Texas Scottish Rite Hospital rod instrumentation

Case series

A total of 104 patients underwent transpedicular spinal instrumentation in the Department of Neurosurgery, University of Florida College of Medicine, Gainesville, using the Cotrel Dubousset instrumentation (71 cases) or the Texas Scottish Rite Hospital rod instrumentation (33). Surgery was performed for lumbar vertebral column instability secondary to fractures (28 cases), spondylolisthesis (29), tumors (four), vertebral osteomyelitis (two), or postoperative causes (41). Pseudoarthrodesis due to failure of a prior fusion was present in 37 cases. The 55 men and 49 women (mean age 47 years, range 18 to 87 years) all presented with severe back pain. Signs or symptoms of neural compression were noted in 96 patients. Surgery consisted of neural decompression, internal fixation, and autogenous iliac bone grafting. Spondylolistheses were fused in situ, without reduction; otherwise, major spinal deformities were corrected. A total of 516 pedicle screws were placed. The mean extent of fusion was 2.7 motion segments (range one to six motion segments). A 96% fusion rate was obtained with a mean follow-up period of 20 months. There were no operative deaths. Major complications included one spinal epidural hematoma, three isolated nerve root deficits (two transient, one permanent), and three wound infections (two deep, one superficial). Instrument failure eventually developed in 18 patients; nine were asymptomatic with a solid fusion and did not require further treatment and the other nine were symptomatic or had a pseudoarthrosis and required operative revision. Pedicle screw-rod fixation offers biomechanical advantages compared to other forms of internal fixation for the lumbar spine. It enables short-segment fixation with preservation of lumbar lordosis and adjacent normal motion segments. This technique provides a highly successful method to obtain arthrodesis, even with prior pseudoarthrosis [1)].

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Dickman CA, Fessler RG, MacMillan M, Haid RW. Transpedicular screw-rod fixation of the lumbar spine: operative technique and outcome in 104 cases. J Neurosurg. 1992 Dec;77(6):860-70. PubMed PMID: 1432127.