



Letter to the Editor: Postoperative Low Back Pain after Posterior Lumbar Interbody Fusion Surgery Using Cortical Bone Trajectory Screws

Sanjay Singh Rawat, Sarvdeep Singh Dhatt, Vijay G. Goni, Vishal Kumar

Department of Orthopaedics Surgery, Postgraduate Institute of Medical Education and Research, Chandigarh, India

We read and discussed at length the article “Postoperative low back pain after posterior lumbar interbody fusion surgery using cortical bone trajectory screws” by Nakajima et al. [1] in our departmental journal club recently. The cortical bone trajectory (CBT) technique has been described as an upcoming new technique with promising results in recent literature. But according to the author of this study, there was no difference between the two methods except on low back pain improvement, increased or comparable blood loss in the CBT group than pedicle screw (PS) group. Previous studies have reported benefits of less blood loss, less hospital stay, and less incision length in CBT patients when compared to the traditional pedicle trajectory screws technique [2-4]. This is in conflict and contrast to this study with no explanations put forth for this significant finding. The present authors did not mention the diameter of screws used and only mentioned the length of the screws. As reported by Senoglu et al. [5], L1 to L5 pedicle-pars interarticularis junction was not wide enough to accommodate 5mm diameter screw in 35%, 24%, 17%, 17%, and 19%, respectively on the right side

and in 30%, 17%, 17%, 17%, and 20%, respectively on the left side and the average length of screws ranged from 27 ± 2.5 mm to 30.5 ± 3.4 mm. Henceforth, the complications associated with unfitting screw sizes might have been one reason for the altered result but as in previous studies there is heterogeneity in terms of CBT surgical technique, screw length and diameter, navigation assistance techniques, and follow-up durations, their results may not be directly comparable.

Nakajima et al. [1] have not mentioned the technique adopted for screw insertion, whether it was freehand technique, fluoroscopy assisted, or navigation-based. We are inquisitive to know of difficulty faced while inserting CBT screws, if any, as with increased learning curve, surgeons are not so familiar with this technique as compared to traditional PS techniques. Did the surgeons encounter any difficulty in putting screws with partially or fully destructed articular joints, as put forth by Iwatsuki et al. [6] in their study? The author compared two groups with an enormous difference in their sample size, which isn't an ideal situation to compare the outcomes of

Received Nov 25, 2020; Revised Nov 29, 2020; Accepted Nov 29, 2020

Corresponding author: Vishal Kumar

Department of Orthopaedics Surgery, Postgraduate Institute of Medical Education and Research, Chandigarh, 160012, India

Tel: +91-9914208789, Fax: +91-1722756740, E-mail: drkumarvishal@gmail.com

both the groups. Lee et al. [7] mentioned less incidence of facet joint violations and surgical morbidity along with decreased operative time, less blood loss, and smaller incision using CBT screws. Were Nakajima et al. [1] able to deduce similar incidences on facet joint violations and surgical morbidities, with any challenge while connecting rods in the CBT group due to its medial position? This was an insightful article that helped to bring out many practical issues that could be faced and the authors have done admirable work. We take this as an opportunity too to thank them for their efforts.

Conflict of Interest

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

References

1. Nakajima N, Maenaka T, Kano H. Postoperative low back pain after posterior lumbar interbody fusion surgery using cortical bone trajectory screws. *Asian Spine J* 2020;14:655-62.
2. Phan K, Ramachandran V, Tran TM, et al. Systematic review of cortical bone trajectory versus pedicle screw techniques for lumbosacral spine fusion. *J Spine Surg* 2017;3:679-88.
3. Hu JN, Yang XF, Li CM, Li XX, Ding YZ. Comparison of cortical bone trajectory versus pedicle screw techniques in lumbar fusion surgery: a meta-analysis. *Medicine (Baltimore)* 2019;98:e16751.
4. Zhang T, Guo N, Chen T, Yan J, Zhao W, Xu G. Comparison of outcomes between cortical screws and traditional pedicle screws for lumbar interbody fusion: a systematic review and meta-analysis. *J Orthop Surg Res* 2019;14:269.
5. Senoglu M, Karadag A, Kinali B, Bozkurt B, Middlebrooks EH, Grande AW. Cortical bone trajectory screw for lumbar fixation: a quantitative anatomic and morphometric evaluation. *World Neurosurg* 2017;103:694-701.
6. Iwatsuki K, Yoshimine T, Ohnishi Y, Ninomiya K, Ohkawa T. Isthmus-guided cortical bone trajectory for pedicle screw insertion. *Orthop Surg* 2014;6:244-8.
7. Lee GW, Son JH, Ahn MW, Kim HJ, Yeom JS. The comparison of pedicle screw and cortical screw in posterior lumbar interbody fusion: a prospective randomized noninferiority trial. *Spine J* 2015;15:1519-26.