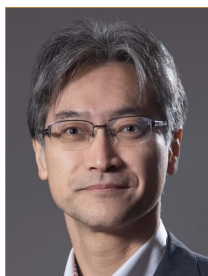




## Editorial



# Commentary on “Surgical Versus Conservative Management for Treating Unstable Atlas Fractures: A Multicenter Study”

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See the article “Surgical Versus Conservative Management for Treating Unstable Atlas Fractures: A Multicenter Study” via <https://doi.org/10.14245/ns.2244352.176>.

Traumatic atlantoaxial instability caused by atlas fracture has been a well-known lesion for a long time, however, surgical indication and appropriate operation based on injury type are still controversial. It must be a clue that preoperative radiological evaluation whether a tensile structure of the transverse atlantal ligament (TAL), which is composed primary of collagen fibers with very few elastic fibers,<sup>1</sup> is intact or not as well as a complexity of atlas fracture. Instability related to the TAL is divided to 2 types using magnetic resonance imaging by Dickman’s classification: a TAL type I injury, characterized by a direct rupture of the ligament, whereas a TAL type II injury, involving an avulsion fracture at the attached site of the ligament.<sup>2</sup> Several previous reports have described surgical indication should be differentiated considering this classification.<sup>2-4</sup> Recently, more precise information about radiological findings can be helpful to make a decision for optimal management, and innovative development of spinal fixation has improved quality and safety of spinal fusion even in this complicated area. Therefore, ideal and comprehensive treatment should be changed according to modest concept.

Based on these perspectives, the authors have reported clinical outcomes of multicenter comparative study between conservative and surgical management for isolated atlas fracture, which have a high potential for instability.<sup>5</sup> The authors have also evaluated preoperative radiological parameters that associated with faster osseous fusion and better clinical outcome after treatment in both groups. All patients enrolled in the study had atlas fracture with lateral mass displacement (LMD) following “rule of Spence” and dysfunction of TAL including either type I or type II injury. Surgical treatment provided more rapid bone healing with significantly better clinical and radiological outcomes compared to those in conservative management with halo-vest immobilization (HVI). Specifically, total LMD and the anterior atlantodental interval were significantly improved in the surgical group indicating satisfactory restoration was maintained anatomically. Contrary to previous expectations, clinical outcome and bone fusion rate did not correlate with Dickman’s classification of TAL injury.

Interestingly, about 70% of patients with unstable atlas fractures achieved bone fusion and acceptable stability even though conservative treatment. However, it should be kept in our mind that there was limitation of external immobilization with HVI for good healing if patients had preoperative LMD which is wider than 8.86 mm as the authors indicated.



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“Rule of Spence” can fulfill a role to find out highly probable TAL dysfunction rather than covering detection of this dysfunction in all cases. Actually, Spence et al.<sup>6</sup> reported the spread of the lateral masses on open-mouth radiographic views ranged from 4.8 to 7.6 mm in case with transverse ligament rupture. Therefore, TAL failure related to atlas fracture can be underestimated only focusing on LMD.<sup>7</sup> Definition and surgical indication of unstable atlas fracture should be reconsidered with precise evaluation of atlas fracture and TAL condition. Additionally, as the authors described, surgical indication and methods depended on surgeon’s preference and experience in this study. The ideal selection of surgical fixation should be investigated by determination of more cases in prospective and multicenter studies.

**Conflict of Interest:** The author has nothing to disclose.

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