



Response to: “Long-term Outcomes of *In Situ* Fusion for Treating Dysplastic Spondylolisthesis”

Kazuhide Inage¹, Sumihisa Orita¹, Kazuyo Yamauchi¹, Miyako Suzuki², Yoshihiro Sakuma³, Go Kubota¹, Yasuhiro Oikawa⁴, Takeshi Sainoh⁵, Jun Sato¹, Kazuki Fujimoto¹, Yasuhiro Shiga¹, Koki Abe¹, Hirohito Kanamoto¹, Masahiro Inoue¹, Hideyuki Kinoshita¹, Masaki Norimoto¹, Tomotaka Umimura¹, Kazuhisa Takahashi¹, Seiji Ohtori¹

¹Department of Orthopaedic Surgery, Graduate School of Medicine, Chiba University, Chiba, Japan

²Department of Bioenvironmental Medicine, Graduate School of Medicine, Chiba University, Chiba, Japan

³Department of Orthopaedic Surgery, National Hospital Organization Chiba Medical Center, Chiba, Japan

⁴Department of Orthopaedic Surgery, Chiba Children's Hospital, Chiba, Japan

⁵Department of Orthopaedic Surgery, Sainou Hospital, Toyama, Japan

Comment:

1. Almost all patients had Grade 4 or 5 injuries before the operation. In addition, almost all patients had Grade 4 or 5 injuries after the operation because they received *in situ* fusion. Considering that we did not intentionally aim to use slip reduction (repositioning), the Meyerding grade could not have been largely altered at that time. However, because we attempted to reset the upper rear side of the sacrum from the back, in some cases, the grade may have indicated certain improvement at a glance. As pointed out by you, shearing force surely works, but there was no difference in intraoperative procedures depending on the slip level (instability level), and all cases were consolidated with a 6-month hard-corset fixation, including postoperative external fixation. In addition to younger age, soft tissue preservation serves as an advantage in *in situ* fusion; therefore, it is assumed that there would be a large muscle effect because of the posterior support construction.
2. Obvious adjacent segment disease was not observed in

this series. At this point, it can be assumed that there was a large muscle effect because of the posterior support construction due to the younger age of the subjects. However, this may have been influenced by the almost absent intervertebral disc degeneration from the beginning.

3. There was no such case in our study. Rather than posterior tilting, the pelvis showed forward tilting, and lordosis became severe in almost all cases. In addition, as described in the limitations, there were almost no patient records for the entire spinal column due to the items from years ago. Approximately half of the study subjects showed scoliosis (idiopathic type) as a complication. Furthermore, lumbar lordosis in the subjects was more severe than that in healthy people, and this symptom did not improve even after the operation.
4. There is scope for discussion owing to the small number of cases, but considering the study results at our facility, we would like to recommend *in situ* fusion for all cases. We believe that the thoughtless use of slip reduction (repositioning) may result in more harm than

Received May 5, 2017; Accepted May 8, 2017

Corresponding author: Kazuhide Inage

Department of Orthopaedic Surgery, Graduate School of Medicine, Chiba University,
1-8-1 Inohana, Chuo-ku, Chiba 260-8670, Japan

Tel: +81-43-226-2117, Fax: +81-43-226-2116, E-mail: kazuhideinage@yahoo.co.jp

good.

5. We did not investigate the patients' opinions regarding external appearance, but there were no particular complaints related to this aspect in the patients' medical records. In addition, we supposed that the severe neurological symptoms of lower extremity injury were the operative indication in many cases; therefore, we noted a high level of postoperative satisfaction in most cases.
6. Because of the different radiographic timings among the older patients, the details of average time to fusion

were unknown. Bone adhesion was assumed to occur at approximately 6–12 months after the operation. Furthermore, there was no case with delayed bone adhesion. Interbody fusion involved approximately 3–6 intervertebral discs.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.