Clinical Outcome of Initial Conservative Treatment for Femoroacetabular Impingement

Pil Whan Yoon, MD, PhD, Hee Joong Kim, MD, PhD†, Jae-Suk Chang, MD, PhD, and Kang Sup Yoon, MD, PhD†

Department of Orthopedic Surgery, Asan Medical Center, Seoul, South Korea
†Department of Orthopedic Surgery, Seoul National University College of Medicine, Seoul, South Korea
Financial Disclosure

The authors have no financial relationships to disclose.
Introduction

Most studies over the past decade have been showed favorable results for the surgical treatment of femoroacetabular impingement (FAI).

→ Low level of evidence (level III or IV, mostly)

**Questions**

- Is FAI a mechanical disorder secondary to a shape abnormality?
- Shape-corrective surgery is curative treatment of FAI?
  → What’s the role of conservative treatment in FAI patients?

**Purpose of This Study**

To evaluate the clinical outcome of the patients with FAI who had had initial conservative treatment for minimum 3 months
Materials and Methods

Between 2011 January and 2012 December
Retrospective review of 87 patients (102 hips) of FAI patients

**Inclusion criteria**
- Anterior or lateral hip pain
- History of pain that worsened with activity, pivoting, hip flexion, or weight bearing
- Pain-associated mechanical Sx: popping, clicking, or locking
- Pain at rest
- P/E findings of reproduction of pain in the groin or lateral hip with Impingement test / Patrick test / Log rolling

**Radiographic imaging**
- Standing AP pelvis and hip / Lateral / Frog leg / Dunn 45° view

**Radiologic measurements**
- Lateral CE angle / Alpha angle on AP & Lateral view / Cross-over sign / Pistol grip deformity / Bony bump / Fibrocystic change

**FAI types**
- Alpha angle > 50° → Cam type
- Cross-over sign (+) → Pincer type
- Mixed type
Materials and Methods

**Treatment**

Conservative treatment for minimum 3 months

1. Use of anti-inflammatory drugs: NSAIDs
2. Patient education & activity modification
   
   Avoidance of aggravating factors

   1) Crossing legs and pivoting
   2) Excessive physical activity
   3) Sitting on the floor

**Hip arthroscopic surgery**

Intractable hip pain unresponsive to conservative treatment for minimum 3 months with clinical and imaging evidence of intra-articular pathologic changes.

**Outcome measurement at minimum 1-year follow-up**

1. Modified Harris hip score (mHHS)
2. Nonarthritic hip score (NAHS)
3. WOMAC

⇒ Incomplete questionnaires were followed up by telephone.
Results – Baseline characteristics

• Alpha angle
  – Cam- or mixed-type: 60.3° (range, 51.2° to 87.7°)
    • Pistol grip deformity on AP: 13.4%
    • Definite bony bump at H-N junction: 42.3%
    • Decreased H-N offset w/o bony bump: 57.7%
  – Pincer type: 38.2° (range, 32.7° to 45.0°)

• Bilaterality
  – Bilateral: 14 patients, symptomatic
  – Unilateral: 69 patients
    • 29 patients with normal contralateral hip
    • 40 patients (58.0%) with contralateral asymptomatic FAI-associated radiologic deformity
102 hips with FAI

Conservative Tx for > 3 months

10 hips
Intra-articular hip injection (Triamcinolone + Ropivacaine)

8 hips
Sx improvement (+)

53 hips
No surgical Tx

2 hips
Sx improvement (-)

44 hips
Hip arthroscopy

Sx improvement (+)

Sx improvement (-)

4 lost to F/U
1 surgical Tx at other hospital
Results

- Failed conservative Tx
  - 44 hips (45.4%)
  - The mean interval between initial Tx and Hip A/S: 10 months (range, 3 to 29.5 months)
  - Intra-articular pathologies (+) on MRI or MR arthrogram in all cases
  - Outcome measure at an average 25.4 months postoperatively

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>PreOp</th>
<th>PostOp</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>mHHS</td>
<td>64.2 ± 10</td>
<td>72.0 ± 16</td>
<td>95.7 ± 7</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>NAHS</td>
<td>60.5 ± 18</td>
<td>70.2 ± 14</td>
<td>93.7 ± 7</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>WOMAC</td>
<td>52.1 ± 15</td>
<td>71.0 ± 11</td>
<td>91.8 ± 5</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>
## Results – Baseline characteristics

<table>
<thead>
<tr>
<th></th>
<th>Total (n=97)</th>
<th>Conservative Tx (n=54)</th>
<th>Hip Arthroscopy (n=44)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>45.1 ± 13</td>
<td>47.9 ± 12</td>
<td>41.8 ± 12</td>
<td>0.016</td>
</tr>
<tr>
<td>Female gender</td>
<td>33.0%</td>
<td>30.2%</td>
<td>36.4%</td>
<td>0.520</td>
</tr>
<tr>
<td>Right</td>
<td>57.7%</td>
<td>60.4%</td>
<td>54.5%</td>
<td>0.563</td>
</tr>
<tr>
<td>Onset (month)</td>
<td>6.3 ± 7</td>
<td>6.4 ± 8</td>
<td>6.1 ± 5</td>
<td>0.754</td>
</tr>
<tr>
<td>Positive impingement test</td>
<td>94.8%</td>
<td>92.5%</td>
<td>97.7%</td>
<td>0.373</td>
</tr>
<tr>
<td>Type</td>
<td></td>
<td></td>
<td></td>
<td>0.148</td>
</tr>
<tr>
<td>Cam</td>
<td>49.5%</td>
<td>58.5%</td>
<td>38.6%</td>
<td></td>
</tr>
<tr>
<td>Pincer</td>
<td>14.4%</td>
<td>11.3%</td>
<td>18.2%</td>
<td></td>
</tr>
<tr>
<td>Mixed</td>
<td>36.1%</td>
<td>30.2%</td>
<td>43.2%</td>
<td></td>
</tr>
<tr>
<td>Fibrocystic change</td>
<td>25.8%</td>
<td>24.5%</td>
<td>27.3%</td>
<td>0.758</td>
</tr>
</tbody>
</table>
At the end of follow-up, no significant difference was found in the mean mHHS, NAHS and WOMAC between two groups.
Case – Conservative Treatment

- M/47
- Mixed type FAI, hip, Lt
- Contralateral FAI deformity without symptoms

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>22.5 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>mHHS</td>
<td>60.5</td>
<td>95.7</td>
</tr>
<tr>
<td>NAHS</td>
<td>72.5</td>
<td>98.8</td>
</tr>
<tr>
<td>WOMAC</td>
<td>74</td>
<td>94</td>
</tr>
</tbody>
</table>
Discussion & Conclusion

Limitation of current study

- No standardized regimen of conservative treatment modalities
- No definite criteria used for failure of conservative treatment
- Short-term follow up → Unknown fate of contralateral hips with asymptomatic FAI-associated radiologic deformity

Conclusion

More than half of patients with FAI-associated hip pain & discomfort improved with conservative treatment in current study.

An initial trial of sufficient period of conservative treatment for FAI patients should be considered before surgical intervention.
References


