Kyphoplasty for the Treatment of Malignant Vertebral Compression Fractures Caused by Metastases

Z.-Y. Sun, H.-L. Yang

1The First Affiliated Hospital of Soochow University, Department of Orthopaedic Surgery, Suzhou, China

Introduction: Despite the literature supporting the efficacy of kyphoplasty for treatment of osteoporotic vertebral compression fractures and multiple myeloma, few reports exist documenting its use in the treatment of malignant vertebral compression fractures (MVCF) caused by metastases. Accordingly, we sought to evaluate the feasibility, efficacy, and safety of kyphoplasty in the treatment of MVCFs without epidural involvement.

Methods: We performed a retrospective review of clinical outcome data from 48 multiple spinal metastatic patients treated with kyphoplasty. Outcome data including vertebral body height variation, degree of kyphosis, Visual Analog Scales for pain, Oswestry Disability Index and SF-36 questionnaire for function was collected preoperatively, postoperatively, and at 1-month, 6-month, 1-year, and 2-year after treatment.

Results: Significant improvements in all of the outcome measures were observed postoperatively and throughout the duration of follow-up. The mean anterior vertebral body height variation changed from (52.7±16.8 %) preoperatively to (85.3±13.2 %) postoperatively (P< 0.001). Kyphotic angle corrected from (16.4°±4.7°) preoperatively to (8.4°±2.5°) postoperatively (P< 0.001). The mean VAS decreased significantly from presurgery to postsurgery (7.4±2.1 to 3.8±1.6) (P< 0.001), as did the ODI (71.5±16.7 to 32.4±9.6) (P< 0.001). The SF-36 scores for Bodily Pain (BF), Physical Function (PF), Vitality (VT), and Social Functioning (SF) all showed significant improvement (P< 0.05).

Conclusion: Kyphoplasty is an effective, minimally invasive procedure for the stabilization of pathological vertebral fractures caused by metastatic disease, even in levels with vertebral wall deficiency, leading to a statistically significant reduction of pain, improvement in function and preventing further kyphotic deformity of the spine.

Keywords: Kyphoplasty; vertebroplasty; spinal metastases; vertebral compression fractures