



Degenerative Lumbar Scoliosis-Natural History of Deformities needing Surgical Therapy

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This study includes 77 patients (60 female) with late onset-scoliosis, having been treated by spinal fusion.

The age at operation was 69(49-86) years without significant difference between males and females. The subjective problems demonstrated 6 severe and 16 moderate flatback-problems. 61 suffered from severe (VAS >7), 5 from medium VAS 5-6) low back-pain, 18 from severe and 11 from medium sciatic pain; 8 patients had a severe spinal claudication, 12 patients demonstrated motor deficits, mostly L5.

Cobb-angle of scoliosis averaged 23° (12-48°), convexity was with 51% left-sided curves nearly equal. 24 curves included 5 segments, 18 showed 4, 12 curves 3 and 9 cases only 2 segments (mostly L2-4) including the curve, 3 scoliotic deformities had 6 segments from end-to-end vertebra. Cobb angles according to the upper vertebra decreased from 28° (Th11) to 24° (Th12), 23° (L1) and 20° (L2). We observed rotatoric instability in two thirds; severe or Modic-1-osteocondrosis were seen in 114 discs of 67 patients, more than 50% at the segments L2-L4.

67% demonstrated spinal canal-stenosis, in the majority L4/5 (44%) and L3/4 (35%).

Foraminal stenosis (56%) was seen above L4 in >90% at the concave side, at the lumbosacral secondary curve the dominance of foraminal stenosis at concave side is only 63%.

We found no correlation between convexity and apical vertebra. There is a significant difference between motor deficit and claudication on one hand with 73% of degenerative spondylolisthesis and the other curves on the other hand with only 44% of degenerative spondylolisthesis.

Conclusion

Late onset scoliosis can cause severe problems. There is a high dominance of female patients, but no dominance of the side of convexity. Curves included 2-6 segments.

Our observations lead to the following hypothesis: late-onset-scoliosis is caused by asymmetric disc disease at L2/3 or L3/4. The dominance of degenerative spondylolisthesis at L4/5 like in other forms of degeneration seems to be independent of the scoliotic curve. The most important factor of spinal canal stenosis seems to be degenerative spondylolisthesis, but not the rotatory instability. Multiple disc narrowing leads to flatback, narrowing on the concave side to foraminal stenosis within the primary curve, while besides this the other degenerative changes (instability, facet osteoarthritis) play a more important role in the lumbosacral secondary curve.