Is Further Treatment Necessary for Patellar Crepitus After Total Knee Arthroplasty?

Bo-Hyun Hwang, MD
Himchan Hospital, Seoul Korea

Chang-Hyun Nam, MD
Himchan Hospital, Seoul Korea

Kwang-Am Jung, MD
Himchan Hospital, Seoul Korea

Alvin Ong, MD
Thomas Jefferson University; The Rothman Institute, Alvin.Ong@jefferson.edu

Su-Chan Lee, MD
Himchan Hospital, Seoul Korea

Let us know how access to this document benefits you

Follow this and additional works at: http://jdc.jefferson.edu/rothinsposters

Part of the Orthopedics Commons

Recommended Citation
Hwang, MD, Bo-Hyun; Nam, MD, Chang-Hyun; Jung, MD, Kwang-Am; Ong, MD, Alvin; and Lee, MD, Su-Chan, "Is Further Treatment Necessary for Patellar Crepitus After Total Knee Arthroplasty?" (2014). Rothman Institute Conference Posters. Paper 2.
http://jdc.jefferson.edu/rothinsposters/2
Is Further Treatment Necessary for Patellar Crepitus After Total Knee Arthroplasty?

Bo-Hyun Hwang, M.D.1,2, Chang-Hyun Nam, M.D.1,2, Kwang-Am Jung, M.D.1, Alvin Ong M.D.1, Su-Chan Lee, M.D.1

1Joint Arthritis Research, Hinchin Hospital, Seoul, Korea
2Department of Orthopaedic Surgery, Yonsei University College of Medicine, Seoul, Korea
3Rothman Institute of Orthopaedics, Thomas Jefferson University Hospital, Philadelphia, PA, USA

INTRODUCTION

To determine the presence of radiolucent lines at the bone–polyethylene interface in patients with clinical and radiographic evidence of postoperative patellar crepitus.

METHODS AND MATERIALS

1. Patient Characteristics

All TKAs were performed by one of three senior surgeons. The study included 54 knees (43 patients) with postoperative patellar crepitus that occurred during active flexion, squatting, or stair climbing. No knee required secondary patellar resurfacing due to patellofemoral problems after PS–TKA.

2. Surgical Procedures

All TKAs were performed by one of three senior surgeons. The degree of osteotomy at the patellar articular was graded as described by Offner using degree index TKA. The results were unreported in 11 knees except in knees with score patellar crepitus score and radiographic wear score. Patient selection was performed to include patients with patellar crepitus and evidence of inferior patellar malalignment. The procedure consisted of excision of marginal osteophytes, smoothing of torn cartilage, soft tissue release, and careful alignment of the patellar tendon. The procedure was performed in one sitting and the patellar tendon was used as a soft-tissue interpositional graft.

3. Clinical Assessment

Postoperative clinical outcomes were based on the Knee Society score and the WOMAC score.

4. Radiological Assessment

All AP and lateral fluoroscopically-assisted radiographs and a skyline patellar radiograph were performed.

RESULTS

1. Clinical Results

Five (9.3%) of 54 knees with patellar crepitus were accompanied by patellar pain (VAS, 2-4), which occurred during active flexion, squatting, or stair climbing.

2. Predictors of the development of patellar crepitus

The major predictors of the development of patellar crepitus were a patellar cartilage of Outerbridge Grade IV (odds ratio [OR], 11.9; 95% confidence interval [CI], 2.2-65.3) and joint line elevation (OR, 9.1; 95% CI, 1.9-46.4; Table 2.5).

CONCLUSIONS

Our study suggests the development of patellar crepitus is associated with advanced patellofemoral osteoarthritis and joint line elevation. Furthermore, all patients achieved complete symptomatic relief without an arthroscopic procedure or arthrotomy. Patellar crepitus is self-limiting and a benign problem.

TABLE 1: Demographics Data

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Male (number)</th>
<th>Female (number)</th>
<th>PS group</th>
<th>PC group</th>
</tr>
</thead>
<tbody>
<tr>
<td>51 ± 9 months</td>
<td>26</td>
<td>25</td>
<td>8</td>
<td>53</td>
</tr>
</tbody>
</table>

TABLE 2: Univariate Analysis Results

<table>
<thead>
<tr>
<th>Clinical</th>
<th>ps</th>
<th>pc</th>
<th>ps</th>
<th>pc</th>
<th>ps</th>
<th>pc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee Society</td>
<td>39</td>
<td>43</td>
<td>35</td>
<td>39</td>
<td>34</td>
<td>39</td>
</tr>
<tr>
<td>WOMAC</td>
<td>36</td>
<td>42</td>
<td>31</td>
<td>36</td>
<td>30</td>
<td>36</td>
</tr>
</tbody>
</table>

TABLE 3: Multivariate logistic regression analysis results

<table>
<thead>
<tr>
<th>Clinical</th>
<th>ps</th>
<th>pc</th>
<th>ps</th>
<th>pc</th>
<th>ps</th>
<th>pc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee Society</td>
<td>39</td>
<td>43</td>
<td>35</td>
<td>39</td>
<td>34</td>
<td>39</td>
</tr>
<tr>
<td>WOMAC</td>
<td>36</td>
<td>42</td>
<td>31</td>
<td>36</td>
<td>30</td>
<td>36</td>
</tr>
</tbody>
</table>

Is Further Treatment Necessary for Patellar Crepitus After Total Knee Arthroplasty?

Bo-Hyun Hwang, M.D.1,2, Chang-Hyun Nam, M.D.1,2, Kwang-Am Jung, M.D.1, Alvin Ong M.D.1, Su-Chan Lee, M.D.1

1Joint Arthritis Research, Hinchin Hospital, Seoul, Korea
2Department of Orthopaedic Surgery, Yonsei University College of Medicine, Seoul, Korea
3Rothman Institute of Orthopaedics, Thomas Jefferson University Hospital, Philadelphia, PA, USA

INTRODUCTION

To determine the presence of radiolucent lines at the bone–polyethylene interface in patients with clinical and radiographic evidence of postoperative patellar crepitus.

METHODS AND MATERIALS

1. Patient Characteristics

All TKAs were performed by one of three senior surgeons. The study included 54 knees (43 patients) with postoperative patellar crepitus that occurred during active flexion, squatting, or stair climbing. No knee required secondary patellar resurfacing due to patellofemoral problems after PS–TKA.

2. Surgical Procedures

All TKAs were performed by one of three senior surgeons. The degree of osteotomy at the patellar articular was graded as described by Offner using degree index TKA. The results were unreported in 11 knees except in knees with score patellar crepitus score and radiographic wear score. Patient selection was performed to include patients with patellar crepitus and evidence of inferior patellar malalignment. The procedure consisted of excision of marginal osteophytes, smoothing of torn cartilage, soft tissue release, and careful alignment of the patellar tendon. The procedure was performed in one sitting and the patellar tendon was used as a soft-tissue interpositional graft.

3. Clinical Assessment

Postoperative clinical outcomes were based on the Knee Society score and the WOMAC score.

4. Radiological Assessment

All AP and lateral fluoroscopically-assisted radiographs and a skyline patellar radiograph were performed.

RESULTS

1. Clinical Results

Five (9.3%) of 54 knees with patellar crepitus were accompanied by patellar pain (VAS, 2-4), which occurred during active flexion, squatting, or stair climbing.

2. Predictors of the development of patellar crepitus

The major predictors of the development of patellar crepitus were a patellar cartilage of Outerbridge Grade IV (odds ratio [OR], 11.9; 95% confidence interval [CI], 2.2-65.3) and joint line elevation (OR, 9.1; 95% CI, 1.9-46.4; Table 2.5).

CONCLUSIONS

Our study suggests the development of patellar crepitus is associated with advanced patellofemoral osteoarthritis and joint line elevation. Furthermore, all patients achieved complete symptomatic relief without an arthroscopic procedure or arthrotomy. Patellar crepitus is self-limiting and a benign problem.

TABLE 1: Demographics Data

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Male (number)</th>
<th>Female (number)</th>
<th>PS group</th>
<th>PC group</th>
</tr>
</thead>
<tbody>
<tr>
<td>51 ± 9 months</td>
<td>26</td>
<td>25</td>
<td>8</td>
<td>53</td>
</tr>
</tbody>
</table>

TABLE 2: Univariate Analysis Results

<table>
<thead>
<tr>
<th>Clinical</th>
<th>ps</th>
<th>pc</th>
<th>ps</th>
<th>pc</th>
<th>ps</th>
<th>pc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee Society</td>
<td>39</td>
<td>43</td>
<td>35</td>
<td>39</td>
<td>34</td>
<td>39</td>
</tr>
<tr>
<td>WOMAC</td>
<td>36</td>
<td>42</td>
<td>31</td>
<td>36</td>
<td>30</td>
<td>36</td>
</tr>
</tbody>
</table>

TABLE 3: Multivariate logistic regression analysis results

<table>
<thead>
<tr>
<th>Clinical</th>
<th>ps</th>
<th>pc</th>
<th>ps</th>
<th>pc</th>
<th>ps</th>
<th>pc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee Society</td>
<td>39</td>
<td>43</td>
<td>35</td>
<td>39</td>
<td>34</td>
<td>39</td>
</tr>
<tr>
<td>WOMAC</td>
<td>36</td>
<td>42</td>
<td>31</td>
<td>36</td>
<td>30</td>
<td>36</td>
</tr>
</tbody>
</table>