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LAMINOPLASTY AND WIDE DECOMPRESSION WERE RISK FACTORS OF C5 PALSY: ANALYSIS OF 303 SURGICAL CASES WITH CERVICAL COMPRESSION MYELOPATHY

Introduction

C5 palsy is a potential complication after posterior cervical decompression. Before 2009, the incidence of C5 palsy was 9.5% after double-door laminoplasty combined with laminectomy (DL) at our institute. Since 2009, we have performed laminectomy alone (LAM) of 2-3mm wider than the spinal cord width which was measured on preoperative myelogram-CT, successfully reducing its incidence to 1.0%. Purpose of this study is to elucidate the risk factors of C5 palsy by reviewing the surgical outcomes.

Materials and Methods

Out of 303 cervical myelopathic patients enrolled in this study, 105 patients underwent DL. The rest of 198 underwent LAM as wide as preoperatively planned. We statistically analyzed risk factors of C5 palsy such as surgical procedures, difference in width between surgical decompression and spinal cord (DW), dimension of C4/5 foramen measured at its narrowest point on axial CT, the amplitude of posterior spinal cord shift at C4/5 level (PSS) on sagittal MRI, cervical curvature on plain X rays, the numbers of surgically interfered laminae, OPLL, T2 high intensity area at C3/4 level on MRI, age, gender, operation time and blood loss.

Results

Univariate analysis showed significantly higher incidence of C5 palsy in patients with DL than those with LAM (p=1.60E-05) and in males (p=1.67E-02). DW (p=5.16E-05), PSS (p=7.38E-05), age (p=9.80E-03), the numbers of surgically interfered laminae (p=4.96E-03), operation time (p=1.13E-03), and blood loss (p=3.02E-05) were significantly greater in patients with C5 palsy than those without. Dimension of C4/5 foramen was significantly narrower in patients with C5 palsy than those without (p=6.76E-04). Multivariate logistic regression analysis revealed that DL (OR, 17.2; 95% CI, 2.8 to 103.9), DW (OR, 1.2; 95% CI, 1.0004 to 1.4), dimension of C4/5 foramen (OR, 0.2; 95% CI, 0.08 to 0.6) and age (OR, 1.2; 95% CI, 1.1 to 1.4) were considered as the risk factors of C5 palsy.

Discussion and Conclusion

Double-door laminoplasty, wide decompression, C4/5 foraminal stenosis and advanced age at surgery were considered as the risk factors of C5 palsy. Laminectomy of 2-3mm wider than the spinal cord width dramatically reduced its incidence.