

Opinion: Is minimally invasive spinal surgery better for patients in the long-term?

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Minimally invasive spinal surgery has become a catchphrase in the surgical community. The advantages it offers—faster return to work, shorter hospital stays, less blood loss and smaller incisions—are used to support a case for more widespread acceptance of this type of surgery. In this opinion editorial, Michael F. Duffy takes a critical look at minimally invasive spine surgery.

In recent years, minimally invasive surgery has gained notoriety amongst patients and spinal surgeons across the globe. The idea of performing spinal procedures using less traumatic techniques is quite appealing; however, the definition of minimally invasive surgery is clouded, as well as the evidence to support the widespread use.

To be considered minimally invasive spine surgery, the intervention needs to minimize the traumatic insult on the patient through smaller incisions and less muscle dissection. Minimally invasive surgical techniques exist for posterior lumbar decompressions and fusions utilizing small incisions, tubes and microscopes to perform the procedure that traditionally would use a 4–6 inch incision. There are lateral lumbar fusions through two inch incisions over the flank which can be completed in less than an hour, compared to multiple hour posterior fusions. Also, posterior cervical laminotomies and fusions can be performed through small incisions, again utilizing tubes and microscopes.

Many of these types of interventions have been shown to have shorter hospital stays, less blood loss and sometimes even faster recoveries compared to traditional open procedures. The operating time can be considerably longer with some minimally invasive spine surgery procedures and shorter with others, with the common theme of “less trauma” to the patient. The question remains, are they better for patients in the long-term?

To answer this question, the concept of evidence-based medicine has evolved, which dominates the forefront of medical discussions across all specialties. In order to have a “high-level” of evidence, a medical study needs to be a prospective, randomized trial in which a conclusion can be determined between two interventions. Merely presenting the outcomes of a series of surgeries by one or multiple surgeons, fails to constitute a high-level of evidence because there is no control or comparison. Performing high-level studies in regard to minimally invasive spine surgery is time consuming and very costly, possibly in the 10–20 million dollar range, which is one reason there are no high-level of evidence studies advocating minimally invasive spinal surgery. Therefore, many surgeons feel the trend toward minimally invasive spinal surgery is under-supported in the medical literature.

Opponents of minimally invasive spinal surgery also feel that there is a difficult learning curve for surgeons to perform these operations well, with an unacceptable rate of failures early on in the experience. Also, the treatment of potential complications that may arise in performing minimally invasive surgical procedures may be more difficult and less successful. Because of these issues, some believe that minimally invasive spinal surgery has no place in the practice of spinal surgery, yet it is gaining popularity with patients and surgeons alike due to the attractiveness of the documented clinical results—faster return to work, shorter hospital stays, less blood loss and smaller incisions. Regardless of the chosen surgery, traditional or minimally invasive, both surgeons and patients should be aware of potential complications and failures, and implement new techniques in a judicious manner, in very highly selected patients.

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