Abstract:
Perioperative Complications and Risk Factors in Neuromuscular Scoliosis Surgery
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Abstract: Complications in Neuromuscular Scoliosis Surgery

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AANS 2018 Scientific Meeting  
Authors’ Disclosure Information  

- a. Grants/Research Support  
- b. Consultant  
- c. Stock/Shareholder  
- d. Speakers’ Bureau  
- e. Other Financial Support
Introduction

• High rates of perioperative complications are reported in association with deformity correction in neuromuscular scoliosis (NMS)

• We sought to identify and evaluate complications associated with surgical correction and characterize potential risk factors
Methods

- **Design:** Single-center retrospective analysis

- 102 Patients with NMS who underwent spinal fusion with minimum 6-month follow-up

- Compared by pre-op, post-op, and last follow-up metrics

- Subgroup analysis of patients with minimum 2-year follow-up was also performed
Results

• 53 boys and 49 girls with a mean age at surgery of 14.0 years (± 2.7 SD)

• Most prevalent diagnoses were cerebral palsy (26.5%), spinal cord injury (24.5%), and neurofibromatosis (10.8%)

• Overall 27% rate of complications (37 complications in 27 patients)

• Complications were predicted by non-ambulatory status (p=0.037), increased intraoperative blood loss (p=0.012), increased intraoperative time (p=0.046), greater pelvic obliquity (p=0.028), and greater magnitude of sagittal profile at follow-up (p=0.048)

• Pulmonary comorbidity (p=0.001), previous operations (p=0.013), history of seizures (p=0.046), diagnosis of myelomeningocele (p=0.046), increase in weight postoperatively (p<0.005), and increased lumbar lordosis at follow-up (p=0.015) were identified as risk factors for infection
<table>
<thead>
<tr>
<th>Category</th>
<th>Category (n)</th>
<th>% of Total Comps</th>
<th>Subcategory</th>
<th>Subcategory (n)</th>
<th>% of Total Comps</th>
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<tr>
<td>Respiratory</td>
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<td>5.4</td>
<td>Respiratory arrest</td>
<td>1 (3.3%)</td>
<td>2.7</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Aspiration pneumonia</td>
<td>1 (3.3%)</td>
<td>2.7</td>
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<td>Instrumentation</td>
<td>10 (33.3%)</td>
<td>27.0</td>
<td>Pseudarthrosis</td>
<td>6 (20%)</td>
<td>16.2</td>
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<td></td>
<td></td>
<td></td>
<td>Instrumentation prominence</td>
<td>3 (10%)</td>
<td>8.1</td>
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<tr>
<td></td>
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<td>Instrumentation malplacement</td>
<td>1 (3.3%)</td>
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<tr>
<td>Wound</td>
<td>14 (46.7%)</td>
<td>37.8</td>
<td>Deep wound infection</td>
<td>11 (36.7%)</td>
<td>29.7</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Decubitus</td>
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<tr>
<td>Neurologic</td>
<td>1 (3.3%)</td>
<td>2.7</td>
<td>Neuromonitoring loss</td>
<td>1 (3.3%)</td>
<td>2.7</td>
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<td>Progression</td>
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<td>2.7</td>
<td>Adjacent level subluxation</td>
<td>1 (3.3%)</td>
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<td>5.4</td>
<td>Hemodynamic instability</td>
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<td>5.4</td>
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<tr>
<td>Total</td>
<td>30</td>
<td>81.1</td>
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<td>81.1</td>
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</table>
Conclusion

- Pre-existing pulmonary compromise and greater intraoperative blood loss are associated with significantly greater risk of major perioperative complications.

- Non-ambulatory status and greater magnitude of sagittal profile at follow-up were also associated with higher risk for complications.

- Thorough assessment and planning is critical for success in surgical treatment of NMS.
References

References (cont.)
