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Restoration of normal pelvic balance from surgical reduction in High-Grade Spondylolisthesis

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Purpose: To investigate the effectiveness of surgical reduction in high-grade spondylolisthesis in maintaining or restoring a normal pelvic balance, as related to the QoL.

Methods: It is a retrospective analysis of prospectively collected data of 60 patients (17 males, 43 females) aged 15 ± 3.1 years who underwent surgery for high-grade spondylolisthesis and were followed for a minimum of 2 years after surgery. Patients with a residual high-grade slip following surgery were referred to the postoperative high-grade (PHG) group, while patients with a residual low-grade slip were referred to the postoperative low-grade (PLG) group. Pelvic balance was assessed from pelvic tilt and sacral slope, in order to identify patients with a balanced pelvis or unbalanced pelvis. The SRS-22 questionnaire was completed before surgery and at last follow-up.

Results: Postoperatively, there were 36 patients with a balanced pelvis and 24 patients with an unbalanced pelvis. The improvement in QoL was better in patients with a postoperative balanced pelvis. There were 14 patients in the PHG group and 46 patients in the PLG group. Four of seven patients (57%) in the PHG group and 21 of 26 patients (81%) in the PLG group with a preoperative balanced pelvis maintained a balanced pelvis postoperatively ($P = 0.1$). None of the patients in the PHG group and 11 of 20 patients (55%) in the PLG group improved from an unbalanced to a balanced pelvis postoperatively ($P < 0.05$).

Conclusions: Surgical reduction in high- to low-grade slip is more effective in maintaining and restoring a normal pelvic balance postoperatively.

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