

Revision of Failed Lumbar Fusions: A Comparison of Anterior Autograft and Allograft

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Abstract

Study Design

The radiographic and clinical results of two different anterior structural grafts were compared in 38 patients who had combined anterior-posterior revision surgery for failed lumbar fusion.

Objectives

Failed lumbar fusion surgery, such as pseudarthrosis or flatback deformity, may result in disabling pain. The optimum revision technique has yet to be defined. The authors of the current study sought to determine which of two different types of anterior graft yields the best results.

Summary of Background Data

Posterior procedures for revision of a failed lumbar fusion have not yielded reliably successful results. A combined anterior-posterior approach may be effective in restoring sagittal balance and enhancing fusion rates. Recent studies have shown femoral ring allografts to be effective in lumbar fusion revision, but no studies have compared these with other types of structural grafts.

Methods

Thirty-eight patients with pseudarthrosis were treated with combined anterior-posterior lumbar spine fusion using either femoral ring allografts (26 patients) or tricortical iliac autografts (12 patients). Radiographic follow-up examination and retrospective patient self-assessment questionnaires were used to evaluate outcomes. Results were assessed by independent reviewers after a mean follow-up period of 35 months.

Results

Radiographic follow-up examination revealed acceptably low pseudarthrosis rates for structural autografts (0%) and allografts (6%). The questionnaires revealed significant improvement in pain for both groups. Allograft patients showed greater improvement in function, less pain medication usage, and higher overall success rates (83%) than autograft patients (64%).

Conclusions

Femoral ring allografts are as effective, clinically and radiographically, as tricortical iliac autografts when used as an anterior structural element in revision lumbar spine fusion in patients who have undergone multiple surgical procedures for pseudarthrosis or flatback deformity. The slightly greater improvement for the allograft group needs to be confirmed in a larger study.