompression. One patient died at 10months post-op, unrelated to his surgery. Average disk height
improved from 6.35mm to 10.86mm, and was maintained at 10.0mm at 24 months. Fusion by Lenke
score=1 and 2 was 90.0% at 24 months. Average VAS pain scores decreased from 9.0 at pre-op to 3.2
and 3.6 at 12 and 24 months respectively. 89% expressed satisfaction with their procedures at 12months,
and 89% said they would do it again.
Conclusion: XLIF has proven to be a safe and effective procedure, and now 24-month results using
βTCP-HA bone graft substitute confirm fusion, maintenance of improvements, and overall patient
satisfaction.