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COVER STORY **PUBLICATION EXCLUSIVE**

Patient selection and surgical technique among ways to avoid TDA revisions

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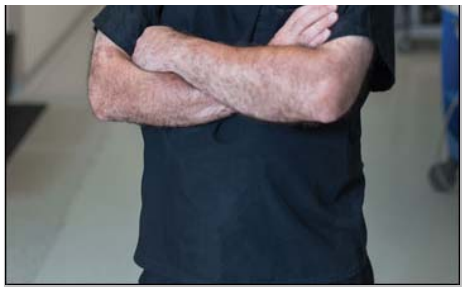
Revisions of primary total disc arthroplasty procedures, which may be required for a number of reasons, can be associated with complications and, according to several surgeons who spoke with *Spine Surgery Today* about this topic, the approach for a revision can directly affect the outcome of the surgery.

The long-term data for lumbar and cervical total disc arthroplasty (TDA) are very positive, **Scott L. Blumenthal, MD,** of the Texas Back Institute, in Plano, Texas, said. He said research has shown that patients who undergo primary TDA will need additional surgeries one-third less often than patients who undergo a fusion initially.



Scott L. Blumenthal, MD, has revised total disc arthroplasties with disc-to-disc procedures, as well as with adjacent-level surgeries.

Source: Phillip Slaughter – Texas Back Institute

However, like any procedure, there are certain reasons why a revision may need to take place. Lumbar and cervical TDA revisions are vastly different and should be considered separately, Blumenthal said.

Lumbar revisions more common

Cervical TDA revisions are done less often than lumbar TDA revisions, in my experience, Blumenthal said.

"I have done three revisions in the cervical spine and all were revised to another disc replacement. Technically this is not difficult. This is not the case with lumbar revisions," he told *Spine Surgery Today*.

Jeffrey A. Goldstein, MD, a *Spine Surgery Today* Editorial Board member, said revision rates for lumbar and cervical TDA procedures are low, and the implants are usually very stable if correctly positioned within a patient.

"It is important to place the implant so as to recreate the center of rotation of the disc space. Typically this means getting the implant posteriorly within the disc space. Oversizing the implant can

affect the facet joints. Excessive stretch on the facet capsule can be a source of pain. Certainly risks can include expulsion, dislocation or migration. The most common need for revision surgery includes persistent pain or adjacent segment degeneration (ASD)," Goldstein told *Spine Surgery Today*.

Approach patient considerations

Jeffrey A. Goldstein

Using an anterior lumbar approach to place an artificial disc prosthesis is relatively straightforward for the surgeon, but can lead to exceedingly difficult revisions because there are many large arteries and veins in front of the lumbar spine that, if damaged, can cause significant bleeding and blood loss, Blumenthal said.

Artificial disc revisions of any kind can be needed due to poor patient selection, surgical technique or because a patient did not follow the postoperative rehabilitation protocol, so the surgeon needs to focus on these areas, he said.

According to Blumenthal, the gold standard for revision of lumbar TDA is likely to convert it to fusion.

"I have done some exchanges with components, but it is exceedingly rare. For obvious reasons, fusion is the salvage procedure. If you can perform the procedure through a posterior approach it is much safer for the patient," he said.

Patient selection is key

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According to **Neil M. Badlani, MD,** of Houston, patient selection is the number one reason for revision of TDA and is also the best way to avoid a revision in the future.

He discussed the importance of making sure patients are aware of what an artificial disc can do for them, which can go a long way to tempering expectations, as well.

"The most important step is patient selection and managing the expectations of a patient. A patient who does have primarily back pain and is treated with a disc replacement sometimes has to understand it may not eliminate all of their back pain, but it should help them. During their procedure, you need to preserve the bony endplate to minimize fracture and implant subsidence. You have to be careful to place the implant symmetrically in the center of the disc space. You need to take more time in the operating room getting X-rays, making sure the positioning is appropriate. Then you have to be careful when placing the polyethylene to get the right size to allow for motion of the implant," Badlani said.

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