Recovery of full flexion after total knee replacement in rheumatoid arthritis – a follow-up study

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Summary. *Twenty-three of 327 patients with rheumatoid arthritis (38 out of 509 knees) had primary Yoshino-Shoji total knee replacements between 1984 and 1990 and were able to squat fully in the Japanese style after the procedure. Seven had died of conditions unrelated to their operations. Of the remaining 16, 5 were able to squat fully at follow-up; 2 were unable to do so, but had full passive flexion; 9 were unable to squat and did not have full flexion. The cumulative survival rates of patients able to squat were 82.2%, 65.7% and 47% at 2, 5 and 8 years after operation. At follow-up, 3 were able to walk out of doors for less than 30 min, 6 for 30 min or more and in 7 walking was unlimited. These results suggest that daily exercises are important in maintaining full flexion. The absence of complications may be due to low body weight and limited activity due to the disease. Patients with rheumatoid arthritis and low body weight can be encouraged to regain full flexion after total knee replacement if they wish to do so.*

Résumé. *Vingt-trois parmi 327 patients (38/509 genoux) atteints de rhumatisme articulaire chronique sont devenus capables de s'asseoir à la façon japonaise après arthroplastie totale de genou entre 1984 et 1990. Sept patients sont morts d'affections sans rapport avec l'opération. 5 ont été capables de s'asseoir complètement au moment de la révision. 2 étaient incapables de le faire mais capables de flexion complète passive. 9 patients n'étaient capables ni de s'asseoir complètement ni*

de flexion complète passive. Le taux cumulatif de survie des patients capables de s'asseoir complètement était 82.2%, 65.7% et 47.0%, respectivement, 2, 5 et 8 ans après l'opération. Voici leur capacité de marche: plus de 30 minutes de marche à l'extérieur pour 3 patients, moins de 30 minutes pour 6 et "sans limite" pour 7. La moyenne du poids était de 49.7 kg (40–60 kg). Il n'y a eu aucune complication dans cette série. Ces résultats suggèrent que les exercices quotidiens sont importants pour maintenir la flexion complète. L'absence de complications pourrait être attribuée au poids léger des patients et au fait que leur activité quotidienne est restreinte. Les patients légers atteints de rhumatisme articulaire chronique devraient donc être encouragés à s'exercer activement à la flexion complète après remplacement du genou par prothèse totale.

Introduction

Recovery of full flexion is a challenge after total knee replacement [1, 3, 5], and if this is to be achieved it is necessary to determine whether full flexion persists, and whether complications, such as polyethylene wear, loosening or instability, occur.

Fig. 1. A woman, 68 years of age, who had bilateral simultaneous Yoshino-Shoji knee replacements in January 1985. She is able to squat fully 4 or 5 times a day

Fig. 2. Lateral radiograph of one knee of the same patient in full flexion at follow-up

We addressed these questions in the present study by following up patients with rheumatoid arthritis who were able to squat fully in the Japanese style after knee replacement.

Fig. 3. Cumulative survival rate of patients who became able to squat fully in the Japanese style after knee replacement

Patients and methods

Twenty-three of 327 patients with rheumatoid arthritis (38 out of 509 knees) who had primary Yoshino-Shoji (Y-S) total knee replacements between 1984 and 1990 were able to squat fully in the Japanese style after operation.

At follow-up, 7 had died of diseases not related to their operation. The average time between operation and death was 5.3 years (range 1 to 8 years). The remaining 16 patients (27 knees) had an average follow up of 8.8 years (range 5.2 to 11.2 years). There was only one man. The average age was 58 years (range 46 to 70 years), and average body weight 49 kg (40 to 60 kg).

The posterior cruciate ligaments were sacrificed at operation. No patellar replacements were carried out. Details of the technique have been described [4].

We assessed the ability to flex fully and/or squat fully in Japanese style, the main reason for becoming unable to squat fully, the cumulative survival rate [2] and the ability to squat fully, walking ability, complications, radiographic findings and the patients' satisfaction.

Results

At follow up, 5 patients (9 knees) were able to squat fully (Figs. 1, 2). Two patients (3 knees) were unable to do so, although they had full passive flexion. However, they were able to squat fully in a bath filled with hot water. The remaining 9 could not squat fully and did not have full flexion.

The main reasons for not being able to squat were pain in the ankle on squatting in 6, and almost no opportunity to squat because of a Western life style in 5. The average time at which flexion was lost was 4.9 years.

The cumulative survival rate of those able to squat fully after operation was 82.2%, 65.7% and 47.0% respectively at 2, 5 and 8 years (Fig. 3).

No patient was unable to walk; 3 managed out of doors for less than 30 min, 6 out of doors for 30 min or more, and walking was unlimited in 7.

There was no clinical evidence of component loosening, lateral instability or sinkage. Radi-

olucent lines wider than 1 mm were not seen around either component in any knee.

Every patient was very satisfied with the outcome. Ten patients (18 knees) complained of slight patellofemoral pain when getting up from a chair, or going up or down stairs.

Discussion

Every patient who could squat fully in the Japanese style at follow up could do so when necessary in their daily life. The remainder who were unable to do so either had pain in their ankles or had adopted a Western style of sitting.

The cumulative survival rate decreased gradually and reached a plateau about 8 years after operation. These results suggest that it is important to carry out and continue range of motion exercises daily in order to retain the full movement acquired after operation.

No knee showed any signs of loosening, lateral instability, or sinkage or wear of the tibial polyethylene component, although these complications

are said to occur more often in knees which flex fully. The absence of complications in our cases may be because patients with rheumatoid arthritis are not very active and their body weights were relatively low.

Our findings suggest that rheumatoid patients who have a low body weight should be encouraged to regain full flexion after total knee replacement, if they wish to do so.

References

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