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Clinical Study

Quality of life of patients with high-grade spondylolisthesis: minimum 2-year follow-up after surgical and nonsurgical treatments

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Abstract

BACKGROUND CONTEXT: Surgical intervention is generally indicated in a pediatric high-grade spondylolisthesis to prevent the progression of deformity or neurologic deterioration and improve the quality of life. However, the outcome of the treatment on the health-related quality of life (HRQOL) of patients with high-grade spondylolisthesis remains largely unknown.

PURPOSE: To describe the changes in the HRQOL of patients with pediatric high-grade spondylolisthesis after surgical and nonsurgical managements.

STUDY DESIGN: Observational case series with a minimal of 2-year follow-up.

PATIENT SAMPLE: Twenty-eight pediatric patients with high-grade spondylolisthesis from a single institution filled the inclusion criteria. Twenty-three patients were managed surgically and five were managed nonsurgically.

OUTCOME MEASURES: Self-report measures: Scoliosis Research Society questionnaires (SRS-22). Neurologic examination, radiographic evaluation of slip grade.

METHODS: The SRS-22 questionnaire was collected at the baseline (initial presentation for the nonsurgical group and preoperative visit for the surgical group) and at the last follow-up. Differences between baseline and last follow-up were evaluated in both groups. Correlation between the baseline score of SRS-22 score and improvement in the SRS-22 score was determined in surgical patients.

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RESULTS: In surgical patients, total SRS-22 scores were 3.31±0.50 at the baseline and 4.26±0.50 at the last follow-up. In nonsurgical patients, total SRS-22 scores were 4.12±0.16 at the baseline and 4.14±0.38 at the last follow-up. Therefore, variation in the SRS-22 total score was +0.94±0.77 (p<.001) for surgical patients and +0.02 ± 0.35 (p=.854) for nonsurgical patients. Improvement of the SRS-22 score was correlated with a low baseline value of SRS-22 (R^2=0.61; p<.001). There was no neurologic or slip deterioration during the follow-up for patients treated nonsurgically.

CONCLUSIONS: The HRQOL improves after a surgical intervention for high-grade spondylolisthesis. Patients with lower baseline HRQOL scores are those who benefit the most from surgery. Close observation is a safe and feasible option in selected patients with a good baseline HRQOL and no neurologic impairment.

Keywords: Health-related quality of life; Spondylolisthesis; Lumbar fusion; Case series; SRS-22 questionnaire

Introduction

Important impairment of health-related quality of life (HRQOL) despite appropriate nonsurgical management and neurologic symptoms are major indications for surgical management of lumbosacral spondylolisthesis [1,2]. Unfortunately, the magnitude of changes in HRQOL after surgery remains unknown for pediatric high-grade spondylolisthesis. In addition, very little is known about HRQOL in nonsurgically managed high-grade spondylolisthesis [3,4]. The objectives of this study are, therefore, to evaluate the HRQOL of patients with high-grade spondylolisthesis managed surgically and nonsurgically. We performed an observational case series on high-grade spondylolisthesis managed in our institution.

Materials and methods

A prospective database comprising information on patients with lumbosacral spondylolisthesis seen between 2002 and 2011 at a single pediatric hospital was reviewed. All patients accepted and signed the consent form approved by the institutional review board. Inclusion criteria for this study were the following:

- High-grade lumbosacral spondylolisthesis or spondyloptosis.
- Age between 10 and 20 years at initial presentation.
- SRS-22 questionnaires completed at the baseline (initial presentation for nonsurgical patients and the last preoperative visit for surgical patients) and at the last follow-up.
- A minimum of 24-month follow-up was required for surgical and nonsurgical patients.

The surgical group comprised patients who underwent a primary fusion procedure. The decision to plan a surgery was based on the physician's own criteria for recommending surgical management.

Of 333 consecutive lumbosacral spondylolisthesis patients reviewed from the database, 34 (10%) were classified as high grade. A total of 28 patients (5 nonsurgical and 23 surgical) were included in the present study. Five patients were selected by surgeons to undergo nonsurgical management even though they had no medical contraindication for surgery. These five patients formed the nonsurgical group. A total of 28 patients underwent surgery, but five patients were excluded from the study because the postoperative follow-up was less than 24 months. Interestingly, one 15-year-old boy accepted to be followed-up but refused the surgical management recommended by the surgeon because of personal reasons. Consequently, his data were not included in the statistical analysis. After 12 months of follow-up, he developed a unilateral S1 sensorimotor radiculopathy but still declined surgery.

Surgical group

Baseline demographical and clinical data from the surgical and nonsurgical groups are presented in Table 1.

All 23 patients underwent posterolateral instrumented spinal fusion with a posterior decompression at L5–S1, including a Gill laminectomy. Corticocancellous iliac crest bone grafting was used for all patients. Instrumentation levels were L5–S1 for 8 patients, L4–S1 for 12 patients, and L4–S1-ileum for 3 patients. Additionally, eight patients had posterior lumbar interbody fusion at L5–S1 using a Peek cage filled with iliac autograft. Mean operative blood loss was 513±277 mL (range, 200–1,400). No postoperative neurologic complication occurred.

Nonsurgical group

Data acquisition

Standing 36 inches, posteroanterior and lateral radiographs of the spine and pelvis were reviewed to determine the slip grade.

The HRQOL was the main parameter of interest in this study. It was assessed with the Scoliosis Research Society (SRS)-22 questionnaire at the baseline (initial presentation for the nonsurgical group and the last preoperative visit for the surgical group) and the last follow-up. This questionnaire has demonstrated an excellent validity and reliability in spinal deformity population [5] and has been used