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Total hip replacement of failed surface arthroplasty

Twelve patients who underwent 13 revisions were followed for a mean of 3 years. There were no complications. In addition, in all patients, the results of the total hip replacements were similar to, or better than, the results of the surface replacements prior to their failure. A previous surface replacement does not appear to prejudice the outcome of a total hip replacement.

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The purpose of this investigation was to discover if a previous surface arthroplasty jeopardised the result of a conventional total hip replacement.

Material and methods

Thirteen total hip replacements performed in 12 patients following failure of their Freeman surface replacements formed the basis of this study. They were part of a larger prospective series of 51 surface replacements performed during the period 1977–1980. The 47 patients all continue under review and have a mean follow-up of 3 years.

Fourteen surface replacements have failed to date. The mean time between surface replacement and failure was 21 (4–40) months. Failure was defined as a hip which required major revision surgery. One patient had excision of ectopic bone only, leaving 13 hips in 12 patients that underwent revision to a conventional total hip replacement.

There were seven females and five males, with a mean age of 60 (49–69) years, whose mean weight was 70 (59–86) kg. Eleven patients, one of whom had bilateral replacements, had a primary diagnosis of arthrosis; one suffered from rheumatoid arthritis.

Indications for revision of the 14 surface arthroplasties were loosening of the femoral component in nine cases, five of which had a loose acetabular component, subcapital fracture in three cases, unexplained pain and ectopic bone in one case each. Four of the failed surface arthroplasties had ectopic calcification. In the larger prospective trial of 51 surface arthroplasties, ectopic calcification occurred in half of the hips.

All the operations were carried out in a theatre using a laminar airflow system. Antibiotics were given with the pre-medication and continued until removal of the sutures on the tenth postoperative day.

Of the 13 revisions, 11 had a Müller total hip replacement. No technical problems were encountered peroperatively; the operation was technically very much easier than revision of a failed total hip replacement. In two, the femoral component alone was revised using a cemented Thompson prosthesis; in these two patients there was loosening of the femoral components only, and revision of the acetabulum was felt to be unnecessary.

All 12 patients were reviewed following their total hip arthroplasty with a mean follow-up of 3 (1–4) years. The hips were assessed according to Charnley's (1972) modification of the Merle D'Aubigné & Postel (1954) classification. In addition, antero-posterior and lateral radiographs were taken of each hip.

Results

Following revision of the 13 surface arthroplasties to total hip arthroplasties, there were no complications. At review, the mean total score was 14. This compared with a preoperative mean total score of 8.4 (Table 1).

Four of the failed surface arthroplasties had ectopic bone formation. At operation, limited excision of ectopic bone was performed. No pre-

Table 1. Hip rating based on the Charnley modification of the Merle D'Aubigné and Postel hip rating system

	Mean score	
	Pre-op	Post-op
Pain	2.3	5.0
Function	2.9	5.2
Total range of movement	3.2	4.0
Mean total score	8.4	14.2

ventative measures were taken. Ectopic bone recurred in four hips but did not develop in the remaining nine.

Discussion

Surface replacement of the hip has been advocated for younger patients whose ages militate against the more radical conventional total hip arthroplasty (Wagner 1978). Until now, the emphasis in reported series has been on the indications, surgical techniques and success rate of surface replacement (Wagner 1978, Amstutz et al. 1981). Should surface replacement fail, all the options remain open: total hip arthroplasty, arthrodesis, excision arthroplasty or simply revision of the surface arthroplasty.

Thomas & Amstutz (1982) have reported the short-term results of a small series where the results of revision surgery were less satisfactory than those following primary surgery. The early results of our series indicate that surface replacement does not prejudice the outcome of revision to a conventional total hip replacement. The results compare favourably with those for total hip replacement performed as a primary procedure.

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