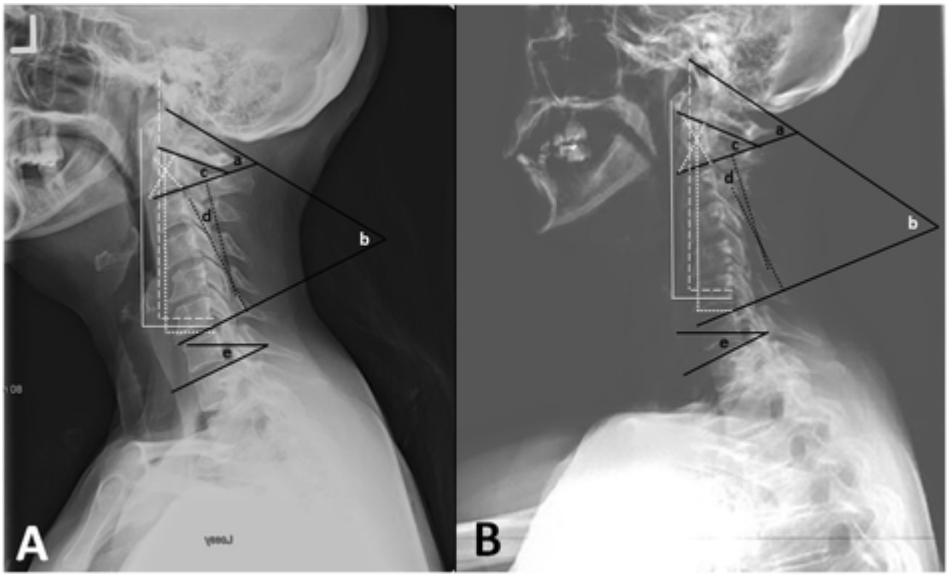
C7 plumb line



Cervical lateral radiograph; b Detail of 36-inch lateral radiograph showing measurements a. Occiput-C2 sagittal Cobb angle, b. Occiput-C7 sagittal Cobb angle, c. C1-C2 sagittal Cobb angle, d. C2-C7 sagittal Cobb angle, e. T1 tilt. Horizontal solid white line: C1-C7 Sagittal Vertical Axis - distance between plumb line dropped from anterior tubercle of C1 and posterior superior corner of C7; Horizontal white dotted line: C2-C7 Sagittal Vertical Axis—distance between plumb line dropped from centroid of C2 and posterior superior corner of C7; White dashed line: Center of Gravity-C7 Sagittal Vertical Axis—distance between plumb line dropped from anterior margin of external auditory meatus and posterior superior corner of C7

Decompressive lumbar laminectomy caused posterior migration of the C7PL and increased the lumbar lordosis. [1)].

88 patients with LSS (47 men and 41 women) who ranged in age from 39 to 86 years (mean age 68.7 years). All patients had undergone microendoscopic laminotomy at Osaka City University Graduate School of Medicine from May 2008 through October 2012. The minimum duration of clinical and

radiological follow-up was 6 months. All patients were evaluated by Japanese Orthopaedic Association (JOA) and visual analog scale (VAS) scores for low back pain, leg pain, and leg numbness before and after surgery.

Sagittal vertical axis (SVA) was measured on lateral standing radiographs of the entire spine obtained before surgery.

Radiological factors and clinical outcomes were compared between patients with a preoperative SVA ≥ 50 mm (forward-bending trunk [F] group) and patients with a preoperative SVA < 50 mm (control [C] group).

A total of 35 patients were allocated to the F group (19 male and 16 female) and 53 to the C group (28 male and 25 female).

The mean SVA was 81.0 mm for patients in the F group and 22.0 mm for those in the C group. At final follow-up evaluation, no significant differences between the groups were found for the JOA score improvement ratio (73.3% vs 77.1%) or the VAS score for leg numbness (23.6 vs 24.0 mm); the VAS score for low-back pain was significantly higher for those in the F group (21.1 mm) than for those in the C group (11.0 mm); and the VAS score for leg pain tended to be higher for those in the F group (18.9 ± 29.1 mm) than for those in the C group (9.4 ± 16.0 mm).

Preoperative alignment of the spine in the sagittal plane did not affect JOA scores after microendoscopic laminotomy in patients with LSS. However, low-back pain was worse for patients with preoperative anterior translation of the C-7 plumb line than for those without [2].

1)
Jeon CH, Lee HD, Lee YS, Seo HS, Chung NS. Change in sagittal profiles after decompressive laminectomy in patients with lumbar spinal canal stenosis: a 2-year preliminary report. Spine (Phila Pa 1976). 2015 Mar 1;40(5):E279-85. doi: 10.1097/BRS.0000000000000745. PubMed PMID: 25901983.
2)
Dohzono S, Toyoda H, Matsumoto T, Suzuki A, Terai H, Nakamura H. The influence of preoperative spinal sagittal balance on clinical outcomes after microendoscopic laminotomy in patients with lumbar spinal canal stenosis. J Neurosurg Spine. 2015 Jul;23(1):49-54. doi: 10.3171/2014.11.SPINE14452. Epub 2015 Apr 3. PubMed PMID: 25840041.