

# DIAGNOSTIC AND OPERATIVE ARTHROSCOPY OF THE KNEE: REPORT OF 51 CONSECUTIVE ARTHROSCOPIES

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## SUMMARY

*Fifty-one consecutive arthroscopies of the knee were reviewed after an average of eight months follow-up. Thirty-eight patients underwent arthroscopic surgical procedures as well. A meniscus tear was the commonest (68%) primary pathology noted, followed by isolated anterior cruciate tears (16%).*

*Excellent/good results were obtained in 80% of arthroscopic partial meniscectomies. Synovial biopsies and loose body removal were all successfully achieved arthroscopically.*

*Arthroscopic knee surgery is a useful and less traumatic technique of obtaining a diagnosis and treating amenable knee lesions compared to open arthrotomy.*

## INTRODUCTION

Arthroscopy of the knee has a well-established place in the diagnosis of intra-articular knee lesions. More recently, the use of arthroscopic instruments through separate portals of entry into the knee has enabled arthroscopists to perform surgery within the knee by closed methods.<sup>1</sup>

Comparative studies between arthroscopic partial meniscectomy and conventional "open" partial meniscectomy have shown that results are superior if the arthroscopic technique is used.<sup>2,3</sup> Knee function also recovers more quickly and other advantages include shorter hospitalisation, no walking aids required, shorter medical leave and early resumption of sports activity.<sup>2,4</sup>

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In this study, a consecutive series of arthroscopies of the knee done by the author is reviewed. The aims of the study are to study the type of pathology present and the results obtained by arthroscopic surgery.

## MATERIALS AND METHODS

During a ten-month period (July 1985 to April 1986), 51 knees (in 50 patients) were arthroscoped for a variety of complaints. In 74% of patients, the pre-operative clinical diagnosis was a meniscus tear.

**Age:** one patient with chronic synovitis was four-years-old. The average age of the rest was 26 years (range 13 years to 45 years).

**Duration of symptoms:** the average duration of symptoms prior to being first seen was 16 months (range one week to five years).

**Side:** of 51 arthroscopies, 26 were of the right knee and 25 on the left.

## Technique

The standard anterolateral portal was used to introduce a 50 mm, 30° arthroscope into the knee. A medial portal was used for the probe. A thorough search was then made to identify the main pathology within the knee that would account for the patient's symptoms and signs.

Standard 4 mm instruments (scissors, grasper and punch) were then used to remove meniscus tears or take synovial biopsies. An additional antero-medial portal was needed to remove bucket handle tears of the menisci. In one patient, an additional supero-lateral portal was needed.

## Anaesthesia

Fourteen patients underwent spinal anaesthesia during the early phase of the study and the rest had general anaesthetic. 50% of the spinal anaesthesia group developed nausea and severe headache for three to five days post-

operatively. Since this hampered early mobilisation of patients, subsequent patients were given a general anaesthetic.

### Post-operative rehabilitation

All patients followed a similar post-operative routine. **Day one/two:** full weight-bearing without crutches and static quadriceps exercises. **Day four:** resisted quadriceps and hamstring exercises, followed by knee mobilising exercises till discharged from physiotherapy.

### Follow-up

Follow-up period averaged eight months (range five months to 15 months). The results of arthroscopic surgery were graded according to the Tapper and Hoover Scale (1969)<sup>5</sup>: excellent — normal knee; good — minor symptoms e.g. aching or mild swelling after vigorous activity, there is no functional disability; fair — definite symptoms causing enough disability preventing vigorous activity; poor — symptoms interfere with daily activity.

### RESULTS

The pattern of arthroscopic disease is outlined in Table I.

**TABLE I**  
**MAJOR KNEE LESION (51 ARTHROSCOPIES)**

Type of knee lesion	No.
Meniscus tears	36
Medial meniscus — 21	
Lateral meniscus* — 10	
Both menisci — 5	
Anterior cruciate tear	8
Loose body	2
Chondromalacia patella	1
Chronic synovitis	3
Negative arthroscopy	1
Total	51

\*Includes 2 discoid menisci.

Meniscus lesions were the commonest problem encountered, the medial being more frequently injured. The average age of this group was 27 years. There were also other significant pathological processes in knees besides a meniscus tear (Table II).

Osteoarthritis of the tibiofemoral condyles was already present in 56% of patients with meniscus tears. The extent of osteoarthritis ranged from fibrillation and flaking of cartilage to exposed subchondral bone.

### Symptomatology

The major symptoms and signs in patients with confirmed meniscus tears were studied to ascertain their relative importance in pre-operative assessment (Table III).

Pain, tenderness and giving way were of prognostic value. Joint line tenderness was often on the medial side, even though the lateral meniscus was torn (63%).

Interestingly, six patients with bucket handle meniscus tears had all the four major symptoms.

The bucket handle meniscus tear was the commonest in this series. Eight of these were complete longitudinal tears that could be dislocated into the intercondylar fossa with a probe.

### Type of surgery

The surgery performed depended on the pathology identified. Partial menisectomies were performed whenever a meniscus tear was seen. This meant that only the torn portion was removed, leaving the rest of the healthy meniscus behind.

**TABLE II**  
**OTHER LESIONS ASSOCIATED WITH MENISCUS TEARS (36 KNEES)**

Associated lesion	No.
Anterior cruciate tear	17
with medial meniscus — 9	
with lateral meniscus — 5	
with both menisci torn — 3	
Medial synovial plica	7
Osteoarthritis	19
Chondromalacia patella	2
Reactive synovitis	6

**TABLE III**  
**MAJOR SYMPTOMS AND SIGNS ASSOCIATED WITH MENISCUS TEARS (36 KNEES)**

Symptom	No.
Pain	36
Giving away	24
Locking	12
Instability	19
Joint Tenderness	
Medial	29
Lateral	3
Both	2
Effusion	11
Limited range	5

**TABLE IV**  
**TYPE OF MENISCUS TEAR (36 KNEES)\***

	Medial	Lateral	Total
Bucket handle	17	4	21
Flap tear	7	6	13
Complex tear	2	4	6
Healed peripheral	0	1	1
Total	26	15	41*

\* Includes 5 knees with both menisci torn.

#### Pattern of meniscus tear

Six patients with pure anterior cruciate tear and one negative arthroscopy did not have any further procedure other than diagnostic arthroscopy.

Six knees needed open arthrotomy to complete an arthroscopic surgical procedure. Two were of torn discoid lateral menisci, three had single meniscus lesions that were obstructed by hypertrophied synovial tissue and one knee had both menisci torn (adequate partial meniscectomy could not be performed arthroscopically due to the complexity of the tear).

**TABLE V**  
**TYPE OF ARTHROSCOPIC SURGERY (50 KNEES)**

Diagnosis	No.	Operation	Success
Meniscus tear	36*	Partial meniscectomy	30/36
Loose body	2	Removal	2/2
Chondromalacia patella	1	Shaving of patella	1/1
Bulbous ACL** stump	2	Removal of stumps	2/2
Chronic synovitis	3	Synovial biopsy	3/3

\* includes 5 knees with both menisci torn;

\*\*ACL = Anterior Cruciate Ligament.

Table VI demonstrates an 80% excellent/good results for the arthroscopic partial meniscectomy group. Of the six patients who had a fair result, two had associated osteoarthritis, two had associated anterior cruciate tears and two others had no other significant pathology.

Return to work (medical leave) in the arthroscopic meniscectomy group averaged one week four days for sedentary workers and three weeks five days for heavy manual workers. Only two patients had to change jobs. Both had osteoarthritic changes when arthroscoped and worked in the uniformed forces (air force drill instructor and police constable).

#### DISCUSSION

The indications for arthroscopy of the knee are: the "problem" knee i.e. knee problems that fall in the middle of a broad spectrum of trauma or disease affecting the knee joint; to confirm a clinical diagnosis, and perhaps obviate a major arthrotomy incision if the lesion is amenable to arthroscopic surgery; and to document lesions for medico-legal or training purposes.<sup>1</sup>

Most of the patients in this series presented late for surgery, after having had various forms of traditional and western (physiotherapy) treatment. It is thus significant that only one out of 51 arthroscopies was negative, whereas others have reported up to 50% negative arthroscopies.<sup>6</sup>

Knees with meniscus tears commonly had associated osteoarthritis of the tibio-femoral joint (56%) and this probably reflects the long delay before seeking treatment. Meniscus tears with associated anterior cruciate tears were also a significant group (50%).

**TABLE VI**  
**RESULTS OF SURGERY**

Number	Result		
	Excellent/Good	Fair	Poor
<b>Arthroscopic technique</b>			
Partial meniscectomy			
— Medial	18	16	2
— Lateral	8	5	3
— Both	4	3	1
Anterior cruciate tear	8*	3	4
Loose body removal	2	1	1
Shaving of patella	1	1	—
Synovial biopsy	3	1	1
<b>Open arthrotomy</b>			
Partial meniscectomy			
— Medial	3	2	1
— Lateral	2	2	—
— Both	1	1	—

\*includes six which no procedure was carried out.

Degenerative changes and instability due to anterior cruciate laxity accounted for four of the six fair results in the arthroscopic meniscectomy group. These two factors are known to portend a poor prognosis for the knee especially in those intending to return to sport.<sup>7</sup>

The percentage of excellent/good results in the arthroscopic meniscectomy group was 80%. This corresponds with other published figures of 92% (Northmore-Ball),<sup>2</sup> 78% (Hershman)<sup>7</sup> and 84% (Hamberg).<sup>4</sup>

Only 38% of patients who had isolated anterior cruciate tears with no meniscal lesion had good results. This particular lesion resulted in significant disability to patients.

Arthroscopic surgery was found to be simple and effective in the five patients who needed synovial biopsy and removal of loose bodies. The synovitis group had varied results depending on the underlying pathology.

The results of this prospective study especially with regard to arthroscopic meniscectomy is encouraging. The lack of morbidity and rapid return to work would warrant the continued use of diagnostic and operative arthroscopy, whenever possible, in place of open arthrotomy of the knee.

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