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Where in the world (spine) am I?

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Dear Editor,

Gill et al. recently proposed a nomenclature system to establish specific target locations for several spine procedures, including thermal radiofrequency (RF) lesioning [1]. An associated commentary evoked a navigational theme by declaring that this system is "the first step in the right direction" and that while the process of implementation "may be a long road" at least there is now a "map" [2]. However, before universal acceptance, scrutiny seems warranted.

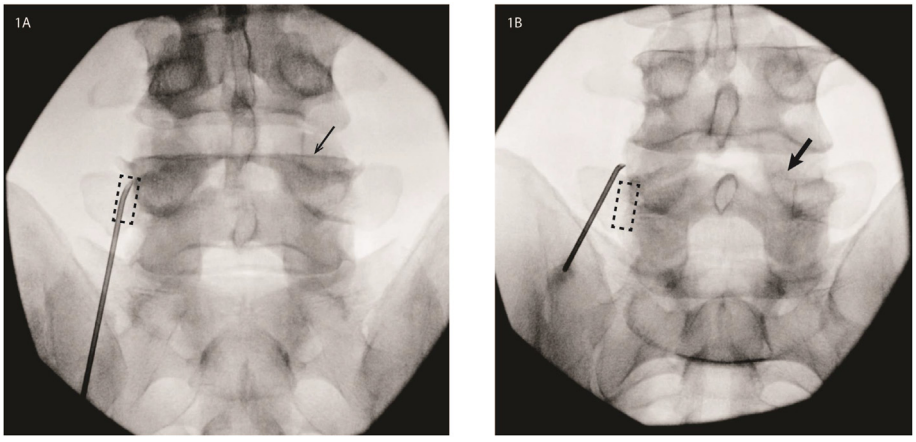
An analogy can indeed be drawn between an individual's geographic location and a device's spine location. For nearly fifty years, global positioning satellite (GPS) applications have provided an individual's exact position anywhere in the world [3]. Sophisticated digital maps and charts have been superimposed on these GPS locations to allow precise navigation and clear communication of location changes [3].

Fortunately, modern fluoroscopy also allows precise imaging of radiopaque devices and their relation to the complex three-dimensional segments of the human spine [4]. Just as GPS systems establish exact geographic locations, true segmental fluoroscopic imaging can indicate a device's precise position in the spine [5–7].

Successful use of digital maps depends entirely upon accurate GPS identification of an individual's location. Erroneous GPS positions provide indeterminate geographical locations. Likewise, as illustrated in Figs. 1 and 2, inaccurate (untrue) segmental spine imaging makes the location of devices in the spine impossible to determine.

Using true AP segmental imaging, as depicted in Fig. 1A, the 16-gauge RF cannula appears appropriately positioned adjacent to the L4 medial branch and within the shaded target zone. However, as shown in Fig. 1B, untrue AP segmental imaging causes the same cannula to appear improperly positioned outside the shaded zone.

Using true lateral segmental imaging, as depicted in Fig. 2A, the cannula appears properly positioned alongside the L3 medial branch and



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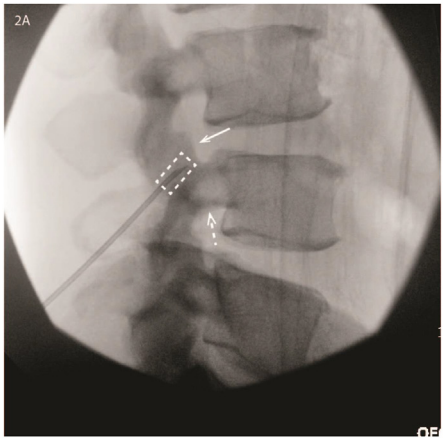

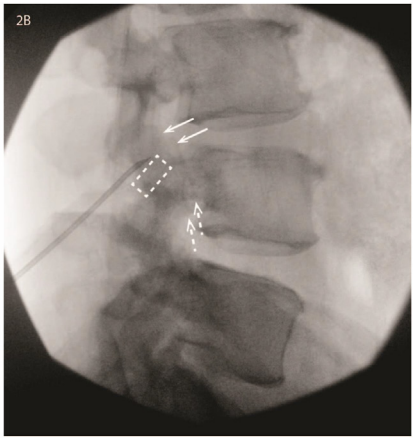

Fig. 2. Lateral imaging of L4 segment for L3 medial branch RF cannula placement. Fig. 2A depicts true segmental imaging. The solid arrow indicates superimposed bilateral superior articular process (SAP) anterior aspects. The dashed arrow indicates superimposed bilateral pedicle inferior aspects. The cannula is seen properly positioned within the shaded target zone (white dots). Fig. 2B depicts untrue segmental imaging. Solid arrows indicate non-superimposed SAP anterior aspects. Dashed arrows indicate non-superimposed pedicle inferior aspects. The same cannula appears to be improperly positioned superior to the shaded zone (white dots).

within the shaded target zone. Untrue lateral segmental imaging, as used in Fig. 2B, causes the same cannula to appear to move superiorly away from the target nerve outside the shaded zone.

Untrue segmental imaging fails to establish a device's correct position in the spine. However, true segmental imaging coupled with carefully considered maps for procedure reporting may indeed represent a "step in the right direction."

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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