The Osseous Morphologic Change After the Mosaicplasty for the Advanced Osteochondritis-Dissecans of the Humeral Capitellum with the Damaged Lateral Wall

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I have no financial conflicts to disclose
Background

Mosaic plasty for the advanced capitellum OCD has recently been known as one of the effective procedures.

When the capitellum OCD include the damaged lateral wall, this treatment will be very difficult and the occurrence of the osteoarthritis in elbow be predicted.
Aim

to investigate
the osseous morphological change
with using X-ray after mosaicplasty
for the advanced capitellum OCD
with the damaged lateral wall.
Materials and Methods

Objective
18 cases (All of them were male)

The baseball players with the advanced capitellum OCD with the deficit of the lateral wall which were treated with the mosaicplasty

Average age ; 12.7 years old (range, 11 to 16)
Average follow-up period ; 17.3 months (range, 7 to 42 months)

Evaluation

- Elbow range of motion
- Ability return to sports
- Knee pain at the last follow-up
- Osseous morphologic evaluation
Osseous morphologic evaluation

- Carryin Angle (degree)
- Ratio of radial head
- Lateral shift of radial head (mm)
- Anterior shift of radial head (mm)
- Humeraltrochea diameter (mm)
- Coronoid process angle (degree)
- Olecranon trochea diameter (mm)
- Olecranon angle (degree)
Elbow range of motion
- Flexion: pre-operative 130.8 ± 7°, last follow-up 134.4 ± 8°
  - Extention: pre-operative 12.6 ± 8.5°, last follow-up 7.4 ± 12°
  - P<0.05 *(paired t test)

Ability return to sports
- Complete return: 13 cases (81.3%)
- Imcomplete return: 3 cases (18.7%)

Knee pain at the last follow-up: 0 case
Osseous morphologic evaluation

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>Pre-operative</th>
<th>Last follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carryin Angle (degree)</td>
<td>12.4±6.4</td>
<td>14.0±6.0</td>
<td>14.3±5.1</td>
</tr>
<tr>
<td>Lateral shift of radial head (mm)</td>
<td>0.4±0.8</td>
<td>2.8±1.2 †</td>
<td>3.3±1.6 *</td>
</tr>
<tr>
<td>Anterior shift of radial head (mm)</td>
<td>0.2±0.7</td>
<td>0.6±1.2</td>
<td>0.06±3.8</td>
</tr>
<tr>
<td>Ratio of radial head</td>
<td>1.8±0.2</td>
<td>1.9±0.1 †</td>
<td>2.1±0.3 *</td>
</tr>
<tr>
<td>Humeraltrochea diameter (mm)</td>
<td>22.1±2.2</td>
<td>23.5±2.4</td>
<td>25.3±2.6 *</td>
</tr>
<tr>
<td>Olecranon trochea diameter (mm)</td>
<td>20.2±2.2</td>
<td>22.0±2.1 †</td>
<td>24.6±2.8 *</td>
</tr>
<tr>
<td>Coronoid process angle (degree)</td>
<td>51.2±4.8</td>
<td>54.2±4.5</td>
<td>61.1±5.3 *</td>
</tr>
<tr>
<td>Olecranon angle (degree)</td>
<td>20.8±11.2</td>
<td>27.4±6.1 †</td>
<td>30.1±5.1 *</td>
</tr>
</tbody>
</table>

†p<0.05 versus Normal  * p<0.05 versus Pre-operative
case 11y.o male, pitcher

Post operative course

6M  1Y  2Y  3Y  4Y
Discussion

As this results,

**Good!**
- For elbow range of motion
- For return to play
- For lateral wall damaged OCD
- For knee pain

However,

Osseous Morphologic Changes

![After mosaicplasty](image)
Pre-operative findings:

- Lateral shift of radial head
- Enlargement of radial head
- Olecranon trochea
- Olecranon angle

Post-operative findings:

- Enlargement of radial head
- Lateral shift of radial head
- Olecranon trochea
- Olecranon angle

Osseous Morphologic Changes were progressing.

- There is the poor articulation of humeral-radial joint.
- It is important in prevention and early detection.
- We need a long-term follow-up.
- The limitation of pitching may be effective.

We need a long-term follow-up.
Conclusion

✓ The mosaic plasty was useful for the treatment of the advanced capitellum OCD with the damaged lateral wall.

✓ However, the osseous morphologic changes had advanced.

✓ We should recognize the limitation of this procedure and follow these patients for a long-term.


