

Abstract #1406.docx

Readability of cervical distal end in the cervical lateral X-ray.

Whether the measurement method can be used during surgery?

Introduction

Several evaluation methods for cervical alignment and cervical balance have been reported. It is important to evaluate them during surgery. However, there were few reports about the readability of cervical X-ray during surgery. We evaluated the readability focusing on distal end of the cervical spine in the cervical lateral X-ray.

Subjects and Methods

Cervical lateral X-rays of 105 cervical myelopathy patients who underwent posterior surgery (laminoplasty or laminectomy) were evaluated pre- and intra-operatively. We classified the readability of cervical distal end (Th1 upper endplate, C7 lower and upper endplate) in three grades: "Clear (C)", "Readable (R)" by viewer software processing, and "Not readable (N)". The patient's head was fixed by 4 pins direct skull crump system on the slight head-up tilt table during surgery. Their shoulders were pulled caudally by taping.

Results

In the pre-operative X-rays, Th1 upper endplate showed C = 31 cases, R = 15 cases, and N = 59 cases. C7 lower endplate showed 55, 13, and 37 cases. C7 upper endplate showed 85, 18, and 2 cases. In the intra-operative X-rays, Th1 upper endplate showed C = 3 cases, R = 5 cases, and N = 97 cases. C7 lower endplate showed 9, 15, and 81 cases. C7 upper endplate showed 29, 40, and 36 cases. Therefore, Th1 upper endplate was readable in 46 cases (43.8%), C7 lower endplate was readable in 68 cases (64.8%), and C7 upper endplate was readable in 103 cases (98.1%) pre-operatively, in 8 cases (7.6%), 24 cases (22.9%), and 69 cases (65.7%) intra-operatively.

Discussion

In the evaluation of cervical alignment and cervical balance, it is considered that evaluation in as long range as possible is desirable. Considering from the readability, these data suggest that C7 upper endplate was clinical useful as the measurement reference of the cervical distal end.