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**e Truly a Critical Review: Root Cause Analysis of Paraplegia Following Transforaminal Epidural Steroid Injections: "Unsafe" Triangle**

**To THE EDITOR:**

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We read with great interest the article by Glaser and Shah titled "Root Cause Analysis of Paraplegia Following Transforaminal Epidural Steroid Injections: The Unsafe Triangle" (*Pain Physician* 2010; 13:237-244).

For years, the well known "safe triangle" (when performing transforaminal lumbar epidural steroid injection) has been taught and learned by hundreds of interventionists in International Spinal Interven-

tional Society (ISIS) training courses, teaching seminars, books, journals, educational videos, as well as in pain fellowship programs. This technique is considered "bread and butter" of interventional pain management.

As fellowship trained, board certified interventional pain specialists, we were more than stunned by what was presented in this perspective review. The fa-

mous “safe triangle,” suddenly started to appear more like a notorious “unsafe triangle” thanks to the work by Glaser and Shah. We are extremely impressed by the authors’ critical attitude and scientific minds, the courage and curiosity to question and scrutinize what was commonly accepted as the “standard of care” technique, and their painstaking effort in showing that the commonly accepted technique while targeting the “safe triangle” is in fact, dangerous and harmful that is prone to dreadful vascular complications. The demonstration of artery of Adamkiewicz passing through superoanterior aspect of intervertebral foramen and therefore prone to needle injury with “safe triangle” approach, is new, alarming, and has huge clinical implication. They further advocated a novel and safer approach via the inferior intervertebral foramen, the “Kambin’s Triangle,” hopefully to prevent future catastrophic incident due to spinal cord infarction caused by compromising the artery of Adamkiewicz.

We could not agree more with the authors that the so-called “safe triangle” should be labeled “unsafe” in view of the newly revealed “busy vascular region” previously unaware of. Ironically, we probably will see more and more litigations, when complications such as paraplegia happens, probably caused by performing the flawed yet popular technique (safe triangle, by ISIS), attributed to unrecognized intravascular injection that caused spinal cord infarct while employing the “safe triangle” technique, if the “unsafe” technique continues to be utilized.

We thank Glaser and Shah for their work that not only enlightens us interventionists to never take things

for granted, to be critical of what is accepted, and to challenge the known to discover the unknown. This spirit of being critical and meticulous allows the specialty of interventional pain medicine to move forward and thus translate into better and safer patient care.

Lastly, I wish the authors had included more pictures illustrating the “Kambin’s Triangle” under fluoroscopic view and how it was approached under fluoroscopic guidance. The authors recommended using intermittent lateral projections for depth monitoring. Can any bony structure be used for gauging depth, instead of intermittent lateral projections, so as to cut down the radiation exposure and simply the procedure? Also, labels for Figure 4 were missing.

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