

A new concept for operative treatment of long distance lumbar degeneration

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The operative treatment of multiple lumbar degenerations including degenerative lumbar scoliosis is discussed controversially. The conventional long-distance fusion in combination with decompressions and more-level-PLIF can be a life-threatening operation for patients at an age >70years.

Therefore we tried to establish a new less invasive concept of lumbar fusions of 3 or more segments.

This concept consists of the combination of new minimal or less invasive techniques as AxiaLIF, XLIF, TLIF and percutaneous facet-screws minimizing the morbidity and optimizing the stability in long-distance lumbar fusions. Included is AxiaLIF and XLIF or 3-level-AxiaLIF and percutaneous facet screws in degeneration L3-S1 or in cases of adjacent segment disease both cranially and caudally; late-onset-scoliosis was treated by AxiaLIF L4-S1, concavesided microscopic decompression, TLIF and pedicle-system-spondylodesis, followed by convexsided percutaneous frame-like facet-screw-instrumentation.

Our experiences with this new concept from 2/08 to 2/09 demonstrate 11 patients, 10 female, 1 male, av.age 70 years (57-84). Indications were 5 late-onset-scoliosis, 4 multisegmental degenerations and 2 cranial and caudal adjacent segmental diseases after fusion L3/4/5. Technique included 11 AxiaLIF (9 L4-S1, 2 L3-S1, to our knowledge the only 3-level AxialLIF-cases reported worldwide) altogether 24 segments), 9 TLIFs in 5 patients, 2 XLIFs, 27 segments instrumented with pedicle screws (33 screws) and 8 patients with percutaneous facet screws (21 screws). 9 segments were decompressed by minimal invasive technique.

The average OP-time was 150 minutes (120-190); lordosis of lumbar spine was improved from 28° to 40°. VAS improved from 7,0 to 3,4.

Complications (4 in 3 patients) were 1 herniation L4/5 after AxiaLIF with L4-paresis, requiring discectomy, 1 case of pseudarthrosis L3/4 after XLIF, treated successfully by percutaneous facet screws, 1 superficial infection, treated by debridement and secondary suture and 1 organic psychosyndrome, slowly improving.

The first experiences with this new treatment demonstrate a rather short OP-time with less morbidity and an acceptable rate of complications. Long-term investigations will show, if this new concept can be a successful alternative to conventional operations.