

Arthroscopic Debridement of Arthritic Knee in Elderly Patients

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Abstract : This study is aimed to assess the short term benefits of radical arthroscopic debridement in patients over the age of 60 years.

34 elderly patients with osteoarthritic knees underwent radical arthroscopic debridement were reviewed. 30 patients had satisfactory short term results. There were no complications of the operation under general anaesthesia. This procedure is a useful palliative treatment to buy time for the older osteoarthritic patient in whom total knee replacement is not yet indicated.

INTRODUCTION

Total hip replacement has conquered the elderly arthritic hip. Recent long term reviews of total knee replacement are also very encouraging. There is still some reluctance to offer total knee replacement as frequently as total hip replacement. The patient may be offered tibial osteotomy instead². This is not a minor procedure. Indeed, it has a high morbidity and may make the eventual total knee replacement more difficult. Surgeons have, therefore, turned to arthroscopic debridement as an option that can buy time and not compromise future total knee replacement^{1,2}. Arthroscopic surgery has several attractions. It can be repeated. It can be performed under local anaesthetic, even as a day patient. Although it is obviously a temporary time-buying procedure, it is of considerable benefit. This study attempts to quantify and qualify the benefits of arthroscopic debridement.

MATERIALS AND METHODS

34 patients (35 knees) over the age of 60 with osteoarthritis underwent arthroscopic surgery were reviewed. The mean age in this group of patients was 67 years, with an age range of 61-78 years. There were 21 men and 13 women. The duration of symptoms vary from one month to ten years (average more than one year). The right knee was operated on 18 times and the left knee 17 times. 33 knees presented with pain. Other

symptoms were swelling in 24 knees, stiffness in 21 knees, noise in the joint in 16 knees, giving way in 16 knees, limping in 51 knees, deformities in 7 knees and locking in 6 knees, (Figure 1).

arthroscopy on all patients was performed in a standard operating theatre under general anaesthesia. The average operation time one hour. An inflatable tourniquet was placed on the thigh in each case but was inflated only if intraoperative bleeding occurred and interfered with visualisation.

Our incision for arthroscope and instrumentations were standard superolateral, anterolateral and anteromedial portals and a superomedial portal for the inflow cannula.

Articular degeneration was graded according to Outerbridge (table I). We performed arthroscopic surgery based on the pathological findings, (table II, III and IV).

The radical debridement procedure was performed by the use of arthroscopic shaver and included partial synovectomy, removal of all loose cartilage, removal of synovial fold or plicae, and removal of osteophytes. Osteophytes were not removed unless they were significantly impingement, causing irritation on the surrounding tissue or blocking full extension of the knee joint.

Abrasion arthroplasty was performed only in 9 knees, with stage IV articular degeneration in an area more than 2 cm. in diameter. The procedure is to remove eburnated bone by exposing subcortical vessels which will stimulate healing of articular cartilage defects^{4,7}. 5 knees were abraded in the medial compartment, 3 in the patellofemoral joint, and 1 in both medial and patellofemoral compartment.

There were 24 medial and 11 lateral degenerative damage and/or torn minisci. The pathological minisci were trimmed back to stable rims. In the lateral pathological minisci care was taken to retain a bridge of tissue across the popliteal recess. This limited resection was done in all medial and 6 out of 11 in lateral cases. (table IV).

There were 8 knees with severe lateral maltracking, which caused degenerative change of the patellofemoral compartment. Arthroscopic release of the lateral patellar retinaculum was performed in all of these.

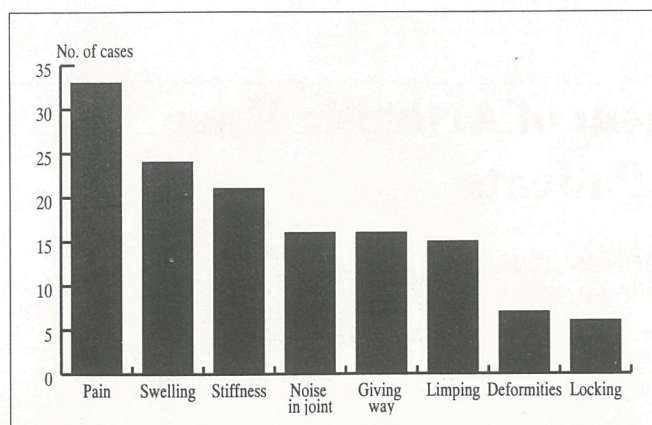


Fig 1. The symptoms of patients

A loosebody was removed from the medial gutter in one knee. Synovial biopsy was taken on seven knees with suspected crystal arthropathy. Polaroid microscopy was positive for urate crystal in three of these cases and negative result for urate crystal in four cases. During arthroscopy, the knee joint was thoroughly irrigated with normal saline, the portals were closed with sterile adhesive strips and compression bandage was applied. This was removed approximately 24 hours later.

Postoperatively, the patients were given our postoperative instructions and encouraged to begin ambulation and physical training programme by our physiotherapists.

RESULTS

34 patients (35 knees) were evaluated by routine post operative follow up after 3 months. The clinical assessment and personal interview with Lyssholm functional score was used to grade all postoperative results. The results were rated as good, fair and poor. Good result was defined when the patient reported that there was improvement and the functional score was improved or equal to prior to surgery. Fair result was defined when the patient reported no noticeable improvement in the knee and the functional score was equal to prior to surgery. Poor result was defined when the patient reported that his knee was worse after surgery and the functional score was worse than prior to surgery.

Using this criteria, 21 patients (60%) had good result, 10 patients (28.6%) had fair result and 4 patients (11.4%) had poor result (Table V).

There were 3 complications in 35 knees (8.6%) :

- 1) Septic arthritis in 1 case, which was controlled by antibiotics, and the patient had a satisfactory outcome.
- 2) Delayed healing of portal wound in 2 cases, both of which had urate crystal arthropathy.

DISCUSSION

This study confirms that arthroscopic surgery in the elderly arthritic knee is a useful procedure. There was only one

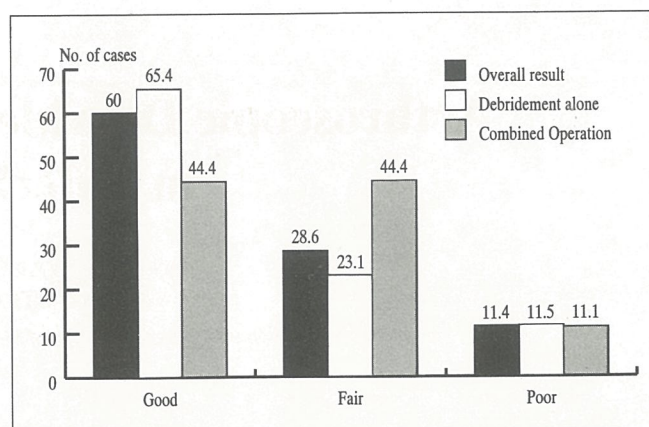


Fig 2. Comparison of the result between joint debridement alone versus Joint debridement plus abrasion arthroplasty

serious complication, septic arthritis, which was quickly resolved with antibiotics. It is not reported that satisfactory outcome at the end of one year nearly always remained so. However, it is obvious that it could be easily and often repeated. Indeed, some patients may request arthroscopic surgery rather than face the risks of total knee replacement. In these days of increasing medico-legal difficulties, the patient should be given the option.

Radiographs portray only the bony architecture and the alignment of the leg. They cannot reveal the multitude of soft tissue lesions such as meniscal tear, plica, patellar maltracking and of course, cartilage loss. Arthroscopy can not only diagnose these lesions but also treat them^{1,2,5,6}. Such lesions can account for the main symptoms, e.g. meniscal lesions causing locking. The clinician should realise the limitations of the plain X-ray⁸.

Debridement of the arthritic knee is not a new concept. Pridie and others performed debridement through open operations with good result³. The patients had to go through a long punishing recovery from this assault. If this could be done using an arthroscope, then the advantage of lower morbidity are obvious. Our study suggests that this is the case.

Our study shows that debridement alone produced better results than debridement plus abrasion arthroplasty (Figure II). This is probably expected as the fact that abrasion arthroplasty succeeds in promoting true growth of fibrocartilage over abraded area remains to be proven. However, arthroscopic

Table I Outerbridge grading system.

Stage I	Softening, swelling and superficial fibrillation of cartilage
Stage II	Fragmentation and fissuring in an area diameter less than half an inch.
Stage III	Same as Stage II but an area diameter more than half an inch.
Stage IV	There is erosion of cartilage down to bone.

Table II The Surgical finding in the three compartments

Pathological Findings	No. of cases		
	Patellofemoral Joint	medial compartment	lateral compartment
Degenerative arthritis Stage I	2	5	10
Stage II	12	3	3
Stage III	7	5	1
Stage IV	9	14	1
Healthy articular surface	1	2	9
Crystal staining	1	2	3
Not recorded	3	4	8
Meniscal lesion			
Degenerative damage	12	6	
Tear meniscus	12	5	

Table III Other Pathology

Suprapatellar Pouch	No. of cases
synovitis	21
medial patellar plica	6
superapatellar plica	5
crystal staining	4
Intercondylar Notch	
absence of anterior cruciate ligament	2
degenerated anterior cruciate ligament	3
narrowing of intercondylar notch	9
Patellar Maltracking	
lateral tracking or tilting patellar	8

Table IV The Arthroscopic surgical procedure

Procedure	No. of cases
Radial Debridement and partial synovectomy	31
II Meniscal resection	
- medial	21
- lateral	3
- both	3
III Abrasion arthroplasty	
- medial compartment	5
- patellar surface	4
- both	1
IV Lateral release	8
V Removal of loose body	1
VI Synovial biopsy	
- positive for gouty arthritis	3
- negative for gouty arthritis	3
- no record	1

surgery has its own limits and cannot conquer the advanced destruction of severe arthritis.

We regarded it as important to use a brisk flow of irrigation fluid during this procedure. In some prolonged arthroscopic procedures as many as 24 litres of fluid may pass through the knee joint taking all debris with it. When ever possible the tourniquet is not used, particularly to avoid deep vein thrombosis and tissue ischemia in the older patient.

Arthroscopic debridement of arthritic knees is here to stay. Its place in the early young arthritic knee is established. Ever increasing sophistication of arthroscopic instrumentation will make the surgeon more skilled and able to do more closed surgery than ever before. Perhaps cartilage grafting through the arthroscopic is not far off and may even replace total replacement in future.

Table V The overall results of the treatment

Result	No. of cases	Percentage
Good	21 (35)	60
Fair	10 (35)	28.6
Worse	4 (35)	11.4

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