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Cast test: surgical outcome prediction of thoraco-lumbar spine correction surgery for sagittal vertical axis (+) type dropped head syndrome: A report of initial five cases.

Masao Koda¹, Toru Funayama¹, Hiroshi Takahashi¹, Hiroshi Noguchi¹, Kousei Miura¹, Hisanori Gamada¹, Masashi Yamazaki¹

¹*University of Tsukuba, Department of Orthopedic Surgery, Tsukuba, Japan*

Background: Dropped Head Syndrome (DHS) is defined as a syndrome showing passively correctable chin-on-chest deformity. DHS can be classified by the value of 7th cervical vertebra sagittal vertical axis (SVA) into SVA (-) and SVA (+) types. SVA (-) type DHS shows apparent cervical spine kyphosis and compensatory lumbar hyper-lordosis. SVA (+) type DHS is primarily caused by kyphotic deformity in the thoraco-lumbar spine leading to an increase in T1slope. Large T1 slope needs compensatory increase in cervical hyper-lordosis to keep forward gaze. If decompensation of cervical spine hyper-lordosis occurs, it easily results in head drop. As for surgical strategy, there is ongoing debate regarding surgical options for SVA (+) type DHS. In recent cases, we apply thoraco-lumbar spine corrective surgery for SVA (+) type DHS. One of the big problems of this surgery is prediction of surgical outcome is difficult for both we physicians and patients.

Research question: Can surgical outcome of thoraco-lumbar spine corrective surgery for SVA (+) type DHS be predicted by cast test?

Design: Small case series.

Methods: Five consecutive patients who received thoraco-lumbar spine kyphosis correction for SVA (+) type DHS in our institute were included into the present study. Body cast was applied in prone position with possible kyphosis correction on Risser table. Immediate reduction of dropped head symptoms was considered as positive cast tests.

Results: In all 5 cases, a significant improvement in dropped head symptoms was observed immediately after applying the body cast. In all 5 cases, a significant improvement in dropped head symptoms was observed after surgery.

Discussion: The Cast test might be useful for surgical decision-making and patient explanation in cases of SVA (+) type DHS.

Fig. 1

