

eP-11

Complications and risk factors of ACAF for the treatment of cervical OPLL

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Background: We have designed a novel surgery technique - anterior controllable antidisplacement and fusion (ACAF) strategy in a hope to achieve anterior direct decompression without removing the OPLL. However, as a new technology, ACAF still has some surgical related complications.

Objective: The aims of the procedure are to analyze the complications and risk factors of ACAF following treatment for cervical OPLL.

Methods: Between Oct. 2018 and Dec. 2022, a total of 59 patients who underwent ACAF surgery for OPLL at our department were conducted.

Before surgery, a detailed radiologic examination including x-ray and CT was performed to investigate the extent and type of OPLL. MRI showed the condition of spinal cord compression and presence of high intensity zones. Patient demographics, medical comorbidities, operative details and outcomes were collected and analyzed. Condition severity was evaluated using the JOA scoring system.

Results: The mean preoperative JOA score was 10.6 ± 2.9 , which improved to 14.1 ± 2.6 at 6 months and 14.5 ± 2.0 at 1 year postoperatively. Ten (16.9%) surgical complications were recorded in the cohort. C5 palsy occurred in four cases (6.8%). Transient minor neurological deterioration, manifesting with the weakness of limbs occurred in 2 cases (3.4%) after operation and the muscle strength was improved to 4+ at the 6 months follow-up. The CSF leak occurred in 3 cases (5.1%) and lumbar drainage was performed at the second postoperative day for one case. Vertebral fracture occurred in one case (1.7%) when tightening the screw to displace the bodies anteriorly during the operation. There was no occurrence of postoperative hematoma. No instrumented failure was observed during follow-up.

Conclusion: ACAF technology can reduce the incidence of surgical complications following the treatment for cervical OPLL. OPLL extends over 3 levels, ossification mass on the very lateral, and osteoporosis are risk factors for complications.

Fig. 1

