

When is Back Surgery indicated!

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Background:

The rates of interventional surgical procedures for back pain are rising (Deyo2005, Weinstein, 2006).

Interventional and surgical treatments do not consider psychological and environmental factors associated with Lower Back Pain (Chou, 2009).

5% of the people with back pain disability are estimated to account for 75% of costs associated with low back pain (Frymoyer, 1991)

Outcomes of surgery for chronic low back pain do not approach those of other orthopedic procedures. Data shows patients with back pain rendered worse by surgery. Recent studies document 220% increase in lumbar spinal fusion rates without demonstrated improvements in patients outcomes or disability rates. (Hansson, 2008), (Deyo, 2009).

When is Surgery Indicated? Herniated Lumbar Disc

- If symptoms and clinical findings confirm the presence of radiculopathy (+ neural tension signs, motor, sensory and/or reflex changes in appropriate distribution consistent with imaging findings), Imaging Studies (CT, MRI, CT-Myelogram) with nerve root compression by Herniated disc in the side and distribution of symptoms and clinical findings and failure to respond to conservative treatment including activity modification, medication, physical therapy (including McKenzie program) and Epidural Steroid Injections under fluoroscopic guidance.*
- Surgical decompression of lumbar nerve root may include discectomy/ microdiscectomy (partial removal of the disc), laminectomy (to permit access to intervertebral disc), hemilaminectomy, laminotomy and foraminotomy.*
- Surgical discectomy provides faster relief than conservative treatment but patients must be carefully selected and must have radiculopathy caused by lumbar disc herniation (Gibson-Cochrane, 2000 ; SPORT study, 2007)*
- Benefits of surgery decrease with long term follow up (Chou, 2009)*
- Microdiscectomy in patients with 6-12 weeks of severe sciatica as a result of herniated disk provides with better short term outcomes. At one year, disability outcomes of early surgery vs conservative treatment with eventual surgery (if needed) are similar with median recovery time of 4weeks for early surgery and 12.1 weeks for prolonged, conservative treatment. (Peul-NEJM, 2007, Deyo-NEJM, 2007).*

- *Patients with predominance of leg pain, who failed non-operative treatment demonstrated high success rate. Based on valid outcome measures: 80% decrease in VAS leg pain score of greater than 2 points, patient satisfaction (85%) and return to work (84%). (Dewing, 2008)*
- *Patients should be encouraged to return to pre-injury activities ASAP without restriction at six weeks. (Dewing, 2006)*
- *Patients with sequestered lumbar disc herniations had greater improvements than extruded or contained herniations. Patients with herniations at L5-S1 level had significantly better outcomes than L4-5 level. Smokers had significantly lower return to work rate. (Dewing, 2008)*
- *In carefully screened patient, lumbar microdiscectomy for symptomatic disc herniation results in overall high success rate, patient satisfaction and return to physically demanding activity (Dewing, 2008)*
- *Lifting of postoperative activity restrictions after limited discectomy allowed shortened time to return to work relative to the 4 to 16 weeks commonly recommended. Complication rates appear comparable to those reported in the literature for patients under postoperative restrictions. Postoperative restrictions may not be necessary in most patients (Carragee 1999).*
- *Workers' compensation back surgery patients are at greater risk for poor lumbar discectomy outcomes compared to non-compensation patients. (Atlas et al, Spine 2010)*
- *Pre-surgical biopsychosocial variables such as involvement of a lawyer, education, job satisfaction, etc, appear to be important predictors of discectomy outcomes (time to MMI, medical costs, compensation. (DeBerrard, 2008), (DeBerrard, 2011)*
- *There was no added benefit associated with surgical treatment for patients with workers' compensation at two years while those in the non-workers compensation group had significantly greater improvement with surgical treatment. (Atlas, 2010)*
- *Patients with contained disc herniations, predominance of back pain, on restricted duty and smoking should be counseled before surgery of the potential for less satisfaction, poorer outcomes scores, and decreased return to duty rates (Dewing, 2008).*
- *Unequivocal objective findings are required based on neurological examination and testing. Discectomy should be reserved for conditions of disc herniation causing radiculopathy. (Gibson-Cochrane , 2000), (Malter, 1996), (Stevens, 1997), (Stevenson, 1995), (Butterman, 2004).*

When is Surgery Indicated? Spinal Stenosis, Spondylolisthesis with instability, degenerative disc disease

- *For patients with lumbar spinal stenosis, standard posterior decompressive laminectomy alone offers significant advantage of non- surgical treatment. No additional benefits by adding fusion. (Hallett, 2007)*
- *Comparison of surgical and non-operative outcomes between degenerative spondylolisthesis and spinal stenosis from SPORT trial found that Fusion alone was most appropriate for spondylolisthesis and decompressive laminectomy alone was most appropriate for spinal stenosis (Pearson, 2010).*
- *In patients with spondylolisthesis single level with documented instability (standing weight bearing flexion/extension views) fusion indicated. 72% success in patients having well –accepted single level pathology of unstable spondylolisthesis*
- *Nonradicular back pain with common lumbar degenerative changes, fusion is no more effective than intensive rehabilitation, but associated with small to moderate benefits compared to standard non- surgical therapy. Chou, 2009). Therefore, If a patient with non- radicular degenerative disc changes go through physical therapy (including McKenzie and Spine Stabilization) and said that it made it worse, surgery not indicated and not likely to be of benefit.*
- *Lumbar fusion in work compensation patients, reoperation rates of 22%, permanent or temporary disability 18-68% RTW varies from 41-78% (DeBerard, 2002, Franklin, 1994)*
- *More than half of patients who undergo fusion surgery for non- radicular low back pain do not experience an “excellent” or “good” outcome defined as no more sporadic pain, slight restriction of function and occasional analgesic. (Fritzell, 2001)*
- *Benefits of fusion versus nonsurgical treatment have only been demonstrated in a relative narrow group of patients with at least moderately severe pain or disability, unresponsive to nonsurgical therapies for at least one year and without serious psychiatric or medical comorbidities or other risk factors for poor surgical outcome. (Chou, 2009)*
- *Efficacy of surgery for nonspecific back pain uncertain, Surgery does not lead to huge improvements on average. About 10 to 20 points of improvement on a 100 poin scale. Significant proportion of patients still need pain medication and do not return to full function. (Chou, 2008)*
- *Lumbar Fusion in Work Comp patients data from 1999-2006 published in Spine Journal, 2011. Included patients with variety of diagnosis including spondylolisthesis, radiculitis, Herniated disc, stenosis, spondylosis, denerative disc disease, discogenic syndrome non otherwise specified. Outcome measured include work status two years after fusion, permanent disability, reoperation, pain medication. Results: Surgical cases were more*

likely to be permanently disabled and more likely to not return to work compared to nonsurgical controls. Permanently disabled + failed to return to work = 62%. Consistent with Washington state WC database of 64-68%. (Nguyen T, 2011).

- *Opioids: at least 76% of fusion cases were still taking opioid > 90 days after surgery, with an increase in MEQ of 41%. Greater the total daily amount of opioids, the less likely it was for worker to return to work.*
- *Washington State study of 2,378 workers' compensation claimants who underwent fusion to assess frequency, timing and causes of death. Results: three year cumulative mortality rate post fusion=1.93%, analgesic related deaths = 21% of all deaths, 31.4% of all potential life lost (Juratli, 2009).*
- *Utilization is much higher in workers' Comp patients despite poorer outcomes. Pre-surgical biopsychosocial variables predict patient outcomes from lumbar fusion and may help improve selection of patients. Workers' compensation status, smoking, depression, and litigation were most consistent indicators of poorer patient outcomes. (Texas, 2001), (NCCI, 2006), (DeBerrard-Spine, 2001),(DeBerrard- Spine , 2003), (Deyo, 2005), (LaCaille, 2005), (Trief-Spine, 2006).*
- *Obesity and litigation in workers' compensation cases predict high costs associated with interbody cage lumbar fusion. Recent study of 725 workers' compensation patient in Ohio who had lumbar fusion. Only 6% able to go back to work one year later, 27% needed another operation, over 90% were in enough pain to still take narcotics at follow up. (LaCaille, 2007), (Nguyen, 2011)*
- *Revision surgery for failed previous operation must be approach with extreme caution since less than 50% success rate reported in the literature. Only if significant functional gains anticipated.*
- *Lack of support for fusion for mechanical low back pain for subjects with failure to participate effectively in active rehab preop, total disability over six months, active psych diagnosis, narcotic dependence. (Anderson, 2000).*
- *Lumbar fusion does not seem to be effective operation for WC patients with diagnoses of disc degeneration, disc herniation and/or radiculopathy. Fusion should be recommended only in WC patients with clear cut indications including spondylolisthesis with instability, traumatic fractures, tumor. Surgery is elective excluding tumor and progressive neurologic deficit.*
- *When lumbar fusion performed, unlike cervical fusion, no absolute contraindication to patients returning, even to contact sports, after complete recovery with lateral fusion alone or interbody fusion.*

Next month newsletter will be on Carpal Tunnel Syndrome