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Editorial Response to Letter to Editor and Response by Authors Regarding “Posterior Subaxial Cervical Spine Screw Fixation: A Review of Techniques” by Joaquim et al

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Obey the principles without being bound by them.

—Bruce Lee (writer, actor, and Jeet Kune Do instructor)

As Editors-in-Chief of *Global Spine Journal*, we appreciate the thoughtful inquiry by Amhaz-Escalar et al regarding the narrative review of lateral mass screw fixation options by Joaquim and colleagues.

The question raised can be abstracted as follows:

How specific should we as spine surgeons be in terms of adhering to the very specific recommendations regarding starting points and angles for the placement of lateral mass screw fixation used in posterior segmental fixation of the subaxial cervical spine?

The authors of the narrative review had concluded from their review of the pertinent literature of relatively specific numeric values in their recommendations for such posterior lateral mass fixation—the counterpoint raised by Amhaz-Escalar offered the perspective to consider a more abstract geometric trapezoidal “cube” after individual “navigation” for the safe placement of such screws.

While it is always tempting to seek out safe middle ground in an attempt to settle divergent opinions, in this case this approach seems to be the clear preference in a response in this case.

The diligence and discipline that has been applied in the description and then subsequent refinements of the best technique for placement of subaxial lateral mass screws since their inception by the likes of Roy-Camille, Cooper, and many others has made this form of fixation technique an essential tool in the armamentarium of spine surgeons and a true success story in terms of healing outcomes (very high) and patient safety (very low hardware-related complication rates). It is no stretch to ascribe the reasons for this accomplishment to the diligence of preparation and exacting adherence of surgeons properly trained in the “magic numbers” of starting point selection, drill angulation, and screw hole preparation as developed by the pioneering surgeons in cervical spine reconstruction surgery. To supplant these obviously successful principles with a more generous geometric

“Gestalt”-based approach would seem—at best—unwise, in absence of safety and outcomes evidence to the contrary.

That said, the questions raised by Amhaz-Escalar et al are very poignant as well: every level between C3 and 7 can be expected to have segment specific lateral mass anatomy, and every patient features unique variations brought on by factors such as genetics, nutrition, and a variety of acquired disorders (ie, trauma and diseases). This clearly implies that a “one-size-fits-all” approach would not be a sensible approach when we as surgeons encounter variations. It is therefore incumbent upon surgeons interested in performing posterior lateral mass screw fixation to be familiar with the individual anatomic variations by study of pertinent neuroimaging studies before surgery. Armed with the foundational knowledge of the tried and true principles of posterior lateral mass fixation as described in the review article by Joaquim et al, the surgeons then are able to adapt their surgical technique to the specific requirements of the specific level of the individual patient. Ultimately, the safety of each screw placement is predicated upon avoidance of vertebral artery injury and integrity of nerve roots and the spinal cord while providing best possible biomechanical fixation relative to the patient’s needs. This is where a “cone of safety” concept in lateral mass screw placement can be a very reassuring concept as a hybrid of the various specific angles provided in our historic literature.

The Editors-in-Chief again thank both authors for their contributions and always encourage and welcome further comments and requests by our readership.

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