

The Utility of Post-Operative Radiographs after Anterior Lumbar Interbody Fusion With or Without Posterior Instrumentation

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Study Design: Retrospective Clinical and Radiographic Review

Objective: To evaluate the utility of plain radiographic surveillance following Anterior Lumbar Interbody Fusion (ALIF) and determine to what extent radiographic findings affect post-operative decision-making.

Summary of Background Data: Postoperative radiographic surveillance is a ubiquitous practice amongst spine surgeons that is lacking in evidence and has received growing attention in an environment of increasing health care cost and receding resources. Lumbar interbody fusions are being performed with increasing frequency from numerous approaches; nonetheless, there are no evidence-based guidelines for postoperative radiographic evaluation of patients after these procedures.

Methods: 146 consecutive patients who underwent ALIF with or without short segment posterior fusion from 2008 to 2011 were reviewed. Exclusion criteria were less than 6 months follow-up, prior surgery, hybrid constructs with disc arthroplasty, and concurrent posterior fusion of greater than 3 levels. 359 radiographic series and 330 clinic notes were reviewed from the remaining 67 patients. Radiographs were evaluated for abnormalities and clinic notes reviewed for any changes in clinical management by multiple reviewers. Inter-observer reliability, sensitivity, specificity, positive and negative predictive value were calculated.

Results: There was no single instance of a change in treatment course based on radiographic findings alone in any of the 330 clinic visits of the 67 included patients during an average 15.8 month postoperative follow-up period. 34 of 67 (51%) had some change in their management based on their clinical symptoms and/or examination. Inter-observer agreement for change in management was 0.96 (Kappa = 0.918). Sensitivity (6%), specificity (97%), PPV (67%) and NPV (50%) were calculated.

Conclusion: Routine post-operative radiographic surveillance has minimal value for asymptomatic patients following ALIF with or without posterior fusion. Limiting post-operative films in these patients in the absence of clinical symptoms or risk factors could significantly reduce health care costs and unnecessary radiation exposure.

Keywords: Lumbar Spine, Fusion, Radiograph, Imaging, Utility

Level of Evidence: IV