Monteggia fractures in children – characteristics of ulna acute plastic bowing

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◆Objectives
Monteggia fracture with acute plastic bowing of the ulna is relatively rare in children. We present the treatment result of Monteggia fracture in children in particular the cases with ulna acute plastic bowing(APB).

◆Materials and Methods
Twenty six cases of monteggia fractures between 2001 and 2017 Devoted into 2 groups:
1) acute plastic bowing (APB)
2) non-acute plastic bowing (non-APB)

◆Result

<table>
<thead>
<tr>
<th></th>
<th>APB</th>
<th>non-APB</th>
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<tbody>
<tr>
<td>Number(cases)</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>Gender(Male:Female)</td>
<td>2:5</td>
<td>15:4</td>
</tr>
<tr>
<td>Mean age(years)</td>
<td>7.4(5-13)</td>
<td>7.9(3-13)</td>
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<tr>
<td>Classification</td>
<td>Bado I 7</td>
<td>Bado II</td>
</tr>
<tr>
<td>Injury mechanism</td>
<td>fall 7</td>
<td>fall 19</td>
</tr>
<tr>
<td>Mean time to operation(days)</td>
<td>2.1(0-7)</td>
<td>1.3(0-6)</td>
</tr>
<tr>
<td>Complications</td>
<td>olecranon fracture 3</td>
<td>PIN paresis 7 open fracture 1 olecranon fracture 1 5(2-11)</td>
</tr>
<tr>
<td>Mean follow-up time(months)</td>
<td>11(3-25)</td>
<td></td>
</tr>
</tbody>
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Clinical assessment
- Flexion 139° 136°
- Extension 3° 3°
- Pronation 87° 87°
- Supination 90° 90°

Complications post operative
- none
- recurrence of fracture 1 (after removal of Kirschner wire)

Radiological assessment
- Recurrence of dislocation
- Bone union
- all

Accuracy of previous doctor’s diagnosis about APB
Five cases were referred to our hospital and just 2 out of 5(40%) were diagnosed as APB accurately at previous institution.

◆Discussion
Seven of 26 cases were APB of ulna.

Most traumatic plastic bowing deformities of the ulna involved rotation rather than bending. External rotation stress is suspected to cause radial head dislocations on the ulna during falls onto outstretched arm.

Olecranon fracture was merged in 3 of 7 cases of APB.

Olecranon fracture
Bado I + non-displaced olecranon fracture(so-called Hume fracture)

Olecranon fracture is a result of a hyperextension injury to the elbow and forward dislocation of the radial head is produced by a concomitant pronation of the forearm. (A.C.Hume jphi 1957)

We think olecranon fracture occurs by the impact to the humeral olecranon fossa.

◆Conclusion
We reported relatively high prevalence(7 cases: 26.9%) of ulna APB. There was no much difference of treatment results between APB and non-APB. There were 3 cases with non-displaced olecranon fractures, so called Hume fracture. Olecranon fracture occurs consequently by the impact to the humeral olecranon fossa. We think accurate lateral X-ray films of both forearm was required for diagnosis of APB.