ARTICULAR DEBRIDEMENT VERSUS WASHOUT FOR DEGENERATION OF THE MEDIAL FEMORAL CONDYLE

A FIVE-YEAR STUDY

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In a prospective randomised trial 76 knees with isolated degenerative changes in the medial femoral condyle of grades 3 or 4 were treated by either arthroscopic debridement (40) or washout (36).

All knees were followed up for at least one year and 58 for five years. The mean follow-up time was 4.5 years in the debridement group and 4.3 years in the washout group.

At one year 32 of the debridement group and five of the washout group were painfree and at five years 19 of a total of 32 survivors in the debridement group and three of the 26 in the washout group were also free from pain. The mean improvement in a modified Lysholm score was 28 for the debridement group at one year and 21 at five years. In the washout group it was only 5 at one year and 4 at five years.

For knees with lesions of the medial femoral condyle of grades 3 or 4, arthroscopic debridement appears to be the treatment of choice with over half the patients free from pain after five years.

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Articular debridement for degenerative arthritis of the knee was used before arthroscopy became common. It gave good results in the early stages of wear (Haggart 1940; Magnusson 1941). Pridie (1959) described an articular drilling technique which was not primarily a debridement procedure, although removal of loose degenerate articular cartilage was included. Recently, in a trial of arthroscopic articular debridement versus articular abrasion, Bert and Maschka (1989) failed to show any difference between the two procedures.

Short-term trials of arthroscopic debridement versus washout have been reported. In the series of Chang et al (1993) the washout group did not have arthroscopy; the full extent of the changes within the knee remained unknown. In the series of Rand (1991), many of the patients who had articular debridement also had meniscectomy at the same operation. The term ‘arthroscopic debridement’ has therefore included articular trimming, meniscectomy, the removal of osteophytes, articular abrasion and even local synovectomy. After such multiple arthroscopic procedures it is difficult to attribute the success or failure of the operation to any specific part of the method. The result will also be influenced by the severity of the degeneration, the size of an individual lesion and the number of areas of wear.

A prospective randomised study was performed to compare arthroscopic debridement with washout in patients with clearly defined levels of degeneration of the articular cartilage of the medial femoral condyle.

PATIENTS AND METHODS

Between January 1985 and December 1989 all patients undergoing arthroscopic surgery for degeneration of the articular cartilage of the knee were eligible to be entered into the trial, and follow-up was completed by December 1994. The Lysholm score (Lysholm and Gillquist 1982) was used to record results, but was modified to exclude the score for stability.

All the patients admitted to the trial had suffered unmitting symptoms in the knee for one year before arthroscopy (Table I). Patients who had had an operation on the contralateral knee were included. Patients showing gener-
alised ligamentous laxity in other joints were accepted provided that both knees showed equal laxity and no ligamentous damage was found at arthroscopy. All the patients had some tenderness over the medial joint line or medial femoral condyle and all had an effusion. They had a full range of movement from 0° to 140° and none had any obvious deformity.

At the initial diagnostic arthroscopy, only knees showing an isolated degenerative lesion on the medial femoral condyle of grade 3 or 4 on the Outerbridge (1961) classification were accepted for the trial. Knees with any additional degenerative lesions on other articular surfaces or any other intra-articular pathology were rejected. Subchondral sclerosis of grades 1 to 3 (Thomas et al 1975), involving only the medial condyle of the femur, was accepted.

Exclusions included all knees in which radiographs showed a loss of joint space and all which had had a previous operation or steroid injection for any reason.

Randomisation was from computer-generated random numbers printed as either ‘test’ or ‘control’ on individual cards, inserted into sealed, numbered envelopes. Provided that all criteria for entry into the trial had been fulfilled after the diagnostic arthroscopy, the next sealed envelope was then opened and the appropriate procedure performed.

There was a total of 76 knees suitable for the trial over a five-year period. Forty were in the arthroscopic debridement group and 36 in the washout group. The mean follow-up in the debridement group was 4.5 years and in the washout group 4.3 years.

**Techniques.** When debridement was selected, the degenerative lesion was reprobed to confirm its size, grade and the amount of articular cartilage which was loose. All loose articular cartilage was resected, using a 4.5 mm, 90° angled punch through an anteromedial portal with the arthroscope in an anterolateral portal. Resection of loose cartilage was completed using straight and curved 3 mm punches. The defect was then carefully reprobed to check that there was no other loose articular cartilage. No attempt was made to abrade the bone or to drill the condyles; powered instruments were not used. Three litres of saline were then run through the knee, the tourniquet being removed before the final washout.

In the washout group three litres of saline were run through the knee in a similar manner.

Most of the patients were discharged from hospital the same or the following day. Review was at three months, 12 months and then annually until five years. All were reviewed personally by the author; it was not possible to use independent observers or blinded observation. Physical examination at each review included calculation of a modified Lysholm score with a maximum of 70 points, excluding the usual 30 points for instability.

**RESULTS**

The results are given in simple terms of ‘success’ or ‘failure’, denoting the absence or presence of pain (Table II). The persistence of preoperative effusion or local tenderness tended to be associated with the persistence or recurrence of pain. The mean ages in Table II show a middle-aged population in both groups. The age differences between the groups were not statistically significant.

At one year 32 of the debridement group and five of the washout group were free from pain. No patients had been lost to follow-up at this stage. There was a significant difference in the incidence of pain relief between the debridement group (80%) and the washout group (20%) at one year (p = 0.05; Fig. 1).

At five years, 19 of a total of the 32 patients reviewed from the debridement group and three of the 26 in the washout group were pain-free. Eight patients had been lost to follow-up at this stage. There was a significant difference in the incidence of pain relief between the debridement group (80%) and the washout group (20%) at one year (p = 0.05; Fig. 1).

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**DISCUSSION**

Articular debridement has received cautious support (Dandy 1991) but it has been emphasised that it is of little use in
the presence of deformity, laxity or destroyed joint surfaces. Other authors have been more critical (Casscells 1990). All the previously reported trials of artricular debride-
ment have included many knees on which a partial menis-
cectomy had been performed at the same operation (Aichroth, Patel and Moyes 1991; Rand 1991; Chang et al 1993); the results of these could equally well be described as a review of meniscectomy with some articular debride-
ment. As previously discussed, the use of the blanket term ‘debridement’ may cover many types of arthroscopic sur-
gery and is almost impossible to quantify.

Joint washout through a fine needle has been reported to show an improvement in osteoarthritic symptoms at 12 months when compared with physiotherapy alone (Dawes, Kirlew and Haslock 1987; Livesley et al 1991). Again arthroscopy was not included; the diagnoses were made on radiography alone, and no grading was given. It was there-
fore impossible to know whether patients with major meniscal tears had been included. Normal radiography can give no indication of the extent of involvement of the articular surface, yet this affects the outcome considerably.

Gibson et al (1992) found little value in either debride-
ment or washout. The radiological grading of the knees was not reported, but the mean flexion range of 100° and a special scoring system for osteophytes would suggest that the osteoarthrits was well advanced. Their results clearly show that washout and debridement are not alternative procedures to knee replacement.

My study has shown that in knees with single lesions of grade 3 or 4 of the medial femoral condyle, long-lasting pain relief can be produced by debridement of the articular cartilage. There was some deterioration in the first two years, but 65% of the knees were free from pain at five years. Simple washout gave some improvement, but to a much less extent. It can be argued that 20% of the patients in the debridement group would have improved after the wash-out alone, but the improvement at one year related to debridement alone is still considerable.

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