Total Knee Replacement Following Coronary Artery Bypass Surgery
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Citation

Abstract
Four patients, following successful earlier coronary artery bypass surgery underwent successful total knee replacement. The average follow-up of these patients is 47.5 months. Three of the patients had bilateral knee replacements and there were no significant complications.

INTRODUCTION
Patients following coronary artery bypass surgery (CABS) may have compromised cardiac function. These patients are categorised as high-risk, according to the ASA-grading [1]. We report 4 such patients with successful total knee replacements.

CASE REPORTS
The clinical details of all four patients are summarised in table 1.

Two patients underwent bilateral total knee replacements under one anaesthetic. One had staged bilateral knee replacements, 6 days apart and one had a unilateral knee replacement. All four patients underwent medical evaluation by a cardiologist. The decision to proceed with total knee replacement was taken in conjunction with the cardiologist and anaesthetist. The average follow-up of these patients till date is 47.5 months.

Table 1: Summary Of Cases

<table>
<thead>
<tr>
<th>Case</th>
<th>ASA Grade</th>
<th>Procedure</th>
<th>Side</th>
<th>Age (yrs)</th>
<th>Weight (kg)</th>
<th>ASA Score</th>
<th>NYHA Class</th>
<th>Co-morbidity</th>
<th>Duration of Illness (yrs)</th>
<th>Total Stay (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>Bilateral</td>
<td>OA</td>
<td>65</td>
<td>85</td>
<td>2</td>
<td>3</td>
<td>None</td>
<td>2.5</td>
<td>14</td>
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<tr>
<td>2</td>
<td>3</td>
<td>Bilateral</td>
<td>OA</td>
<td>70</td>
<td>80</td>
<td>2</td>
<td>3</td>
<td>None</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
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<td>3</td>
<td>Bilateral</td>
<td>OA</td>
<td>55</td>
<td>70</td>
<td>2</td>
<td>3</td>
<td>None</td>
<td>1.5</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>Unilateral</td>
<td>OA</td>
<td>60</td>
<td>70</td>
<td>2</td>
<td>3</td>
<td>None</td>
<td>2</td>
<td>8</td>
</tr>
</tbody>
</table>

ASA = American Society of Anesthesiologists Risk Assessment Scoring System
NYHA = New York Heart Association

Figure 1a: Pre operative radiograph of both knees

Figure 2
Figure 1a: Pre operative radiograph of both knees
Total Knee Replacement Following Coronary Artery Bypass Surgery

DISCUSSION

Patients following CABS are usually considered high-risk for major surgery. Myocardial infarction, pulmonary embolism and deep vein thrombosis are the most commonly occurring complications [2,3]. Mantilla [2] reviewed 10,244 patients who underwent primary hip and knee replacement. The overall cardio-pulmonary complication rate in that series was 2.2%. The American College of Cardiology / American Heart Association Task Force [4] suggest that the risk of overall cardiac morbidity in the population undergoing orthopaedic surgery is intermediate (1-5%). Advanced age, pre-existing cardio-pulmonary disease and simultaneous bilateral joint replacements are associated with increased mortality after total knee arthroplasty [2,3].

Wasielewski [4] found that the outcome of total knee replacement was compromised by associated medical disability. Hosick [1] concluded that many medical problems did not affect the outcome of arthroplasty and Pritchard [4] reported good results in elderly patients. Laskin [1] has reported that patients over the age of 85 can tolerate knee replacement well. The mortality and functional results in his group were almost equivalent to those in much younger patients, but with slightly higher level of perioperative morbidity.

The safety of bilateral knee replacement is also debated. Adili [9] has reported successful outcome following sequential bilateral knee replacement under one anaesthetic in patients older than 75. Lynch [10] suggested the staging of bilateral knee replacements in elderly patients but Lombardi [11] and Jankiewicz [12] considered bilateral sequential knee replacements to be advantageous and preferred by the patients to the staged procedures.

Reis [13] evaluating cardiovascular fitness after hip and knee replacement, found that the post-operative resumption of physical activity was associated with increased fitness, and that patients following joint replacement were fitter than the patients with arthritic joints who were treated non-operatively.

The major purpose of total knee arthroplasty is improvement in the patients’ quality of life. Successful total knee replacement enables increased levels of exercise and this can be beneficial to patients with anxiety, depression, obesity, high blood pressure, coronary artery disease, diabetes mellitus, osteoporosis and low back pain [15].

This report is of four relatively high-risk patients who underwent total knee replacement without significant complications. Liaison between the surgeon, anaesthetist and cardiologist is recommended.

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References


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