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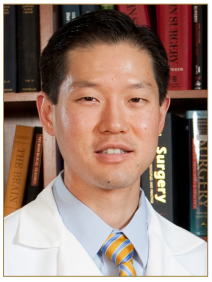
Editorial

Impact of Spinal Navigation on the Oblique Lumbar Interbody Fusion



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See the article "The Navigated Oblique Lumbar Interbody Fusion: Accuracy Rate, Effect on Surgical Time, and Complications" via https://doi.org/10.14245/ns.1938358.179.

A less invasive retroperitoneal pre-psoas approach to the lumbar spine was first proposed by Mayer in 1997.[1] Since then, it has been further refined with the introduction of specialized tubular retractors, instrumentation, and implants to facilitate a more minimally invasive approach for anterior interbody fusion. Also known as the oblique lumbar interbody fusion (OLIF), the approach is used to treat a variety of degenerative spinal conditions including deformity.[2] As with any minimally invasive procedure, the OLIF has the benefit of decreased exposure-related morbidity resulting in decreased blood loss, less postoperative pain, and potentially faster recovery.[3,4]

One of the biggest difficulties with a minimally invasive approach has been the decrease in direct visualization of the surrounding anatomy. This can result in disorientation and the potential for a complication to occur. Compared to a traditional open operation, minimally invasive procedures, therefore, depend more heavily on fluoroscopic guidance for localization and orientation. Unfortunately, this results in increased radiation exposure to the surgeon and staff as well as a perceived increase in operative time.

In this issue of *Neurospine*, the impact of using spinal navigation for OLIF was evaluated in a large series of 214 patients.[5] A high accuracy of 94.86% for cage placement was noted. Notably, the overall rate and types of complications were relatively low and were within expectation for the OLIF procedure. These results suggest that navigation assisted OLIF is safe and effective with the advantage of markedly decreased radiation exposure. Given that radiation exposure is an underrecognized occupational hazard to spinal surgeons, the impact of navigation on surgeon health cannot be over emphasized.

As a caveat, although there have been many studies confirming the accuracy of navigation, it should be noted that there is the possibility of navigation error. One well-known etiology for error, for example, is inadvertent displacement of the patient reference frame. Consequently, navigation should not be blindly followed. Rather confirmation of navigation accuracy should be periodically performed throughout the procedure. The other drawback of 3-dimensional (3D) navigation is the potential for increased radiation exposure to the patient.

In my opinion, the advantages of a navigation assisted OLIF are more prominent with multilevel cases and for treatment of deformity. Typically, only 1 intraoperative image acquisition is required for treatment of up to 4 disc levels so that the balance of radiation exposure to the patient with traditional fluoroscopic versus navigation guidance is more equitable. There is also increased operative efficiency when multiple levels are treated. In addition, the ability to use trajectory views with 3D navigation is of particular benefit when dealing with the rotational component of a spinal deformity.

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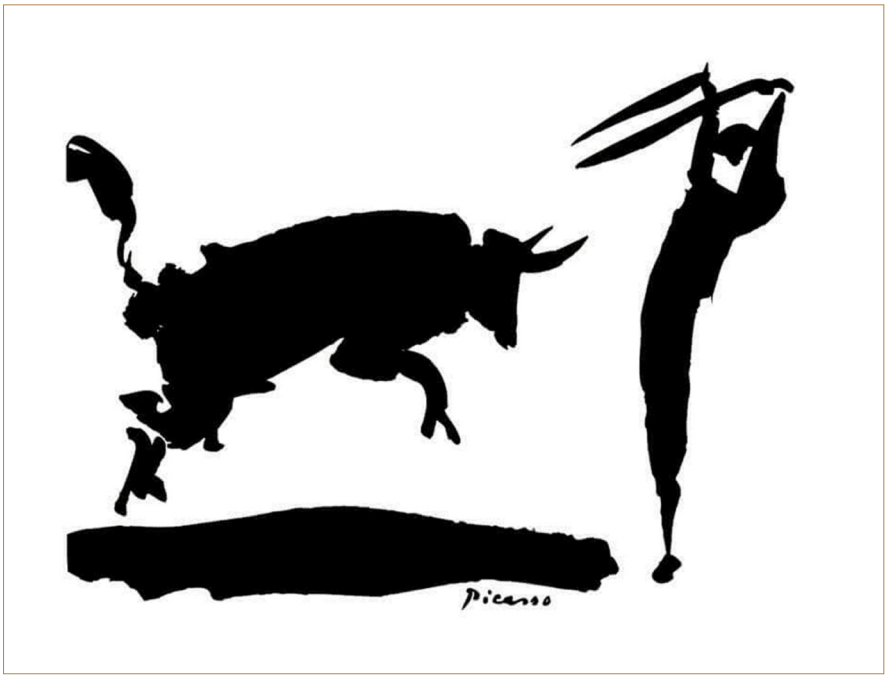

Title: Bullfight III
Artist: Pablo Picasso
Year: 1960
The drawings depict different moments and protagonists of the bullfight, from the banderilleros trying to spear the bull with their banderillas (decorated barbed darts), to the horse-riding picadores attacking the bull with a long spear to weaken it, and the matador, the star bullfighter who engages in the ultimate death of the bull.
More information: https://www.pablopicasso.org/bullfight-3.jsp