Background Context

TLIF cages have many advantages but may pose an increased risk for cage subsidence. Risk factors for expandable cage subsidence have not been studied. Previous small series data suggested that a flat back might be a risk factor for expandable cage subsidence.

Purpose

Identify potential risk factors for expandable TLIF cage subsidence from a larger case series

Study Design/Setting

Prospective clinical and radiographic outcomes series from consecutive cohort at one center

Patient Sample

All patients with degenerative lumbar disease or spinal deformity undergoing posterior instrumented fusion with TLIF over a 5 year period at a single institution. Patients were divided into 2 groups: TLIF subsidence >2mm vs no subsidence

Outcome Measures

Standing AP, lateral radiographs were analyzed pre-op, 1yr, and 2yr for cage subsidence, lumbar lordosis (T12-S1), and pelvic incidence (PI). Clinical outcomes: visual analogue pain: VAS-back, VAS-leg, and Oswestry Disability Index (ODI). Comorbidity burden was calculated using a modified Charlson Comorbidity Index (CCI).

Methods

Subsidence and no subsidence groups were compared. The subsidence group was further subdivided into 2 groups: 2-3mm settling into the endplate (minor subsidence) vs ? 4 mm subsidence(significant subsidence). Age (indirect association with bone density), BMI, TLIF level, lumbar lordosis, PI, diagnosis, number of levels fused, and spinopelvic fixation were analyzed for association with cage subsidence.

Results

177 patients met inclusion criteria. 40/177 (22.5%) of patients experienced cage subsidence (mean subsidence 4.02 mm sd = 2.21), 12/40 of these were severe. Mean age was 64.1 sd = 11.9 (not subsided) vs 67.1 sd = 9.7 (subsided). Subsidence occurred more commonly in female (70.0% vs 53.0%; p = 0.08). Mean BMI was 29.3 (not subsided) vs 29.6 (subsided). Mean CCI was 0.96 sd = 1.16 (not subsided) vs 0.95 sd = 1.13 (subsided). Increasing age, BMI, and comorbidity burden were not associated with increased rates of subsidence. Degenerative lumbar disease was associated with a higher rate of subsidence than deformity (62.5% compared to 37.5%; p