Frozen Hip: an Uncommon, but not Rare, Cause of Hip Pain

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Disclosure

No conflict of interest with the current presentation
Introduction

• Adhesive capsulitis is a well-known entity in the shoulder. However, it may also affect other joints including the hip (aka frozen hip)

• There are few reports of this condition in the literature, most of which focus on surgical treatment

• Our goal is to report clinical results of a consecutive group of patients diagnosed with frozen hips

• We hypothesized that conservative treatment would yield satisfactory clinical outcomes
Methods

• IRB approved

• Chart review of patients seen between January 2010 & July 2016. Only patients >18 y/o were included

• Evaluation included: Age, Sex, Hip Range of Motion (ROM), Co-morbidities, Center-Edge Angle (CEA) & Modified Harris Hip Score (mHHS)

• Patients were excluded from the study if they presented to clinic only 1 time.
Methods

Frozen hip was diagnosed when:

- Patient w/ signs & symptoms suggestive of intra-articular hip pain
- Loss of ROM w/ special attention to external rotation (ER):
  - $>10^\circ$ side to side ER difference
- Standard AP & Lateral XR, & MRI excluded gross signs of femoroacetabular impingement (FAI), dysplasia & osteoarthritis
- Pain relief of at least 50% w/ image guided anesthetic injection
- Initial treatment w/ physical therapy (PT) with the following goals:
  - Improving hip ROM by joint mobilization, traction & stretching
  - Strengthening after near symmetric ROM was achieved
- Patients who failed conservative treatment were submitted to manipulation under anesthesia (MUA) & hip arthroscopy
Results - Demographics

- 3086 charts were reviewed & 20 patients were included
- Incidence of frozen hip = 0.6%. Annual incidence was 3 cases/year
- 4 patients were excluded because they presented to clinic only 1 time

<table>
<thead>
<tr>
<th></th>
<th>Average</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>14 fem : 2 males</td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>43.1</td>
<td>8.8</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>168.0</td>
<td>9.8</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>65.0</td>
<td>16.6</td>
</tr>
<tr>
<td>BMI</td>
<td>23.1</td>
<td>5.0</td>
</tr>
</tbody>
</table>

1 pt (6.25%) w/ bilateral symptoms in a staged presentation (3 years apart)
2 patients (12.5%) w/ prior history of frozen shoulder; one of these patients also had type II diabetes. 1 patient (6.25%) w/ Crohn colitis & 1 patient (6.25%) w/ multiple sclerosis.

Remaining 12 patients (75%) were idiopathic.
Results – Physical Exam

<table>
<thead>
<tr>
<th>Range of motion</th>
<th>Average (°)</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexion (Affected / Non-affected)</td>
<td>116.6 / 125</td>
<td>21.8 / 17.4</td>
</tr>
<tr>
<td>Side to side difference (flexion)</td>
<td>8.4</td>
<td>11.8</td>
</tr>
<tr>
<td>IR (Affected / Non-Affected)</td>
<td>18.43 / 23.1</td>
<td>16.1 / 13.9</td>
</tr>
<tr>
<td>Side to side difference (IR)</td>
<td>4.7</td>
<td>12.6</td>
</tr>
<tr>
<td>ER (Affected /Non-affected)</td>
<td>26.9 / 55</td>
<td>17.9 / 15.4</td>
</tr>
<tr>
<td>Side to side difference (ER)</td>
<td>28.1</td>
<td>20.2</td>
</tr>
</tbody>
</table>

4 patients (25%) reported subjective hip stiffness on presentation

Mean CEA: 34.6° ± 6.3
Results – Clinical Outcomes

**Conservative treatment**

- 10 patients (62.5%) Successfully Treated w/ PT
- 5 of 10 patients w/ Pre & Post treatment Scores (f/u 47.6 mo 31-76):
  - mHHS pre vs. post: 77 vs. 88.7
- Remaining 5 patients had chart notes reporting they had no pain or felt significantly better after PT

**Surgical treatment**

- 6 patients (37.5%) failed PT & Underwent Hip Arthroscopy at Avg of 5.75 mos (range 0-32)
  - Surgery included: MUA (100%), synovectomy (100%), Lig Teres Debridement (83.3%), Acet Chondroplasty (100%), Acetabuloplasty (50%), AIIS decompression (16.7%), Partial Labrectomy (66.7%), Labral Repair (16.7%), Loose Body Removal (16.7%)
- Mean f/u 56 mo (33-100) Post Op, 80% of patients mHHS ≥ 80 (avg mHHS pre-op vs post op: 72.6 vs 85.1)
- No complications occurred
Results – Clinical Outcomes

Conservative treatment

Surgical treatment

Pre | Post | Pre | Post

mHHS
Lequesne described the role of arthrography in diagnosing adhesive capsulitis of the hip. They reported 6 patients presenting with hip pain, limited movement, and no significant imaging findings. Arthrography demonstrated a reduction in the fluid capacity of the joint.

Byrd & Jones reported clinical outcomes in 9 patients after hip arthroscopy & manipulation for frozen hip. On presentation IR had an average loss of 5.6° and ER had an average loss of 19.4°. Eight patients reported excellent outcomes.

Kim et al. reported 44 patients (50 hips) with adhesive capsulitis. Patients were treated with an active stretching program without formal PT. 40 patients (90.9%) reported improvement in hip motion. Recovery took 15 months on average. These findings were similar in our research, patients took a long time to get better. This information is important for patient counseling.
Discussion

It is important to keep the diagnosis of frozen hip in mind. It occurs mostly in middle-aged women and it should be suspected in patients with decreased range of motion (sometimes subjectively reported) that otherwise had normal imaging findings. External rotation is the most affected movement.

We propose a similar approach to adhesive capsulitis of the shoulder, with an initial trial of conservative treatment. Our results demonstrate surgery can be avoided in more than 60% of cases.
Conclusions

Frozen hip is an uncommon but not rare cause of hip pain

PT should be its initial treatment

Surgical outcomes are good in refractory patients