Incidence and Complications of Open Hip Preservation Surgery: An American Board of Orthopaedic Surgery Database Review

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Disclosures

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Introduction

- Hip preservation surgery (HPS) encompasses a multitude of techniques, both arthroscopic and open, aimed at restoring joint congruity and function of the hip
- There has been a significant growth in interest in arthroscopic HPS
- The purpose of this study was to assess the trends and complications of candidates for the American Board of Orthopaedic Surgery (ABOS) Part II examination performing procedures related to open HPS
- We hypothesized that open hip preservation surgery would show a similar increase in incidence, with complications remaining constant over time
Methods

• The ABOS database for all initial Part II applicants was queried for all open HPS related CPT codes (summarized in table 1) from 2003 – 2013 for patients age > 10
• Age, sex, incidence, complications, fellowship training background, and geographic location were noted
• Data was analyzed by linear regression analysis using Microsoft Excel, with statistical significance set at p = 0.05
## Results

<table>
<thead>
<tr>
<th>CPT codes</th>
<th>Description of CPT</th>
<th>Total</th>
<th>Number of complications</th>
<th>Percent complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>27140</td>
<td>Osteotomy and transfer of greater trochanter of femur</td>
<td>82</td>
<td>46</td>
<td>56.1</td>
</tr>
<tr>
<td>27146</td>
<td>Osteotomy, iliac, acetabular or innominate bone</td>
<td>95</td>
<td>20</td>
<td>21.1</td>
</tr>
<tr>
<td>27147</td>
<td>Osteotomy, iliac, acetabular or innominate bone with open reduction of hip</td>
<td>23</td>
<td>8</td>
<td>34.8</td>
</tr>
<tr>
<td>27151</td>
<td>Osteotomy, iliac, acetabular or innominate bone, with femoral osteotomy</td>
<td>47</td>
<td>15</td>
<td>31.9</td>
</tr>
<tr>
<td>27156</td>
<td>Osteotomy, iliac, acetabular or innominate bone, with femoral osteotomy and with open reduction of hip</td>
<td>22</td>
<td>11</td>
<td>50</td>
</tr>
<tr>
<td>27158</td>
<td>Osteotomy, pelvis, bilateral</td>
<td>1</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>27161</td>
<td>Osteotomy, femoral neck (separate procedure)</td>
<td>28</td>
<td>6</td>
<td>21.4</td>
</tr>
<tr>
<td>27165</td>
<td>Osteotomy, intertrochanteric or subtrochanteric</td>
<td>303</td>
<td>106</td>
<td>35</td>
</tr>
<tr>
<td>27179</td>
<td>Open treatment of slipped femoral epiphysis; osteoplasty of femoral neck (Heyman type procedure)</td>
<td>120</td>
<td>15</td>
<td>12.5</td>
</tr>
<tr>
<td>27181</td>
<td>Open treatment of slipped femoral epiphysis; osteotomy and internal fixation</td>
<td>9</td>
<td>3</td>
<td>33.3</td>
</tr>
</tbody>
</table>

Table 1: CPT codes queried, total number reported CPT codes, total number of complications per CPT code, and percent complications per CPT code.
Results

Cases and CPT codes per year

Figure 1: Data per year for total cases and CPT codes. Linear regression coefficient for the case trend line is 0.1828 (p = 0.18) and 0.2723 (p = 0.09) for CPT codes.
Figure 2: Total complications per year. Linear regression coefficient for the trend line is 0.2352 (p = 0.13). There were 212 total complications.
Results

Figure 3: Geographic location of applicants over time. There was a statistically significant increase in surgeries performed in the midwest ($R^2 = 0.639$, $p = 0.003$)
Results

<table>
<thead>
<tr>
<th>Fellowships</th>
<th>Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric Orthopaedics</td>
<td>134</td>
</tr>
<tr>
<td>Adult Reconstruction</td>
<td>77</td>
</tr>
<tr>
<td>Trauma</td>
<td>57</td>
</tr>
<tr>
<td>Sports Medicine</td>
<td>30</td>
</tr>
<tr>
<td>Oncology</td>
<td>18</td>
</tr>
<tr>
<td>Other</td>
<td>55</td>
</tr>
</tbody>
</table>

Table 2: Fellowship training background

Individual complications (212 total):

Discussion

• The incidence and complications of open HPS in candidates for ABOS Part II examination remained relatively constant during the study period.
• The incidence and complications of open HPS in novice surgeons should continue at a predictable rate into the future.
• It is unclear if the increase in arthroscopic HPS has led to the under-treatment of patients with significant bony deformity.
• Further study would be useful to compare this data for candidates applying for recertification.
Acknowledgments

- We would like to acknowledge and thank the American Board of Orthopaedic Surgery for providing data used for this study. It also should be noted that the study does not reflect the specific views of the ABOS.
References