Neurologic deficits and MRI characteristics of syrinx in idiopathic syringomyelia related scoliosis

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Background

- Scoliosis (18-49%)
- Idiopathic syringomyelia (IS)
- Neurologic deficits (54-67%)
Method

- Retrospective (June 2009 to December 2016)
- 55 cases (32 male/23 female)
- Radiological parameters of syrinx and scoliosis
- Clinical features of neurologic deficits

<table>
<thead>
<tr>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idiopathic syringomyelia</td>
<td>Other causes for syringomyelia (Chiari malformation, tethered cord syndrome, etc)</td>
</tr>
<tr>
<td>Syrinx length ≥ 2 vertebrae</td>
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<tr>
<td>Syrinx diameter &gt; 1mm</td>
<td></td>
</tr>
<tr>
<td>Idiopathic-like scoliosis</td>
<td>Other types of scoliosis (congenital, degenerative, etc)</td>
</tr>
<tr>
<td>Complete medical &amp; radiological records</td>
<td>Spinal surgery history</td>
</tr>
</tbody>
</table>

- Other causes for syringomyelia include Chiari malformation, tethered cord syndrome, etc.
- Other types of scoliosis include congenital, degenerative, etc.
### Scoliosis
- Cobb
- Flexibility of major curve
- Apex vertebra translation
- Global balance
- Thoracic kyphosis
- Lumbar lordosis
- Sagittal vertical axis

**NO Significant Correlation**

### Neurologic deficit
- Abnormal tendon/abdominal reflex (36, 65.5%)
- Sensory deficit (19, 34.5%)
- Extremity weakness (3, 5.4%)
- Intact (19, 34.5%)

**NO Significant Difference**
## Result

### NO Significant Correlation

<table>
<thead>
<tr>
<th>Major curve direction</th>
<th>Syrinx deviation</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Left</td>
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<tr>
<td>Left</td>
<td>6</td>
</tr>
<tr>
<td>Right</td>
<td>8</td>
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Fisher exact test, *P*=0.52

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<th>Major curve direction</th>
<th>Syrinx deviation</th>
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<td>Right</td>
<td>9</td>
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<tr>
<td>Left</td>
<td>2</td>
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Fisher exact test, *P*=0.29

<table>
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<th>Syrinx deviation</th>
<th>Neurologic deficit</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>Middle</td>
<td>6</td>
</tr>
<tr>
<td>Right</td>
<td>3</td>
</tr>
</tbody>
</table>

Fisher exact test, *P*=0.21
Result

NO Significant Correlation

Sagittal location of syrinx

Region of major curve/ Location of apex vertebra
No significant relationships are detected between syrinx MRI features, scoliosis curve parameters and neurologic deficits

Correlation between IS, scoliosis and neurologic deficit is controversial
Reference


Thanks
None of the authors has any potential conflict of interest