

Impact of Cervical Spine Alignment on Surgical Outcomes in Cervical Myelopathy: A Decade-Long Cohort Study

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Disclosures

• Nil

Background

- DCM is the leading cause of spinal cord dysfunction in adults, characterized by progressive compression due to degenerative changes.
- Patients experience **motor deficits, sensory impairment and autonomic dysfunction**, with possible worsening disability over time.
- Surgical decompression is effective treatment but outcomes vary based on **spinal alignment, surgical approach and patient factors**.
- Complication & Revision Risks: **8.6%–22.3%**

Background

Pathophysiology:

• **Primary Mechanisms:** Chronic compression leads to neuronal apoptosis, demyelination and ischemia, disrupting spinal cord function.

Static vs. Dynamic Compression:

- Static Factors: stenosis, disc herniation, OPLL.
- Dynamic Factors: Ligamentous buckling, instability causing repetitive microtrauma.

• **Secondary Mechanisms:** Inflammatory response increases neurodegeneration.

Objectives

Primary:

- To evaluate revision rates and complications

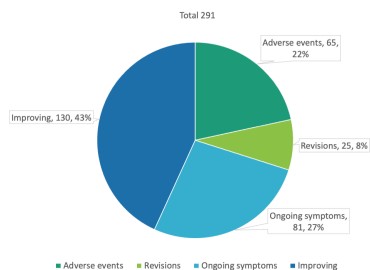
Secondary:

- Assess the effect of Cervical Alignment
- Compare Surgical Approaches
- Analyse Revision Rates & Complications
- Compare Findings with Existing Research

Methods

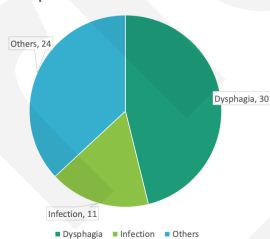
- Study Period: 10 years (1st January 2013 and 31st December 2022)
 - Inclusion: Individuals undergoing **primary** cervical myelopathy surgeries
 - Exclusion: central cord syndrome, or prior surgeries for cervical myelopathy
- Data Collected: hospital BlueSpier Database
 - patient's presentation and diagnosis, pre-operative imaging
 - Surgical approach (ACDF, posterior laminectomy, etc.)
 - Postoperative complications
 - Revision surgeries
- Statistical Analysis: SPSS for significance

Results : 291 Patients

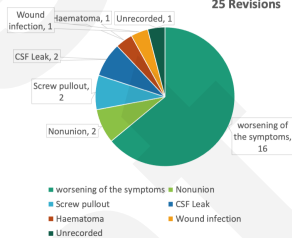


Results : 291 Patients

65 Complications

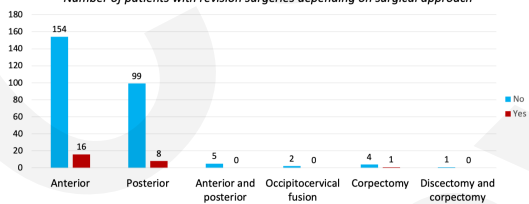


25 Revisions



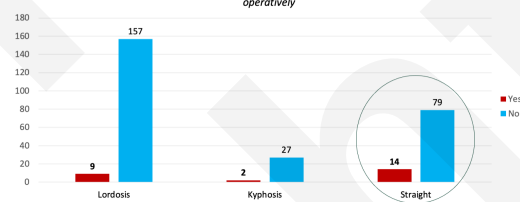
Results

Number of patients with revision surgeries depending on surgical approach



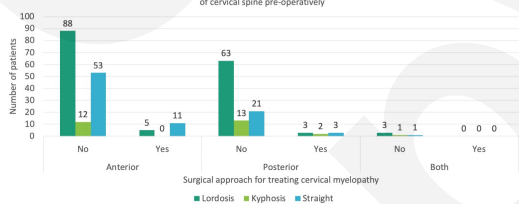
Results:

Number of patients with revision surgeries depending on shape of cervical spine pre-operatively



Results

A table to show the number of patients who had reoperations depending on surgical approach and shape of cervical spine pre-operatively



Strengths:

- Large number of patients
- Long-term follow-up.

Limitations:

- Retrospective study design.
- Single-Center Data.
- Lack of Functional Outcome Measures.

Future Directions: Recode-DCM

- The role of dynamic imaging techniques and neurophysiology
- Predictive models for personalized cervical spine surgery planning.

Conclusion

- Surgical approach had no impact on the complication rates.
- Preoperative cervical spine alignment was a key predictor of revision rates.
- Patients with straight spines undergoing ACDF had a higher reoperation risk.

Thank you