Diagnosis and treatment of Extraarticular lesion using ultrasound-guided injection to the muscles adjacent to hip capsule

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Declaration of Interest

I declare that in the past three years I have:

• held shares in: nil

• received royalties from: nil

• done consulting work for: nil

• given paid presentations for: nil

• received institutional support from: Zimmer-Biomet Stryker Japan

Signed: [Signature]
Failure factors of hip arthroscopy

**Etiology**
- Osteoarthritis (Tonnis grade ≥2)
- Developmental dysplasia (LCE < 25°)
- Greater age

**Pathomorphological problems**
- Grobal aspherity at head/neck junction
- Abnormal torsion of femoral head
- Coxa valga, High fovea
- Severe acetabular retroversion or coxa profunda

**Extra-articular pathology**
- Adductor-relating pain
- Iliopsoas tendinitis
- Capsular microtrauma …

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Misdiagnosis of actual pathology could lead to failed outcome in hip arthroscopy

- Zaltz: Arthroscopy 2014
- Saadat: AJSM 2013
- Cerezal: European J Radiology 2011
- Smith: Sports Med Arthrosc 2010
Hip disorders

Intraarticular pathology
- Acetabular labral tear
- Femoroacetabular impingement
- Synovitis

Extraarticular pathology
- Pubic osteitis
- Adductor or iliopsoas related pain
- Athletic pubalgia etc...

These pathologies are often dependent on each other
Clinical strategy for labral tear-suspected cases

Labral tear suspected by MRI

Excluded unstable hip such as hip dysplasia

Intraarticular injection (Intra-inj)

Intra-inj
Muscle Ex around hip
Stretching around pelvis

Effective

Extraarticular injection (Extra-inj)
around iliopsoas
Stretching around pelvis

Ineffective

Conservative Tx

Surgical Tx

Arthroscopic treatment

Drug Tx

Effective but temporary
Extra-inj against groin pain

Jan.2015～Feb.2018
Extra-inj and/or Intra-inj  43 patients

Gender :  F : 30   M : 13

Mean age : 48y (29-81y)

Etiology :  Labral tear  23
            Osteoarthritis  17
            Bursitis at GT  2
            Post-fracture  1

Injection :  Mepivacain 3ml + Saline 7ml
            + Dexamethasone 1.65mg
Extraarticular injection
Effect of injection

Effective:
- Extra-\(\succ\) Intra-: 10/25
- Extra-\(\div\) Intra-: 8/25
- Extra-\(<\) Intra-: 5/25

Ineffective: 2/25

Extra-inj and Intra-inj: 25 patients
Extra-inj only: 18 patients
Intra-inj only: 0 patient
Extra-inj. effective: **36 patients**
(more than 2w: **25 patients**)

Conservatively treated more than 6m: **22 patients**

Effective duration less than 1w: 4/22

2w~4w: 12/22

more than 4w: 6/22

Complete relief after inj: 15 patients

Drug Tx: 27 patients

<table>
<thead>
<tr>
<th>Drug</th>
<th>Patients</th>
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<tbody>
<tr>
<td>Pregabalin</td>
<td>20</td>
</tr>
<tr>
<td>Tramadol + acetaminophen</td>
<td>4</td>
</tr>
<tr>
<td>Tramadol</td>
<td>3</td>
</tr>
<tr>
<td>Duloxetine</td>
<td>3</td>
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</tbody>
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# Conservative Tx for Labral Tear

<table>
<thead>
<tr>
<th>Author</th>
<th>Study design</th>
<th>Intervention</th>
<th>Duration</th>
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</table>
| Yazbeck et al                   | Case Series    | 1) Pain control, core stabilization, movement pattern correction  
2) Restoring ROM, Correcting muscle strength imbalance  
3) Sport-specific movement      | 9-16w    |
| Khoo-Summers et al              | Case Report    | Corrective programming for improper biomechanics, Posture education  
Muscle control during sitting, standing, and walking                                | 2m       |
| Liem et al                      | Case Report    | Core activation  
Exercise of gluteus medius and external rotator  
Sport-specific exercise                                                        | 4m       |
| MacIntyre et al                 | Case Report    | Soft tissue mobilization  
Spinal manipulation  
Restoring strength and stability around hip  
Sport-specific movement                                                  | 6w       |

- ✓ Core stabilization
- ✓ ROM Ex
- ✓ Muscle Ex around hip
- ✓ Posture education
- ✓ Sport-specific Ex
Extraarticular pathology as a cause of groin pain

Periarticular debridement in 77 hips

✓ Intraarticular pathology positive
  57 hips (74%)

✓ Rupture of R.femoris
  75 hips (97%)

(Kaya: PLOS ONE 2018)
Conclusions

43 patients with groin pain were treated with hip injection using sonography.

Extra-inj was effective in 36 hips (84%), and continuous pain relief was obtained in 25 hips (58%).

Even if intraarticular pathology is detected, extraarticular pathology should be ruled out. Hip injection using sonography could help surgeons to give a more precise information of the origin of groin pain, which leads to select better operative indication for hip arthroscopy.