



Letter to the Editor

The accuracy of intraoperative O-arm imaging in assessing thoracolumbar pedicle screw placement

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10.25259/JMSR_44_2025**Quick Response Code:**

Dear Editor,

We have read with great interest the article by Aguilar-Chavez *et al.* that was published in your respected journal. This paper reconfirms the great advantages of intraoperative computed tomography (CT)-based spinal navigational systems that allow for higher accuracy and precision of pedicle screw placement in the thoracic and lumbar spine, thus, improving clinical outcomes and providing better quality of life for the treated patients.^[1] The achieved accuracy of 95.42% by Aguilar-Chavez *et al.*, according to the classification of Zdichavsky *et al.*, is similar to that reported by Lu *et al.*, who reviewed the accuracy of robotic-assisted pedicle screw placement.^[1-3]

The undisputed advantages of intraoperative CT-based spinal navigational systems include lower irradiation dose for the surgical staff, which can be entirely avoided if the team leaves the operating room during scanning, the opportunity to preplan the procedure and choose the optimal screw size and trajectory, and, last but not least, the option for simultaneous intraoperative correction of misplaced screws, thus reducing the rate of revision surgeries.

In their meta-analysis, Cui *et al.* also report high accuracy of pedicle screw placement by means of robotic assistance leading to shorter hospital stays, but the data regarding intraoperative blood loss and complication rate in comparison to conventional techniques are somehow contradictory.^[4]

In our opinion, the article by Aguilar-Chavez *et al.* could be even more informative for your audience if the authors had shared more data regarding the use of navigation in the setting of different spinal pathologies and other perioperative variables such as mean operative time, blood loss, and patient exposure to irradiation.^[1]

Our personal belief after the placement of 1280 navigated pedicle screws by O-arm for a variety of pathologies is that some variables, such as patient irradiation exposure and intraoperative blood loss, can be reduced through optimization of imaging acquisition protocols and surgical techniques.

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