The influence of preserving Infrapatellar fatpad in ACL reconstruction

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I have no financial conflicts to disclose.
Anterior knee pain (AKP) is one of the major complications that interrupts rehabilitation after anterior cruciate ligament (ACL) reconstruction.

Infrapatellar fat pad (IPFP) plays various roles in the knee:

- Supplying vascular into the anterior part of knee
- Cushioning between the anterior tibial plateau and the patellar tendon
- Secreting inflammatory factors
- Repairing ability of adipose-derived stem cell from IPFP
Introduction

- Partial IPFP resection is needed to expose ACL and lateral intercondylar ridge.

- Damage to the IPFP during arthroscopy may cause AKP after ACL reconstruction.

No studies have showed correlation the amount of IPFP resection during arthroscopy with AKP.
To evaluate the influence of preserving IPFP in ACL reconstruction
Materials and Methods

✓ We prospectively assessed 34 patients and 34 knees.

✓ Patients with injured ACL treated at our department from Nov. 2015 to Apr. 2017 was examined.

✓ They were alternatingly treated by resecting the IPFP around the intercondylar area to better visualize ACL or preserving it.

Clinical evaluation

✓ The Kujala score (3 and 6 months postoperatively)

✓ International Knee Documentation Committee (IKDC) score (1 year)

✓ Knee injury and Osteoarthritis Outcome Score (KOOS) (1 year)
The size of total IPFP and its posterior part was calculated using a sagittal MRI at the level of the deepest portion of femoral trochlear groove in axial plane.

The size of Total IPFP

Preserving rate of total IPFP size

\[
\text{6 months after operation} = \frac{\text{Pre operation}}{\text{6 month}}
\]
The posterior part of IPFP

- The rich vascular supply found in the posterior part of IPFP.

- More substance-P nerves which relate to pain were located in the posterior part.

The size of posterior part of IPFP

- Posterior part was defined as divided along a line connecting the vertical and horizontal clefts.

- The ratio of posterior part to total IPFP (RP) was calculated.

Resorption rate of posterior part

= RP (pre op) – RP (6month)
✓ All ACL reconstruction was performed using the semitendinosus tendon.

✓ Both groups had 10 meniscus tears.

<table>
<thead>
<tr>
<th></th>
<th>resection group (n = 17)</th>
<th>preservation group (n = 17)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex (Men : Female)</td>
<td>7 : 10</td>
<td>7 : 10</td>
<td>1.0</td>
</tr>
<tr>
<td>Age</td>
<td>18.6±7.4</td>
<td>20.2±8.9</td>
<td>0.540</td>
</tr>
<tr>
<td>BMI</td>
<td>22.3±1.8</td>
<td>21.3±3.0</td>
<td>0.306</td>
</tr>
<tr>
<td>Time from injury to operation (day)</td>
<td>148±117</td>
<td>109±100</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Mann–Whitney U test, P<0.05

There were no significant difference in patients characteristics between two groups.
The size of the IPFP, particularly the posterior part, decreased more in the resection group than that in the preserved group at 6 months after surgery.
Clinical evaluation

<table>
<thead>
<tr>
<th></th>
<th>resection group</th>
<th>preservation group</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kujula score (3M)</td>
<td>74.3 ± 9.1</td>
<td>75.6 ± 12.2</td>
<td>0.727</td>
</tr>
<tr>
<td>kujula score (6M)</td>
<td>90.2 ± 6.5</td>
<td>91.1 ± 9.0</td>
<td>0.306</td>
</tr>
<tr>
<td>IKDC (1 Y)</td>
<td>93.5 ± 5.9</td>
<td>90.9 ± 9.8</td>
<td>0.833</td>
</tr>
<tr>
<td>KOOS (1 Y)</td>
<td>96.6 ± 3.5</td>
<td>94.6 ± 5.9</td>
<td>0.449</td>
</tr>
</tbody>
</table>

Mann–Whitney U test, P<0.05

✓ No cases had more than a 10-degree loss of knee extension compared to the healthy side at 6 months postoperatively.

✓ One patient in the resection group had AKP and required a hyaluronic acid injection up to 22 months after the surgery.

There was no significant difference in clinical evaluations between the resection group and the preservation group.
Conclusions

IPFP resection around the intercondylar area to better visualize ACL had no effect in the early postoperative period.


