Palsy of the C5 nerve is a well-known potential complication of cervical spine surgery, with reported rates ranging from 0.6% to 0.9%. Symptoms can include paresis of the deltoid and/or biceps brachii muscle, sensory deficits and/ or intractable pain in the shoulders. It typically occurs suddenly but can rarely present insidiously. The exact etiology remains uncertain, but it has been attributed to compression, reperfusion injury of the spinal cord, and iatrogenic nerve injury during surgery. It is generally accepted that the majority of patients develop symptoms within the first two weeks and typically resolve within six months. The current study has revealed that 19.0% of patients with C5 nerve palsy had some residual deficit at the final follow-up appointment. The mean age of patient developing postoperative C5 nerve palsy was 57.6, while the mean age of those not developing C5 palsy was 58.6 (p=0.588). The difference was not statistically significant (0.64%, 95% CI 0.51-0.76%).

Anterior/Posterior Group
- 8/33 (24.2%) with C5 Palsy
- Resolved in 2 months to 2 years
- No pts with residual weakness

Laminectomy/Fusion Group
- 3/116 (2.6%) with C5 Palsy
- Resolved in 1 month to 2 years
- 2 (15.4%) with residual weakness

Corpectomy Group
- 13/255 (5.1%) with C5 Palsy
- Resolved in 7 weeks to 10 months
- 2 (15.4%) with residual weakness

Laminoplasty Group
- 5/105 (4.8%) with C5 Palsy
- Resolved in 1 month to 2 years
- 0.2% with residual weakness

RESULTS

- Of the 750 patients, 120 were eliminated based on the exclusion criteria. The 630 remaining patients included in the analysis consisted of 370 females and 360 males. The mean age was 58 years (range, 26-86). Anterior corpectomy alone was performed in 255 patients, anterior decompression with posterior fusion in 579 patients, anterior corpectomy and laminoplasty in 165 patients. One was summarized in Table 1. The overall incidence of C5 nerve palsy for the entire group was 6.7%. The incidence of C5 nerve palsy was highest for the laminectomy and fusion group with 13 (11.6%) patients, followed by the anterior corpectomy with posterior fusion group with 12 (11.4%), and finally the laminectomy group with 6 (3.7%).

DISCUSSION

The time of initial onset of the C5 palsy symptoms ranged from immediately postoperatively to 3 months postoperatively. The majority completely recovered, but 19.0% has some residual pain or deficit at final follow-up. There was no statistical difference in the number of patients with residual deficits based on the type of surgery. The time until maximal recovery ranged from 1 week to 2 years, with a mean time of 21 weeks. The majority (71.4%) recovered within 6 months. The mean age of patient developing postoperative C5 nerve palsy was 57.6, while the mean age of those not developing C5 palsy was 58.6 (p=0.588). The difference was not statistically significant (0.64%, 95% CI 0.51-0.76%). The incidence of C5 nerve palsy was 5.1% for multilevel anterior procedures, 5.4% for anterior corpectomy followed by posterior fusion, and 4.8% for laminoplasty. The only factor that was statistically significant was the number of corpectomy levels with a p-value of less than 0.05.

<table>
<thead>
<tr>
<th>Procedure Group</th>
<th>Number of Patients</th>
<th>Number of Pts with C5 Palsy</th>
<th>Resolution Time</th>
<th>Pts with Residual Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior/Posterior</td>
<td>255</td>
<td>13</td>
<td>7 weeks to 10 months</td>
<td>2 (15.4%)</td>
</tr>
<tr>
<td>Laminectomy/Fusion</td>
<td>116</td>
<td>3</td>
<td>1 month to 2 years</td>
<td>2 (15.4%)</td>
</tr>
<tr>
<td>Corpectomy</td>
<td>255</td>
<td>13</td>
<td>7 weeks to 10 months</td>
<td>2 (15.4%)</td>
</tr>
<tr>
<td>Laminoplasty</td>
<td>105</td>
<td>5</td>
<td>1 month to 2 years</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

In conclusion, we have determined the incidence of C5 nerve palsy after multilevel cervical decompression procedures to be 6.7% with an increased risk in male patients. There was a trend towards an increased risk in patients undergoing laminectomy and fusion, however, this was not statistically significant. Patients should be counseled that 19% have residual deficits. Over 70% of these patients recover within six months, but there can be additional recovery up to two years.

REFERENCES