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Letter to the Editor

Commentary on "A Universal Craniometric Index for Establishing the Diagnosis of Basilar Invagination"

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To the editor,

We read with great enthusiasm the latest paper of Sardhara et al.[1] in Neurospine, and they offer a novel universal diagnostic test for all types of basilar invagination (BI). They conclude that the distance from the line between the posterior tip of the hard palate-internal occipital protuberance (P-IOP line) was an accurate diagnosis of all types of BI. The study reached a 0.853 area under the curve (AUC) value for 8.99 mm with 76.2% sensitivity and 79.3% specificity. However, we have some concerns regarding the content of this article.

Congenital atlas occipitalization is mentioned in the second paragraph of the introduction; it is not mentioned that these anomalies accompany type B BI.[1] Type A BI is acquired so that congenital anomalies do not accompany.[2-4] It is also said that the current BI diagnostic tests are dependent on head movement, but the recommended method is also affected by extension-flexion maneuvers.[2] Boogaard's angle is the only measurement method that is not affected by the head position in the diagnosis of BI.[2] In recent publications, BI accompanying atlas occipitalization rates vary between 26% and 52%.[2,4] While the study results are examined, it seems unlikely that there will be 64 occipitalization cases versus 23 type B BI cases.[1]

The STARD (Standards for Reporting of Diagnostic Accuracy Studies) statement should be followed because the authors propose a new diagnostic test.[5] Moreover, they should have made a comparison with an existing diagnostic test. The authors suggested that the measurement method they proposed had high reproducibility. The limitation section states that the measurements were made independently by 2 radiologists and 2 neurosurgeons, but this situation is not mentioned in the materials and methods section. There is no evidence for reproducibility. Since the result of the interobserver agreement of these observations is not given. Moreover, computed tomography and magnetic resonance modalities were used, and it was stated that the pilot measurements performed in 10 patients were not different. However, Koo and Li[6] stated that at least 3 observers and 30 measurements were required for reproducibility studies.

Although the authors state that their methods are highly applicable in conclusion, there is not enough evidence to support this hypothesis. Moreover, the 0.886 AUC value found for type b BI is lower than, Nascimento et al.[4] found for the vertical line drawn from Chamberlain line to the odontoid tip, AUC is 0.963 (accuracy: 0.904), and Baysal et al.[2] found AUC for Boogaard's angle to be 0.977 (accuracy: 0.954). We recommend using classical di-

agnostic tests for BI. Atul Goel stated that in a recent editorial, "Basilar invagination was for long considered to be a radiological curiosity rather than a surgically treatable clinical entity."[3] Radiology is only helpful in diagnosis.[2,4] Whichever diagnosis your patient's radiological measurements indicate, it is the patient's clinical complaints that matter.

Apart from these criticisms, another issue that attracted our attention was related to the figures. In Fig. 1A and B, the basion and opisthion are not shown in the correct positions.[2,4,7] If the patient shown in Fig. 1C is visualized with a more appropriate window, we can observe a sclerotic separation line even with an atlas fusion.[1] In Fig. 3A, B, and D, the vertical lines to be drawn to the P-IOP line are not perpendicular to the odontoid tip, each extending from the odontoid tip to the P-IOP line at different angles.

CONFLICT OF INTEREST

The authors have nothing to disclose.

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