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Outcome of dorsal open reduction with pedicle screw rod internal fixation for lower cervical dislocation: a retrospective analysis of 12 cases

Introduction/Aim: To retrospectively analyze the effectiveness and safety of dorsal open reduction with pedicle screw rod internal fixation for lower cervical dislocation patients.

Methods: The surgical records of 12 patients with lower cervical dislocation due to lower cervical articular process fracture or dislocation were reviewed. The patients underwent dorsal open reduction and manual pedicle screw rod fixation under lateral fluoroscopy. In patients with cervical spinal cord injury, open door expansive laminoplasty (single door technique) was performed simultaneously.

Results: Twelve patients were included. Three (25%, 3/12) had unilateral fracture of the inferior articular process with semi-dislocation of the ipsilateral articular process, three (25%, 3/12) had unilateral locked facet of the articular process, and six (50, 6/12) had bilateral locked facets of the articular processes. Nine (75%, 9/12) had cervical spinal cord injury of different severities. The median time to operation from injury was 2 (range, 1 to 3) weeks. X ray examination, CT with sagittal reconstruction and MRI revealed that anatomical reduction was achieved for cervical spine dislocation in all patients, and cervical spine sequence recovered well after surgery. In 9 patients with cervical spinal cord injury, slightly more patients (55.6%, 5/9) showed improvement in ASIA grade following surgery compared with baseline. In 3 patients without cervical spinal cord injury, there was no postoperative worsening of neurological impairment.

Conclusion: Simple dorsal open reduction with pedicle screw rod reduction fixation is safe and effective for lower cervical spine dislocation due to articular process injury. Decompression, reduction, and fixation can be obtained in a single posterior approach for the patient of lower cervical spine dislocation with spinal cord injury.