

E-BABE- Use of the Three-dimensional Printed Model-assisted Screw Installation for the Treatment of Posterior Spondylolisthesis Transpedicular Fixation

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Abstract

The present study aimed to compare patients in whom an operation plan was prepared before surgery using the 3D modeling technology with the application of freehand screws using magnetic resonance imaging (MRI) and computed tomography (CT) scan images. The printings and modelings were established in the Innovation Laboratory of Kütahya Health Sciences University. Of 36 patients, 16 underwent surgery with 3D printing (group 1) and 20 with the freehand technique (group 2). The surgeries were performed by the same surgeons. Moreover, 5-mm pedicle screws were located in 92 vertebrae in 16 patients in whom 3D modeling was used and in 124 vertebrae in 20 patients in whom this modeling technique was not used. No screw invasion was classified under Category D (>4-mm cortical invasion). By contrast, of the 216 cases of screw invasion, 12 (5.5%), 25 (11.57%), and 144 (66.66%) were classified under Categories C, B, and A, respectively. Invasions occurred in all lumbar spine levels other than L5 and were commonly observed in the L1 vertebra level. The use of the improved 3D technology in the neurosurgery field is advantageous for surgeons as it decreases the preoperative preparation phase, length of operation, and risk of complications.



Biography:

İsmail Kaya has completed his medical school at the age of 24 years from Afyon Kocatepe University. İsmail Kaya has been neurosurgery specialist Katip Çelebi University in 2015. He currently works as an academician at the Kütahya University of Health Sciences. He has published more than 20 papers in

reputed journals and has been serving as an editorial board member of repute.

Speaker Publications:

1. “Comparison of the Effects of Contractubex Gel and Benzothiazole after Topical Application in an Experimental Model of Epidural Fibrosis in Rats”. World Neurosurgery/ June 2018/ Pages 01-08.
2. “The Role of Triangular Vertebral Canal Shape in Surgical Management of Patients with Lumbar Spinal Stenosis: A Cross-Sectional Study”. Turkish neurosurgery/ October 2017/ Pages 01-07.
3. “Spinal Kord Stimulatörü Uygulamasında Cerrahi Teknik ve Endikasyonlar”. Türkiye Klinikleri J Neurosurg-Special Topics 2017;7(2): 117-9.

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