Patterns of Peripheral Nerve Injury In Shoulder Dislocation

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BACKGROUND
The glenohumeral joint is the most commonly dislocated joint in the human body, with an incidence of 11.2 to 23.9 in 100,000 injuries1,2. These injuries occur in a bimodal distribution with a peak at 20-30 years old (from high energy mechanisms) and again in the elderly population (from low velocity injury, such as falls)3.

Although it is known that nerve injuries occur concomitantly with shoulder dislocation, the literature is sparse regarding patterns of associated nerve injury, clinical outcomes, and risk factors that may affect clinical course.

OBJECTIVE
To characterize the patterns of peripheral nerve injury associated with shoulder dislocations at a single institution with a specialized peripheral nerve clinic.

Primary objective: to describe patterns of peripheral nerve injury post-shoulder dislocation.

Secondary objectives: to describe the patterns of recovery and requirement for surgery in different age groups and patterns of nerve injury.

METHODS
All patients seen at Peripheral Nerve Clinic between January 2008 to December 2018 in London, Ontario were reviewed. Those with shoulder dislocation and concurrent peripheral nerve injury were identified.

Data was analyzed using Pearson Chi-Square test with significance set at p<0.05.

RESULTS

<table>
<thead>
<tr>
<th>Table 1. Patient demographics</th>
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<tbody>
<tr>
<td>Total Patients Included</td>
</tr>
<tr>
<td>Males</td>
</tr>
<tr>
<td>Females</td>
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<td>Average Age (years)</td>
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Figure 1. Direction of shoulder dislocation (values in percentages).

Figure 2. Mechanism of injury (values in percentages).

Figure 3. Frequency (n) of patients with peripheral nerve injuries stratified by age group and whether patient underwent surgical intervention.

Figure 4. Frequency (n) of patients with clinical or electrodiagnostic evidence of peripheral nerve injury recovery, stratified by age group and if patient underwent surgical intervention. Note: Nerve injuries that could not be categorized as ‘axillary’ or ‘pan-plexus’ were omitted due to the heterogeneity of outcome.

CONCLUSIONS

1. Age <40 years associated with isolated axillary nerve injury
   Age >60 years associated with multiple nerve injuries
   (Figure 3)

2. Overall 63.0% had brachial plexus injury (2+ nerves)
   (Figure 3)

3. One-third of patients underwent surgery (typically nerve transfers)
   (Figure 4)

4. Individuals >40 years old often experienced spontaneous recovery
   (Figure 4, NS)

5. Older patients with pan plexus injury may have residual ulnar nerve deficits
   (Figure 4)

LIMITATIONS

1. Findings may not translate to areas outside Southwestern Ontario
2. Small sample size makes it difficult to draw conclusions