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

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

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BACKGROUND

Many people experience patellar crepitus after total knee arthroplasty (TKA), which is often asymptomatic. However, there is a paucity of literature discussing the optimal treatment for patellar crepitus in cases of postoperative knee pain.

METHODS AND MATERIALS

This study was a retrospective, matched-control, single-center study that included consecutive patients at the Rothman Institute of Orthopedics, Thomas Jefferson University Hospital, Philadelphia, PA, USA, from August 2007 to 2008. All TKAs were performed by one of three senior surgeons. A total of 108 consecutive TKAs using the Vanguard Complete Knee (Biomet Orthopedics, Warsaw, IN, USA) were performed at the Rothman Institute in Philadelphia, PA from 2007 to 2008. Postoperative radiographs were obtained for all patients at 1 year following surgery. The study included 54 patients (54 knees) with postoperative patellar crepitus and 94 knees (94 patients) who matched in age, sex, patellar cartilage, patellar tendon length, patellar height, Salvati ratio, patellar tendon size, and joint line elevation for each knee. The patients were matched at surgery, but not during the course of their follow-up. The mean follow-up period was 10.5 months (range, 1–10.5 months) after PS TKA. All patients in the PS group had radiographic, arthroscopic, and clinical examinations, were treated with platelet-rich plasma injections and mepivacaine, and all had a similar treatment regimen. No knee required secondary patellar resurfacing due to patellofemoral problems after PS TKA (Fig. 1). Both groups demonstrated improvements (p < 0.001 for all) in Feller’s patellar score, Knee Society score, and WOMAC score and pain subscale.

RESULTS

1. Clinical Results

Patellar crepitus had a mean onset of 3.4 months (range, 1–10.5 months) after PS TKA. All patients in the PS group had radiographic, arthroscopic, and clinical examinations, were treated with platelet-rich plasma injections and mepivacaine, and all had a similar treatment regimen. No knee required secondary patellar resurfacing due to patellofemoral problems after PS TKA (Fig. 1). Both groups demonstrated improvements (p < 0.001 for all) in Feller’s patellar score, Knee Society score, and WOMAC score and pain subscale.

2. Predictors of the development of patellar crepitus

The major predictors of the development of patellar crepitus were a patellar cartilage of Outerbridge Grade 0, 1, or 2, and a Salvati ratio of 0.7 or more (Table 1). Five (9.3%) of 54 knees with patellar crepitus were accompanied by peripatellar pain (VAS, 2–4), which occurred during active flexion, squatting, or stair climbing. Patellar crepitus had a mean onset of 4.3 months (range, 1–10.5 months) after PS TKA. All patients in the PS group had radiographic, arthroscopic, and clinical examinations, were treated with platelet-rich plasma injections and mepivacaine, and all had a similar treatment regimen. No knee required secondary patellar resurfacing due to patellofemoral problems after PS TKA (Fig. 1). Both groups demonstrated improvements (p < 0.001 for all) in Feller’s patellar score, Knee Society score, and WOMAC score and pain subscale.

CONCLUSIONS

Our study suggests the development of patellar crepitus is associated with advanced patellofemoral osteoarthritis and joint line elevation. Furthermore, all patients achieved good clinical outcome without an arthroscopic procedure or arthroscopy. Patellar crepitus is self-limited and a benign problem. Our patients were not satisfied with arthritic patients and counsel patients with patellar crepitus that their symptoms will improve without intervention.

TABLE 1: Demographics Data

<table>
<thead>
<tr>
<th>Patient Characteristics</th>
<th>PS group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>65.3±17.0</td>
<td>61.5±9.0</td>
</tr>
<tr>
<td>Female (%)</td>
<td>57 (56.4%)</td>
<td>61 (64.4%)</td>
</tr>
<tr>
<td>Patellar height (mm)</td>
<td>40±3.2</td>
<td>40±2.8</td>
</tr>
<tr>
<td>Fat pad thickness (mm)</td>
<td>13±1.1</td>
<td>12±0.8</td>
</tr>
<tr>
<td>Patellar tendon length</td>
<td>37±1.9</td>
<td>37±1.9</td>
</tr>
<tr>
<td>Salvati ratio</td>
<td>0.9±0.2</td>
<td>0.9±0.2</td>
</tr>
</tbody>
</table>

TABLE 2: Multivariable logistic regression analysis results

<table>
<thead>
<tr>
<th>Predictor</th>
<th>OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patellar cartilage grade</td>
<td>0.50 (0.33, 0.74)</td>
<td>0.001</td>
</tr>
<tr>
<td>Salvati ratio</td>
<td>0.78 (0.61, 0.88)</td>
<td>0.002</td>
</tr>
</tbody>
</table>

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