

RESULTS OF TOTAL HIP REPLACEMENT IN SYSTEMIC LUPUS ERYTHEMATOSUS

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ABSTRACT

Ten total hip replacements were performed between 1 June 1984 and 31 May 1989 in 6 patients who had systemic lupus erythematosus. All had avascular necrosis of the femoral head. The mean age at operation was 31.2 years with a range of 21 - 41 years. The mean follow-up period was 3.9 years with a range of 1.75 to 6.25 years. Mayo clinical hip ratings were excellent for all but one hip. Complications included transient sciatic nerve palsy in one hip and aseptic loosening of the femoral component in another.

Keywords: Total hip replacement, systemic lupus erythematosus.

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INTRODUCTION

Earlier diagnosis and advances in treatment of systemic lupus erythematosus including better management of life threatening renal failure, intercurrent infections and cardiac failure have led to improved survival⁽¹⁾. Avascular necrosis of the femoral head has been recognised as an important and common complication in patients who have systemic lupus erythematosus⁽²⁾. It can be associated with significant disability. Many patients are young and may have bilateral involvement.

Total hip replacement is often necessary in patients who have severe pain and disability, even in these young patients in whom longevity of the prosthesis can be a limiting factor.

Our study was undertaken to evaluate the results of total hip replacement in patients who had systemic lupus erythematosus.

MATERIALS AND METHODS

Between 1 June 1984 and 31 May 1989, 10 total hip replacements were performed at the Department of Orthopaedic Surgery, Tan Tock Seng Hospital in 6 patients who had systemic lupus erythematosus. All patients had complications related to systemic lupus erythematosus prior to surgery. Renal involvement was found in 4 patients, Dermatomyositis in 3 patients, Pancytopenia in 2 patients and epilepsy in one patient. These complications at the time of surgery were treated and controlled.

All the hips had avascular necrosis of the femoral head. One hip had insertion of the fibular graft into the femoral head one year prior to the total hip replacement. The avascular necrosis in the affected hips was either stage III or stage IV according to the Ficat and Arlet radiological classification⁽³⁾.

The overall disease activity at the time of operation was determined by the use of Lupus Activity Criteria Count (LACC)⁽⁴⁾. The mean LACC was 0.4 with a range of 0-1, suggesting all the patients were in remission.

The mean duration of the disease prior to operation was 6.2 years with a range of 3 -12 years. The average interval

between commencement of steroid-therapy and operation was 5.5 years with a range of 2 -11 years. All patients were taking low maintenance dose of steroids at the time of operation. The mean daily dose of prednisolone was 7.5mg with a range of 5-30 mg. No patient was given immunosuppressive therapy at the time of operation.

The mean age at operation was 31.2 years with a range of 21-41 years. The mean length of follow-up was 3.9 years with a range of 1.75 to 6.25 years. Five out of 6 patients were women. Four were Chinese and 2 were Malay. The average weight of the patients at the time of operation was 55 kg with a range of 48 to 62 kg.

Two patients underwent unilateral total hip replacement. Four patients required bilateral total hip replacements. There were one cemented (Charnley Mueller) and 9 uncemented (8 Isoelastic and 1 Harris Galante) prostheses.

All the patients were given intravenous prophylactic antibiotics. The regime used in each operation was according to the preference of the surgeon.

Functional evaluation of patients

All patients were evaluated clinically by interview and physical examination. The Mayo Clinical Hip Scores⁽⁵⁾ calculated pre and post-operatively were compared. The maximum clinical score was 80 points (pain 40 points, hip function 20 points and hip mobility and muscle power 20 points)

Roentgenographic analysis

The pre-operative, the initial post-operative and the most recent films were compared. The maximum Mayo radiographic score was 20 points (acetabulum 10 points and femur 10 points). Radiographs were carefully evaluated for migration of the components and evidence of radiolucent lines. Lucencies in the acetabular zones were recorded as described by De Lee and Charnley⁽⁶⁾ and those in the femoral zones as described by Gruen et al⁽⁷⁾.

RESULTS

Clinical Results

Nine out of 10 hips had excellent results on the Mayo Clinical Hip Score. The mean pre-operative clinical score for these 9 hips was 10.8 with a range of 7 - 13 points. Post-operatively, the mean score increased to 79.3 with a range of 78-80 points.

The hip that had poor result, developed symptoms 8 months after the operation due to aseptic loosening of the Isoelastic femoral component. The pre-operative clinical score was 7 and the post-operative score was 41 points.

Complications

Complications in this study included one hip with transient sciatic nerve palsy which recovered completely one year after the operation and another with aseptic loosening of the femo-

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ral component leading to painful hip. No other complications were reported in this study.

Radiographic analysis

All acetabular and 9 femoral components had no radiographic evidence of loosening. Ten points each were given to all acetabular components and seven femoral components. Eight points each to the other 2 Isoelastic femoral components.

One Isoelastic femoral component was given 4 points and had poor clinical score. Radiological evaluation revealed progressive osteoporosis and the most recent films showed complete radiolucent line of more than 1mm in all the femoral zones.

DISCUSSION

Nine out of 10 hips in our study had excellent result on the Mayo Clinical Hip Score at a mean follow up of 3.9 years.

In a study of patients who were less than 30 years old and none of whom had systemic lupus erythematosus, Chandler et al⁽⁸⁾ identified certain adverse factors including heavy physical activity, a unilateral arthroplasty or a body weight of more than 82 kg in these young patients who had undergone total hip replacement.

Most of our patients had low level of activity, bilateral involvement and diminished functional status due to other complications of systemic lupus erythematosus. All weighed less than 62 kg. Absence of the adverse factors identified by Chandler et al could explain the excellent ratings in 90% of the hips and the low rate of radiographic loosening.

The low complication rate in our study could be because all the patients were in remission at the time of operation. We would expect an increased risk of infection in our patients who were all taking steroids at the time of operation. However, no infection was reported in our study. This could be explained by absence of pancytopenia at the time of surgery, strict aseptic technique, prophylactic parental antibiotics and reduction of the dosage of steroids.

In our study, a 30-year-old patient had unilateral cemented Charnley Mueller total hip replacement because she had osteoporosis and lupus nephritis leading to nephrotic syndrome which might have poor long-term survival at the time of surgery. Nine uncemented prostheses were implanted in 5 patients with good bone stock at the time of surgery. One Isoelastic femoral component in a 33-year-old lady developed aseptic loosening 8 months after surgery and had poor clinical result. Radiological analysis revealed progressive osteoporosis. Early loosening of the cementless femoral component in her case

could be related to failure of bone ingrowth associated with increasing osteopenia. Because of small number of patients, statistical comparison between these 2 groups was not performed.

In a series of 9 patients under the age of 35 who had systemic lupus erythematosus reported by Kunec⁽⁹⁾, 3 out of 13 total hip replacements underwent revision (at one year for recurrent dislocation, at 5 years for loosening of femoral component and at 10 years for loosening of both components respectively). A revision was anticipated in another patient who developed symptomatic loosening of the femoral component.

As the survival in the systemic lupus erythematosus patients has improved significantly in the recent past, the longevity of the prosthesis can be a limiting factor for total hip replacement. Steroid induced osteopenia is another important factor to consider. In patients who already have osteoporotic bones, cemented prostheses can achieve good fixation. In younger patients who have good bone stock, cemented prostheses can be more difficult to revise if they happen to fail with time. Non cemented ingrowth prostheses which have the advantage of easier revision can be used. There are no studies in the past 10 years comparing the results of cemented and uncemented prostheses in the steroid dependent patients.

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