INTRODUCTION: To evaluate the results of posterior stabilization of thoracolumbar fracture using nonfusion method followed by the removal of metal implants within an appropriate period. Changes in the sagittal alignment and the restoration of segmental motion were also investigated. Posterior fusion using a transpedicular screw system remains the treatment of choice for the management of thoracolumbar and lumbar fractures. However, fusion methods result in the permanent loss of segmental motion. If both stability and motion could be achieved, functional results would improve considerably.

METHODS: Twenty-three patients under 40 years of age (mean, 28.0 years) with thoracolumbar or lumbar spine fractures were managed by this nonfusion method. Implants were removed at a mean 9.7 months after initial fracture fixation, and patients were observed for more than 18 months. Sagittal alignments of metal fixed segments, heights of vertebral bodies, recovered motion ranges in flexion/extension, right-left bending view were measured radiologically. Clinical aspects, such as gross deformities and functional abilities, were also investigated.

RESULTS: Heights of fractured bodies were well maintained at final follow up. Initial mean sagittal angle was 17.2° kyphosis, which became 2.8° lordosis after fixation of fractures. This angle was 1.7° kyphosis just before implant removal, 2.4° kyphosis just after implant removal and showed 5.9° kyphosis at final follow up. Mean segmental motion was 14.2° in the sagittal plane and 13.1° in the coronal plane at final follow up. Most patients were satisfied with final gross appearance and functional outcome.

DISCUSSION AND CONCLUSION: The described nonfusion method appears to be effective in achieving favorable sagittal alignment and regaining motions of fixed segments. The present study suggests that the nonfusion method is one of the most effective methods for managing thoracolumbar fractures, especially in young active people.