- Clinical evaluation and finite element analysis of bone cement-augmented anterolateral screw fixation versus percutaneous bilateral pedicle screw fixation co-applied with oblique lumbar interbody fusion for single-level lumbar degenerative diseases with osteoporosis
- An innovative minimally invasive technique for lumbar adjacent segment disease: a retrospective comparative analysis between extreme-oblique lumbar interbody fusion combined with percutaneous endoscopic lumbar discectomy(XOLIF-PELD) and posterior lumbar interbody fusion(PLIF) revision
- Predictive value of Hounsfield units and vertebral bone quality on cage subsidence in oblique lateral interbody fusion with bilateral posterior fixation
- Biomechanical analysis of posterior, transforaminal, extreme, oblique, and anterior lumbar interbody fusion surgical models: a finite element study
- Advantages of a new improved oblique Retractor in oblique lateral lumbar interbody fusion: a retrospective study
- Clinical efficacy of robot-assisted single-position OLIF with lateral plate combined with posterior unilateral fixation for single-segment lumbar spinal stenosis
- Development and trend of oblique lateral lumbar interbody fusion technology
- Single-position O-arm X-ray navigation assisted oblique lateral interbody fusion combined with minimally invasive percutaneous pedicle nail internal fixation for lumbar spondylolisthesis

see also OLIF.

Retrospective analysis was made on the data of 8 cases of lumbar spondylopathy and vertebral fracture treated by oblique lateral interbody fusion in three medical centers from October 2014 to December 2018. All were female, aged from 50 to 81 years with an average of 66.4 years. Disease types included 1 case of lumbar degenerative disease, 3 cases of lumbar spinal stenosis, 2 cases of lumbar degenerative spondylolisthesis and 2 cases of lumbar degenerative scoliosis. Preoperative dual energy X-ray bone mineral density test showed that 2 cases had T-value >-1 SD, 2 cases had T-value -1 to -2.5 SD, and 4 cases had T-value ←2.5 SD. Single segment fusion was in 5 cases, two segment fusion in 1 case and three segment fusion in 2 cases. Four cases were treated with OLIF Stand-alone and 4 cases were treated with OLIF combined with posterior pedicle screw fixation. Postoperative imaging examination showed vertebral fracture, and all of them were single vertebral fracture. There were 2 cases of right lower edge fracture of upper vertebral body at fusion segment, 6 cases of lower vertebral body fracture at fusion segment, and 6 cases with endplate injury and fusion cage partially embedded in vertebral body. Three cases of OLIF Stand-alone were treated with pedicle screw fixation via posterior intermuscular approach, while one case of OLIF Stand-alone and four cases of OLIF combined with posterior pedicle screw fixation.

Results: The 5 cases of initial operation and 3 cases of reoperation did not show wound skin necrosis or wound infection. The follow-up time was from 12 to 48 months with an average of 22.8 months. Visual analogue scale (VAS) of low back pain was preoperative decreased from 4 to 8 points (averagely 6.3 points) and postoperative 1 to 3 points (averagely 1.7 points) at the final follow-up. Oswestry disability index (ODI) was preoperative 39.7% to 52.4% (averagely 40.2%), and postoperative 7.9% to 11.2% (averagely 9.5%) at the final follow-up. During the follow-up, there was no loosening or fracture of the pedicle screw system, and no lateral displacement of the fusion cage;however, the fusion cage at the vertebral fracture segment had obvious subsidence. The intervertebral space height of vertebral fracture segment was preoperative 6.7 to 9.2 mm (averagely

8.1 mm), and postoperative 10.5 to 12.8 mm (averagely 11.2 mm). The improvement rate after operation was 37.98% compared to preoperative. The intervertebral space height at final follow-up was 8.4 to 10.9 mm (averagely 9.3 mm), and the loss rate was 16.71% compared with that after operation. At the final follow-up, interbody fusion was achieved in all cases except for one that could not be identified.

Conclusion: The incidence of vertebral fracture during oblique lateral interbody fusion in the treatment of lumbar spondylopathy is lower, and there are many reasons for fracture, including preoperative bone loss or osteoporosis, endplate injury, irregular shape of endplate, excessive selection of fusion cage, and osteophyte hyperplasia at the affected segment. As long as vertebral fracture is found in time and handled properly, the prognosis is well. However, it still needs to strengthen prevention ¹⁾.

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