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**The Subsidence Rate in XLIF Osteoporotic Patients in Standalone Procedures**

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**Introduction:** Low back pain resulting from degenerative disease of the lumbosacral spine is a major cause of morbidity, disability and lost productivity. This treatable condition is often a major cause of inactivity, loss of productivity and, potentially, loss of independence in many persons, particularly older persons. For these conditions there are some non-surgical and surgical options. Within the surgical options there is an efficient and minimally disruptive technique, the XLIF. This is a lateral transpsoas approach that reaches the anterior spine portion without removing spine ligaments or disrupting surrounding muscles. The XLIF cages used for fusion reach the cortical bone bilaterally and have bigger footprint than the ALIF or PLIF ones, giving stronger support for the vertebral body. The standard cage is 18mm wide (antero-posterior size) and is able to indirect decompress the foramen, allowing improvement in clinical and radiological assessments. But we detected that in the majority of the cases there were an important endplate remodeling and subsidence, which could minimize better results in this technique. So, our thesis is that wider cages (22mm) can provide same or better clinical/radiological results for lumbar fusion by XLIF.

**Methods:** The extreme lateral approach was done through the retroperitoneal space and through psoas muscle avoiding vascular and neural lesions. A partial discectomy was done and the end-plate cleaned preserving ALL, keeping the spine more stable than the traditional surgery. 21 patients with central or lateral stenosis underwent the XLIF Stand Alone procedure with standard cages (18mm) at 41 lumbar levels. 22 patients with central or lateral stenosis underwent the XLIF Stand Alone procedure with wide cages (22mm) at 36 lumbar levels. X-rays, MRI and clinical outcome assessments using Oswestry and VAS scores were performed preoperatively, preoperatively at 1 and 6 weeks, 3, 6 and 12 months after surgery. Radiological measurements were done using medical imaging software at preoperatively, preoperatively at 1 week and 3 months. The mean age was 67.6 y/o (40 - 83) for standard and 65 y/o (45 - 85) for wide group.

**Results:** All patients completed 12-month follow-up evaluations. VAS and ODI scores improved equally in both groups at the all follow-up periods when compared to the preoperative scores. Although all patients had postoperatively gain in disc height and foramen measurements (56% for standard and 65% for wide), after 3 months, standard group had lost 33.9% of its disc height mean, while wide group had no significant lost. These results are completed with the found that at 3 month-follow up it was significant difference in subsidence/endplate remodeling rate, that was at 9.7% for wide and 31% for standard group.

**Conclusions:** Indirect decompression with XLIF is feasible and effective. With critical analysis during the surgery practice, we were able to detect that the standard cages caused an important rate of subsidence at the operated levels and the technique could be improved. The thesis was correct and the disc space restoring was achieved and sustained with 22mm cages, which could make the technique even more effective for lumbar fusion and indirect decompression.