

Slip Progression After In Situ Single Screw Fixation for Stable Slipped Capital Femoral Epiphysis

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Abstract

The medical records and frog-leg lateral radiographs of 37 children with 46 stable slips treated with in situ single cannulated screw fixation at the Shriners Hospitals for Children, Lexington, from 1990 to 1998 were reviewed. The first postoperative frog-leg lateral radiograph was used to determine the head-shaft angle, the screw position, and the number of screw threads that engaged the epiphysis. The mean age at surgery was 12.3 years. The mean age when a frog-leg lateral radiograph first demonstrated physeal closure was 14.0 years. Nine slips (20%) demonstrated progression of more than 10° from the first postoperative frog-leg lateral radiograph to the frog-leg lateral radiograph at first physeal closure. Slip progression appears inversely related to the number of screw threads engaging the epiphysis on the postoperative frog-leg lateral radiograph. The nine hips that progressed all had less than five screw threads engaging the epiphysis on the first postoperative frog-leg lateral radiograph. None of the 24 hips with five or more screw threads engaging the epiphysis on the first postoperative frog-leg lateral radiograph demonstrated progression. Slip progression was not related to screw position. Time to physeal closure was not related to screw position or the number of screw threads that engaged the epiphysis on the first postoperative frog-leg lateral radiograph. Screw advancement until five threads engage the epiphysis appears appropriate.

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