

Surgical correction of Degenerative Sagittal Imbalance of the Lumbar Spine

Aleksey Vladimirovich Peleganchuk, Baikov E S, Sanginov A J, Leonova O N and Krutko A V
Novosibirsk Research Institute of Traumatology and Orthopedics named after Tsyvyan Y L, Russia

Objective: To analyze the early clinical and radiological outcomes of Lumbar Spine Fusion in patients with Degenerative Sagittal Imbalance.

Material and Methods: The data of 45 patients who were operated on sequentially using a combination of surgical methods for Vertebrogenic Pain Syndrome and (or) neurological deficit and who had a violation of the sagittal balance of degenerative origin were analyzed. All patients underwent anterior spinal Fusion at the L4-L5, L5-S1 levels to correct and restore lower lumbar lordosis. The next stage was decompression through posterior approach, if necessary supplemented by interbody fusion at clinically significant lumbar levels above the L4-L5 segment. In all patients, surgical treatment was completed with screw transpedicular fixation at the levels of interbody fusion. Demographic, clinical and surgical data and radiological parameters were evaluated.

Results: The study included data from 6 men and 39 women with an average age of 58.9 ± 7.8 years. Duration of hospital stay was 27.1 ± 7.4 days. The primary surgery was performed in 33 (73.3 %) patients and the reoperation for pain recurrence after previous surgery at the same lumbar level - in 12 (26.7 %) patients. The duration of surgery was 529.8 ± 117.8 min, the blood loss was 1130.4 ± 560.1 ml. Back and leg pain VAS score decreased after surgery from 6.7 ± 0.9 and 4.7 ± 1.4 to 3.3 ± 0.9 and 0.5 ± 0.6 , respectively ($p < 0.001$). The ideal sagittal type according the Russoly's classification was restored in 27 (60 %) cases, that below the ideal - in 9 (20 %), and hypercorrection was in 9 (20 %). PT decreased from $26.1^\circ \pm 5.7^\circ$ to $17.4^\circ \pm 3.9^\circ$ ($p < 0.001$) and SVA - from 6.7 ± 3.5 to 2.7 ± 2.3 cm ($p < 0.001$). LL increased from $36.3^\circ \pm 18.5^\circ$ to $55.1^\circ \pm 11.8^\circ$ ($p < 0.001$) and Low LL - from $13.5^\circ \pm 9.8^\circ$ to $37.9^\circ \pm 8.2^\circ$ ($p < 0.001$). According to GAP, the number of patients with severe and moderate imbalance was reduced ($p < 0.001$). Surgical complications were observed in 26 (57.7 %) patients.

Conclusion: The multi-stage surgical treatment of patients with Degenerative Spinal Deformities using corrective fusion in the Lumbar Spine significantly improves parameters of the spinopelvic and global sagittal balances in the early postoperative period.

Biography

Aleksey Vladimirovich Peleganchuk is the Chief of the Vertebrology Department in the Novosibirsk Research Institute of Traumatology and Orthopedics. He participated as an Investigator in study Degenerative Spondylolisthesis from 2012 to 2014 and as a Co-Investigator in MASTERS-D2 Study sponsored by Medtronic since 2018.

e: apeleganchuk@mail.ru