Clinical Study

An analysis of noninstrumented posterolateral lumbar fusions performed in predominantly geriatric patients using lamina autograft and beta tricalcium phosphate

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Abstract

BACKGROUND CONTEXT: The artificial bone-volume expander, beta tricalcium phosphate (B-TCP, Vitoss, OrthoVita, Malvern, PA), is increasingly used to supplement autograft in posterolateral lumbar fusions.

PURPOSE: To determine fusion rates/outcomes using B-TCP/autograft.

STUDY DESIGN/SETTING: Fusion rates and outcomes were assessed for 60 predominantly geriatric patients undergoing multilevel lumbar laminectomies and 1- to 2-level noninstrumented fusions using B-TCP/autograft.

PATIENT SAMPLE: Patients on average were 70 years old.

OUTCOME MEASURES: Odom’s criteria and Short-Form 36 (SF-36) outcomes were studied 2 years postoperatively.

METHODS: Sixty patients underwent an average of 5.4-level laminectomies with 1- to 2-level noninstrumented fusions. Based on dynamic X-ray/magnetic resonance/computed tomography (CT) studies, laminectomies addressed multilevel stenosis (60 patients), ossification of the yellow ligament (46 patients), disc herniations (20 patients), or synovial cysts (8 patients), and fusions addressed degenerative spondylolisthesis (48 patients), spondylolisthesis/lysis (2 patients), or degenerative scoliosis (10 patients). The fusion mass on each side contained half of all harvested autograft combined with one to 1.5 strips of B-TCP (saturated in 10 cc of bone marrow aspirate/strip). Fusion rates were documented by two independent neuroradiologists using both dynamic X-rays, and thincut CT (2-dimensional/3-dimensional CT) studies obtained up to 2 years postoperatively. Odom’s criteria and SF-36 outcomes were assessed over the same interval.

RESULTS: Pseudarthrosis was documented in nine (15%) patients. Two years postoperatively, Odom’s criteria revealed 28 excellent, 23 good, 5 fair, and 4 poor results, whereas SF-36 data revealed improvement on 6 of 8 Health Scales in all patients.

CONCLUSIONS: A 15% pseudarthrosis rate followed multilevel laminectomy and 1- to 2-level noninstrumented posterolateral fusion using lamina autograft/B-TCP. © 2008 Elsevier Inc. All rights reserved.
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