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Letter to the Editor
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Response to: Incidence and Skeletal Features of Developmental Cervical and Lumbar Spinal Stenosis

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Thank you for reading our paper, "Incidence and skeletal features of developmental cervical and lumbar spinal stenosis [1]." We have tried to answer the queries to the best of our knowledge. Hope we are able to answer the queries well.

1. First, this study reported the anatomical fact that cervical spine and skull hypoplasia was common in DCSS patients but lacked an explanation as to the mechanism. Indeed, the author pointed out the possible involvement of genetic factors and perinatal problems. Still, it would have been better to discuss the mechanism in terms of embryology and its relationship to congenital diseases that cause abnormalities in both the skull and the cervical spine (i.e., Klippel-Feil syndrome). Furthermore, a common genetic cause between DCSS and diseases that cause abnormalities in the cranio-cervical region may contribute to understanding the pathogenesis of the disease.

Response: Thank you very much for your valuable comment. We thought genetic and embryonal factors might affect the growth of the cervical spine and skull. However, this study was cross sectional study of dry bone. We could not investigate the embryonal growth and other genetic factors in our samples.

2. Second, a statistical analysis was conducted by dividing the anteroposterior diameter of the spinal canal into two groups at a cut-off value of 12 mm. While 12 mm may be a relatively good consensus cut-off value, we wonder if there was any correlation between the various parameters and the values of the anteroposterior diameter of the spinal canal [2]. In a previous study of 243 Japanese subjects, the inter-inner canthal distance was 2.7 cm in the DCSS (+) group and 3.5 cm in the DCSS (-) group, a significant difference, but the difference in the present study was 2.57 and 2.72 cm, which was not very large [3]. What could be the reason for this? Is it race—or a difference in the measurement method?

Response: There might be both reasons. The race may affect these parameters. The measurements were different between the studies, one measurement by imaging but our recent study measured by scale.

3. Finally, craniofacial structures are known to vary widely by ethnicity. In fact, between Caucasians and Asians, the inter-inner canthal distance appears to be nar-

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rower in Caucasians [4]. From this argument, Caucasians appear to be more prone to DCSS when we compared the prevalence of this phenomenon. In other words, using only the inter-inner canthal distance as an indicator will result in data that are applicable only under limited conditions. Considering these facts, it still seems desirable to combine them with other indicators, such as the ratio of the anteroposterior diameter of the vertebral body to the anteroposterior diameter of the spinal canal (Torg-Pavlov ratio) [5], vertebral height, ratio of anteroposterior and transverse diameters, and deformities, so that we can obtain more accurate results. This is an impressive study with data that support the clinician's intuition that humans with low-profile facial bones have low-profile spinal canals and that clinical applications are available immediately. We would appreciate it if the authors answered our questions and responded to our suggestions for further understanding.

Response: Thank you very much. This is a very interesting comment. We will further conduct the study regarding the relationship between inter-inner canthal distance and the Torg-Pavlov ratio.

Conflict of Interest

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

Author Contributions

All the work was done by Yuichi Kasai and his colleagues.

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