Treatment Of Heterotopic Ossification After Hip Arthroscopy

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Disclosures

• Consultancy: Arthrex, Depuy

• Lectures/speakers bureaus: Arthrex, Smith & Nephew

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Introduction

- A range of heterotopic ossification (HO) after hip arthroscopy from less than 1.0% to 6.3% has been reported in series ranging from 96 to 616 patients.

- Furthermore, the incidence of HO was reported as much as 8.3% to 33% in subsets of two series in which patients received limited or no prophylaxis with NSAIDs.

- These series briefly mention treating patients with arthroscopic and open debridement, but arthroscopic excision of HO is not described in detail.

- The purpose of our study is to describe revision arthroscopic treatment of three patients with symptomatic HO after hip arthroscopy and report postoperative pain and function.
Methods

Indications for revision hip arthroscopy for HO are:
(1) symptoms sufficient to cause pain and dysfunction in the hip which are different than the patient’s preoperative labral or intraarticular symptoms
(2) limitation in active or passive ROM
(3) identifiable HO on radiographs
(4) concomitant intraarticular hip disorder such as unaddressed FAI or retears of the labrum

Contraindications are:
(1) Grade 4 HO with extensive bone formation
(2) posterior location of HO
(3) immature HO
(4) substantial arthritis of the hip
(5) an obese patient where access may be difficult
Methods – Surgical Technique

• Spinal needle localization was used to triangulate onto the HO. Cannulas were inserted over the spinal needle.

• Once the HO was clearly identified with the scope, it was excised using a burr and a grasper.
Results

• Retrospective review of all 66 patients who underwent arthroscopic treatment of FAI between July 2008 and June 2010

• Eight of the 66 patients (12%) had HO confirmed on radiographs. Three of the eight patients had arthroscopic excision of HO

<table>
<thead>
<tr>
<th>Patient parameter</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average age</td>
<td>38 years (range, 15-68 years)</td>
</tr>
<tr>
<td>Sex</td>
<td>30 males</td>
</tr>
<tr>
<td></td>
<td>36 females</td>
</tr>
<tr>
<td>Average weight</td>
<td>77.2 kg (range, 45.3-113.4 kg)</td>
</tr>
<tr>
<td>Average BMI</td>
<td>26.1 kg/m² (range, 17.8-40.4 kg/m²)</td>
</tr>
<tr>
<td>Intraoperative findings</td>
<td>6 hips with cam</td>
</tr>
<tr>
<td></td>
<td>18 hips with pincer</td>
</tr>
<tr>
<td></td>
<td>42 hips with cam/pincer</td>
</tr>
<tr>
<td>Preoperative/postoperative average Harris hip score for a patient without HO</td>
<td>55/90</td>
</tr>
</tbody>
</table>

BMI = body mass index; HO = heterotopic ossification.
Results

• The mean modified Harris hip scores at last followup were 90 for patients without HO after surgery and 83 for those with HO.

• For the three patients who had revision surgery for HO, their mean modified HHS was 73 (range 70-78) after the index procedure but improved to 92 (range 85-96) after arthroscopic excision of HO.

### Table 2. Patients with heterotopic ossification

<table>
<thead>
<tr>
<th>Patient number</th>
<th>Sex</th>
<th>Age (years)</th>
<th>Weight (kg)</th>
<th>BMI (kg/m²)</th>
<th>Resection</th>
<th>Brooker grade</th>
<th>Preoperative/postoperative Harris hip scores—index procedure</th>
<th>Preoperative/postoperative Harris hip scores after HO excision</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M</td>
<td>19</td>
<td>80.3</td>
<td>27.1</td>
<td>Cam</td>
<td>2</td>
<td>56/96</td>
<td>N/A</td>
<td>None</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>53</td>
<td>92.1</td>
<td>29.1</td>
<td>Cam/pincer</td>
<td>1</td>
<td>44/93</td>
<td>N/A</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>F</td>
<td>48</td>
<td>68.0</td>
<td>25.8</td>
<td>Pincer</td>
<td>1</td>
<td>52/70</td>
<td>70/85</td>
<td>Arthroscopic resection, indomethacin, radiation therapy</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>53</td>
<td>55.8</td>
<td>21.1</td>
<td>Pincer</td>
<td>1</td>
<td>52/85</td>
<td>N/A</td>
<td>None</td>
</tr>
<tr>
<td>5</td>
<td>M</td>
<td>34</td>
<td>90.0</td>
<td>26.9</td>
<td>Cam/pincer</td>
<td>1</td>
<td>63/85</td>
<td>N/A</td>
<td>None</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>29</td>
<td>73.5</td>
<td>23.2</td>
<td>Cam/pincer</td>
<td>1</td>
<td>59/78</td>
<td>78/96</td>
<td>Indomethacin, arthroscopic resection, radiation therapy</td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>29</td>
<td>59.9</td>
<td>21.3</td>
<td>Pincer</td>
<td>1</td>
<td>56/92</td>
<td>N/A</td>
<td>None</td>
</tr>
<tr>
<td>8</td>
<td>F</td>
<td>22</td>
<td>75.0</td>
<td>26.7</td>
<td>Pincer</td>
<td>3</td>
<td>45/70</td>
<td>70/96</td>
<td>Indomethacin, arthroscopic resection</td>
</tr>
</tbody>
</table>

BMI = body mass index; HO = heterotopic ossification; M = male; F = female; N/A = Not Available
Results: Case 1

- 29-year-old man, presented with new stiffness and discomfort, 3 months after arthroscopic labral debridement, acetabuloplasty, and femoral neck osteochondroplasty
- Radiograph showed Brooker Grade 1 HO
- 7 months after his initial procedure, the patient underwent arthroscopic excision of HO measuring 1.0 x 1.0 x 0.3 cm
- Postoperatively, treated with 50 mg indomethacin twice a day for 2 weeks and radiation therapy for HO prophylaxis with 700 cGy
- Latest f/u (28 months), the patient has substantial relief of his lateral pain, full ROM, no signs of impingement, and his Harris hip score improved from 78 to 96. He has returned to running.
Results: Case 2

- 22-year-old woman who 3 months after acetabuloplasty, pincer resection, and labral repair with two anchors, noted pain with flexion to 70 and minimal internal and external rotation
- Radiograph showed Brooker Grade 3 HO
- 8 months after her initial surgery she underwent excision of HO measuring 1.5 x 0.5 x 0.3 cm
- Patient was apprehensive about receiving radiation and therefore chose chemoprophylaxis only
- Latest f/u (26 months) she is substantially improved and her Harris hip score improved from 70 to 96
Results: Case 3

- 48-year-old woman with Grade 1 HO after labral repair and pincer resection
- Patient underwent revision surgery and a large anterolateral spur that was confluent with the area of HO and was removed with a burr
- Treated with 2 weeks of 50 mg indomethacin twice a day and radiation therapy for HO prophylaxis with 700 cGy.
- Latest followup (24 months), patient was doing well with painless, full hip ROM and her lateral pain has completely resolved. Her Harris hip score improved from 70 to 85. She has returned to playing soccer.
Conclusion

• The development of HO after hip arthroscopy for treatment of FAI is not an infrequent complication and can be symptomatic for some patients.
  • In our series, 12% of patients who underwent hip arthroscopy without HO prophylaxis developed HO

• While prevention of this complication with non-steroidal anti-inflammatory medications or radiation therapy is prudent, arthroscopic excision of HO can have successful outcomes

• With arthroscopic excision as we have described, our three patients had pain relief and improved function
References