

## Hot Topics in Spine Surgery: Volume IV

### Lumbar Disc Herniation (Seminars in Spine Surgery)

Lumbar Disc Herniation is a common spinal pathology that is potentially disabling. A recent Seminars in Spine Surgery journal thoroughly reviewed the etiology, evaluation and treatment of this condition. Lumbar disc herniation (LDH) affects a broad range of individuals from elite athletes to obese individuals. Obesity, diabetes and smoking have all been reported as risk factors for LDH. Biomechanical studies have demonstrated that strenuous physical activity, specifically axial loading in combination with flexion, extension or twisting may lead to LDH. Additionally, constant vibration may lead to weakening of the disc. A disc herniation is defined as “localized or focal displacement of disc material beyond the limits of the intervertebral disc space”. The majority of acute LDH will improve significantly or resolve in 6-8 weeks. Nonoperative treatment includes oral steroids, steroid injections, anti-inflammatories and physical therapy. Surgical treatment is often reserved for individuals with persistent symptoms beyond 6-8 weeks, progressive weakness, cauda equine syndrome or intractable pain. Surgical treatment is performed to improve leg pain as a result of lumbar radiculopathy. Postoperatively there is a 10% or higher risk of disc reherniation which may require revision discectomy or discectomy and fusion.

Reference -

1. Wiesel, Sam W., and Scott D. Boden. "Lumbar Disc Herniation." *Seminars in Spine Surgery* 28.1 (2016): 1-61. Web.

### Obesity and Smoking in Spine Surgery

Spine surgery is known to carry several inherent risks including wound complications and pseudarthrosis. The risk of these complications increase exponentially with morbid obesity and nicotine abuse. The article entitled *The Impact of Current Smoking and Smoking Cessation on Short-Term Morbidity Risk After Spine Surgery* by Martin et al outlines there is a significant increase in systemic morbidity and wound complications following elective spine surgery with nicotine abuse. A second article titled *Effect of Obesity and Being Overweight on Disability and Pain After Lumbar Fusion* describes in addition to wound complications, nicotine is known to increase the risk of pseudarthrosis requiring additional surgery. Additionally, obesity (defined as a BMI >30 kg/m<sup>2</sup>) and medical comorbidities including diabetes, sleep apnea and cardiovascular disease are all known to increase perioperative risks. Despite these conditions increasing complications this should not be an absolute contraindication to spine surgery. Furthermore, this study confirms previous results that fusion surgery improves disability regardless of BMI. Dr. Taylor utilizes preoperative education regarding nicotine cessation and weight loss in spine surgery candidates in order to optimize them perioperatively, thereby improving overall outcomes.

Reference -

1. Sorimachi, Yasunori et al. "Effect of Obesity and Being Overweight on Disability and Pain After Lumbar Fusion." *Seminars in Spine Surgery* 41.9 (2016): 772-77. Print.
2. Martin, Christopher et al. "The Impact of Current Smoking and Smoking Cessation on Short-Term Morbidity Risk After Lumbar Fusion Surgery." *Seminars in Spine Surgery* 41.7 (2016): 577-84. Print.

### Why “Useless” Surgery is Still Popular

A recent interview with Dr. Richard Deyo at Oregon Health and Sciences University reviewed the usefulness of spine surgery. The authors reviewed four articles and concluded spine surgery offered no improvement compared with alternative nonsurgical treatments and pain usually “diminished or went away”. Dr. Deyo does not outline in his commentary the indication for spine surgery. A fusion performed solely for discogenic pain remains controversial and some surgical literature has agreed with Dr. Deyo in showing similar results between operative and nonoperative modalities (for discogenic fusion surgery). Spinal diagnoses including stenosis, radiculopathy, spondylolisthesis, instability, etc have had clinically significant favorable outcomes following fusion surgery. Specifically, the North American Spine Society (NASS) guidelines released in 2014 recommend fusion surgery for these diagnosis after appropriate initial nonoperative management. Recent articles from the Journal of The American Academy of Orthopedic Surgeons cite a greater than 80% success rate in appropriately selected patients and spine fusion is superior to nonsurgical treatment in controlling pain and improving function in patients. Furthermore in the review article by Cahill et. al titled *Lumbar Spinal Stenosis* it is outlined that decompression and fusion is indicated in patients with spinal stenosis in the setting of instability.

Reference -

1. Kolata, Gina. "Why "Useless" Surgery Is Still Popular." New York Times, 3 Aug. 2016. Web. <<http://www.nytimes.com/2016/08/04/upshot/the-right-to-know-that-an-operation-is-next-to-useless.html>>.
2. Lumbar Fusion. Defining Appropriate Coverage Positions. Nass: North American Spine Society spine.org
3. Issack, Paul S. et al. "Degenerative Lumbar SPinal Stenosis: Evaluation and Management." *Journal of the American Academy of Orthopedic Surgeons* 20.8 (2012): 527-35. Print.
4. Jones, Thomas R., and Raj Rao D. "Adult Isthmic Spondylolisthesis." *American Academy of Orthopedic Surgeons* 17.10 (2009): 609-17. Print.
5. Cahill, Patrick, Gordon Bell, and Alexander Ghanayem. "Lumbar Spinal Stenosis." *Contemporary Spine Surgery* 5.9 (September 2004): 63-68. Print.

Association between compensation status and outcomes in spine surgery

Patients with a worker’s compensation claim have long been reported to have poorer outcomes following spinal surgery. A recent meta-analysis by Cheriyan et. al reviewed the association between compensation status and outcomes in spine surgery. Thirty one studies were reviewed with a total of greater than 3000 patients. The study found that 57% of workers compensation patients returned to work and 83% of non-workers compensation patients returned to work. There was no difference in the rate of nonunions between the groups. This study showed that spine surgery in workers compensation patients carries a lower risk of negative outcome compared to other orthopedic procedures in worker’s compensation claimants. At the Taylor Spine Team, greater than 90% of patient return to work postoperatively. Dr. Taylor’s outcome questionnaire tracking consistently shows an average of greater than 10 point improvement in NDI and ODI postoperatively in worker’s compensation patients, consistent with a favorable postoperative outcome.

Reference -

1. Cheriyan, Thomas et. al. "Association between Compensation Status and Outcomes in Spine Surgery: A Meta-analysis of 31 Studies." *The Spine Journal* 15 (2015): 2564-573. Print.