



A Study of Outcome of Surgical Management of Spondylolisthesis Treated With Pedicular Screw Rod System & Posterolateral Fusion

Authors

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Introduction

Spondylolisthesis is the subluxation of a vertebral body over another in sagittal plane and is a relatively frequent mechanism of intervertebral instability.

Causes Are

- LIGAMENTOUS LAXITY
- Defects in pars interarticularis
- Previous surgery.
- Trauma

Classification-Wiltse- Newmann

- 1) Dysplastic
- 2) Isthmic
- 3) Degenerative
- 4) Traumatic
- 5) Pathologic
- 6) Iatrogenic

Aims & Objective

Aim

- To correct spondylolisthesis by pedicular screw Rod system & posterolateral fusion.

Objective

Primary

- TO ASSESS BACK PAIN, REDICULOPATHY & stiffness in spondylolisthesis

Secondary

- To evaluate out come in post operative patient and to minimize its complication.
- To study the efficacy of posterolateral fusion in spondylolisthesis in terms of functional outcome
- Evaluated based on VAS for low back pain, ODI and neurological deficit

Materials & Method

This is a prospective study that will be conducted in the dept. of orthopaedics, katihar medical college katihar, Bihar.

In present study we will evaluate the outcome of surgical management of 30 patients who will be operated upon with post stabilization using pedicular screw rod system and posterolateral fusion for spondylolisthesis between 15 September 2020 to 15 september 2022.

A. Symptoms

Axial pain

Neurogenic
 claudication
 Radiculopathy
 Cauda equine syndrome

- B. **Clinical appearance:** Transverse loin crease, forward tilting of pelvis, flattening of lumbar spine

Inclusion Criteria

- Patients age between 20-75 years
- Both genders
- Patients Diagnosed with spondylolisthesis with failed conservative treatment.

Exclusion Criteria

- Patients with grade V Spondylolisthesis
- Patients who didn't have regularly follow up for minimum 6 month
- Patients with any other spinal pathogenesis

Conservative Treatment

Bed rest, Activity modification, weight reduction muscle relaxant, LS corset belt, physiotherapy in form of IFT/ SWD.

Nonresponsive conservative treated patient

- Counselling for surgery.
- Plain roentgenogram of LS with erect flexion & extension.
- MRI LS spine.

Operative Procedure

- General anaesthesia- place Rolten hall frame
- Pedicle screw insertion
- Posteroletral fusion.

Post Operative Protocol

- Drainage tube will be removed at 48 hrs.
- Suture will be removed in 12th day
- Patient will be allowed to ambulate after drain remover with LS belt.
- After 3 month LS belt withdraw gradually.

Outcome Analysis clinical

outcome based on VAS for low back pain, ODI, Ricular pain, neurological defects an claudication and spinal fusion will be then

assessed by plain LS radiograph at 2,4,8 & 12month after operation.

Statistical Analysis

- statically analysis will be conducted by means of SPSS-VERSION-25
- Descriptive statistical for continuous data will be presented as mean=standard deviation.
- Categorical variable will be analysed with chi square test.
- The probability value of <0.05 will be considered.

Conclusion

- Spondylolisthesis is common condition that is seen in orthopedic practice for low back pain.
- To treat the many non-surgical and surgical methods that have been described in literature.
- Different techniques that is anterior posterior and combined approach will be used.
- Posterolateral lumbar fusion and spinal decompression is aneffective method.
- PLIF, TLIF & ALIF Procedure will be used

Work place and Duration

Department of orthopaedics

Katihar Medical College, Katihar

Duration- 2 years

15 sept. 2020 to 15 sept. 2022

Bibliography

1. Dantas, F.L.R., Prandini, M.N. and Ferreira, M.A.T. (2007) Comparison between Posterior Lumbar Fusion with Pedicle Screws and Posterior Lumbar Interbody Fusion with Pedicle Screws in Adult Spondylolisthesis. Arquivos de Neuro-Psiquiatria, 65, 764-770.
2. Dai, L.Y., Jia, L.S., Yuan, W., Ni, B. and Zhu, H.B. (2001) Direct Repair of Defect in Lumbar Spondylolysis and Mild Isthmic

- Spondylolisthesis by Bone Grafting, with or without Facet Joint Fusion. *European Spine Journal: Official Publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society*, 10, 78-83.
3. Frymoyer, J. and Selby, D. (1985) Segmental Instability. Rationale for Treatment. *Spine*, 10, 280.
 4. Roy-Camille, R., Roy-Camille, M. and Demeulenaere, C. (1970) Osteosynthesis of Dorsal, Lumbar, and Lumbosacral Spine with Metallic Plates Screwed into Vertebral Pedicles and Articular Apophyses. *La Presse medicale*, 78, 1447-1448
 5. Zdeblick, T.A. (1993) A Prospective, Randomized Study of Lumbar Fusion. Preliminary Results. *Spine*, 18, 983-991.
 6. Feffer, H.L., Wiesel, S.W., Cuckler, J.M. and Rothman, R.H. (1985) Degenerative Spondylolisthesis. To Fuse or Not to Fuse. *Spine*, 10, 287-289.
 7. Fuji, T., Oda, T., Kato, Y., Fujita, S. and Tanaka, M. (2003) Posterior Lumbar Interbody Fusion Using Titanium Cylindrical Threaded Cages: Is Optimal Interbody Fusion Possible without Other Instrumentation? *Journal of Orthopaedicscience: Official Journal of the Japanese Orthopaedic Association*, 8, 142-147.
 8. Idowu, O.E., Adewole, O.A. and Majekodunmi, A.A. (2012) Posterior Spinal Decompression, Stabilization and Arthrodesis in Nigerian Adults: Profile and Outcome. *Nigerian Medical Journal: Journal of the Nigeria Medical Association*, 53, 42-46.
 9. Janssen, M.E., Lam, C. and Beckham, R. (2001) Outcomes of Allogenic Cages in Anterior and Posterior Lumbar Interbody Fusion. *European Spine Journal: Official Publication of the European Spine Society, the European Spinal Deformity Society,*
 - and the European Section of the Cervical Spine Research Society, 10, S158-S168.
 10. Agazzi, S., Reverdin, A. and May, D. (1999) Posterior Lumbar Interbody Fusion with Cages: An Independent Review of 71 Cases. *Journal of Neurosurgery*, 91, 186-192.
 11. Burkus, J.K., Dorchak, J.D. and Sanders, D.L. (2003) Radiographic Assessment of Interbody Fusion Using Recombinant Human Bone Morphogenetic Protein Type 2. *Spine*, 28, 372-377.
 12. Chitnavis, B., Barbagallo, G., Selway, R., Dardis, R., Hussain, A. and Gullan, R. (2001) Posterior Lumbar Interbody Fusion for Revision Disc Surgery: Review of 50 Cases in Which Carbon Fiber Cages Were Implanted. *Journal of Neurosurgery*, 95, 190-195
 13. Hashimoto, T., Shigenobu, K., Kanayama, M., et al. (2002) Clinical Results of Single-Level Posterior Lumbar Interbody Fusion using the Brantigan I/F Carbon Cage Filled with a Mixture of Local Morselized Bone and Bioactive Ceramic Granules. *Spine*, 27, 258-262.
 14. Janssen, M.E., Nguyen, C., Beckham, R. and Larson, A. (2000) Biological Cages. *European Spine Journal*, 9, S102- S109.
 15. Sasso, R.C., Kitchel, S.H. and Dawson, E.G. (2004) A Prospective, Randomized Controlled Clinical Trial of Anterior Lumbar Interbody Fusion Using a Titanium Cylindrical Threaded Fusion Device. *Spine*, 29, 113-122; Discussion 121.
 16. Cloward, R.B. (1953) The Treatment of Ruptured Lumbar Intervertebral Discs by Vertebral Body Fusion. I. Indications, Operative Technique, after Care. *Journal of Neurosurgery*, 10, 154-168.
 17. Brunon, J., Chazal, J. and Chirossel, J.P., et al. (1996) When Is Spinal Fusion Warranted in Degenerative Lumbar Spinal Stenosis? *Revue du Rhumatisme (English Edition)*, 63, 44-50.

18. Kim, E.-H. and Kim, H.-T. (2009) En Bloc Partial Laminectomy and Posterior Lumbar Interbody Fusion in Foraminal Spinal Stenosis. *Asian Spine Journal*, 3, 66-72.
19. Postacchini, F. (1999) Surgical Management of Lumbar Spinal Stenosis. *Spine*, 24, 1043-1047.
20. Postacchini, F., Cinotti, G., Perugia, D. and Gumina, S. (1993) The Surgical Treatment of Central Lumbar Stenosis. Multiple Laminotomy Compared with Total Laminectomy. *The Journal of Bone and Joint Surgery (British Volume)*, 75, 386-392.
21. Sanderson, P.L. and Getty, C.J. (1996) Long-Term Results of Partial Undercutting Facetectomy for Lumbar Lateral Recess Stenosis. *Spine*, 21, 1352-1356.
22. Simmons, E.H. and Capicotto, W.N. (1988) Posterior Transpedicular Zielke Instrumentation of the Lumbar Spine. *Clinical Orthopaedics and Related Research*, No. 236, 180-191.
23. Burkus, J.K., Gornet, M.F., Dickman, C.A. and Zdeblick, T.A. (2002) Anterior Lumbar Interbody Fusion Using rhBMP-2 with Tapered Interbody Cages. *Journal of Spinal Disorders & Techniques*, 15, 337-349.

UNDER TAKING

I agree to abide by the ethical guidelines for biomedical research on human subjects while the research project being submitted for ethical committee consideration.

- Project is considered to be absolutely essential for advancement of knowledge.
- Only subjects who volunteer for the project will be included.
- Privacy and confidentiality of the subjects shall be maintained and without the consent of the subjects no disclosure will be made.
- Proper precautions shall be taken so as to minimize risk and prevent irreversible adverse effect.
- Result of research will be made known through scientific publication.
- Only those drugs which are approved by the drug controller of India for specific purpose will be used in the research project.