

EARLY RESULTS OF ARTHROSCOPIC PARTIAL MENISCECTOMY IN SINGAPORE GENERAL HOSPITAL

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SYNOPSIS

This paper reports a retrospective study of 51 patients who had arthroscopic partial meniscectomy, open partial meniscectomy and open repair of meniscus, which were carried out between April 1985 and March 1986 at Singapore General Hospital. All data were obtained from patient's case notes and questionnaires.

Each knee was classified as excellent, good, fair and poor using criteria based on Taper and Hoover classification.

There were 19 patients with excellent results (37.3%), 20 patients with good results (39.2%), 10 patients with fair results (19.6%) and 2 patients with poor results (3.9%).

The overall results confirm that arthroscopic partial meniscectomy has economic and therapeutic advantages over an open operation.

INTRODUCTION

The first meniscal tear to be partially excised under arthroscopic control was performed in Tokyo in 1962. This was a posterior flap tear of the medial meniscus (1,2). Subsequently Ikeuchi in 1975 discussed 4 lateral discoid menisci that were partially excised under arthroscopic control, and in 1977 in his book, "Arthroscopy", O'Connor introduced an operating arthroscope and reported on 40 arthroscopic meniscectomies (2).

With the advent of arthroscopy and its refinements over the past 10 years it has become possible for the surgeon to thoroughly inspect the meniscus, therefore allowing him to remove only the bucket handle or torn flap of meniscus, confident that the remaining portion is intact (3). This then allows for some preservation of normal meniscal function such as weight bearing and stabilization of the knee, which are lost with total meniscectomy (4,5).

On the other hand, the meniscus that is detached at its periphery but not injured itself may be successfully reattached with excellent results, again preserving meniscal function (Price and Allen 1978) (6).

The purpose of this study is to review the early results of all arthroscopic partial meniscectomy, open partial meniscectomy and open repair of meniscus which had been done between April 1985 till March 1986 at Singapore General Hospital.

MATERIALS AND METHODS

A total of 56 patients who had undergone arthroscopic meniscectomy at Singapore General Hospital between April 1985 and March 1986 were reviewed. All data were obtained from casenotes and questionnaire and some questionnaires were completed by telephone conversation. To ensure that questionnaires were returned properly completed, the questions were kept few and simple.

The questionnaire covered all functional state of the knee or specific symptoms eg. aching, swelling, giving way or locking, rate of recovery of knee function, sport and current status of work.

Each knee was classified as excellent, good, fair and poor, using criteria based on Tapper and Hoover classification (7,8).

- Excellent: an effective and completely normal knee.
 Good: a knee giving minor symptoms but no disability ie the knee was functional in all activities including vigorous sport but with some aching or swelling afterwards.
 Fair: a knee giving symptoms and some disability, preventing vigorous sport.
 Poor: a knee giving symptoms eg aching while kneeling or climbing stairs, which interfered with daily activities. Definite mechanical symptoms eg locking, also indicated a poor grade.

Excellent or good results were graded as satisfactory and fair or poor results as unsatisfactory.

RESULTS

Of 56 questionnaires sent, 42 were completed and returned, 9 were completed by telephone conversation. The other questionnaires were not returned and no telephone numbers were available, so overall review was on 51 patients. There were 33 patients with arthroscopic partial meniscectomy. Arthroscopic partial meniscectomy failed in 13 patients (25%) and hence open partial meniscectomy was performed at the same session. There were 5 patients with open repair of meniscus.

Age at time of surgery

There were 35 male and 6 female patients. The right knee was more frequently affected. 29 patients had right knee involvement and 22 had left knees affected. The average age of the patients in the study was 29 years (range 15 to 62 years). More than 50% of patients were between 21 – 30 years (Table 1).

TABLE 1: AGE OF PATIENTS

Age	Total	%
less than 20 years	15	29.6
21 – 30 years	28	54.9
31 – 40 years	5	9.8
41 – 50 years	1	1.9
more than 50 years	2	3.8

Site and Type of Lesion

Tear of lateral meniscus was more frequent than medial meniscus (lateral: 30 patients, medial: 21 patients). The most common type of lesion was a bucket handle tear (23 patients, 45%) (Table 2).

TABLE 2: TYPE OF LESION

Type of Lesion	No	%
1 Bucket handle tear	23	45.1
2 Flap tear	7	13.7
3 Posterior horn tear	7	13.7
4 Peripheral tear	5	9.8
5 Horizontal tear	4	7.9
6 Discoid meniscus tear	4	5.9
7 Anterior horn tear	2	3.9
Total	51	100

Associated lesion

Anterior cruciate ligament tears were found in 20 patients (39.2%), chondromalacia patella in 3 patients (5.9%) and 1 patient with synovial plica (1.9%). Of 20 patients with anterior cruciate tears, 9 patients had a good result, 9 patients had a fair result and 2 patients had a poor result.

The cause of injury

The most common cause of injury in this study was sport, 80% of sport injuries in this study were from playing football (Table 3).

TABLE 3: THE CAUSE OF INJURY

Cause of injury	No	%
1 Sport	30	58.8
2 Road traffic accident	3	5.9
3 Army training	4	7.9
4 Fall	9	17.6
5 No trauma	5	9.8

Hospital stay

After arthroscopic partial meniscectomy the mean length of stay was 2.6 days (range 2 to 4 days). After open partial meniscectomy the mean stay was 4.1 days (range 2 to 7 days). After open repair of meniscus the mean stay was 4.8 days (range 3 to 8 days).

Return to work

The mean time of return to work was 2.4 weeks for arthroscopic partial meniscectomy (range 2 to 6 weeks) compared with 4.5 weeks after an open partial meniscectomy (range 3 – 8 weeks). In open repair of meniscus, the mean time of return to work was 6.8 weeks (range 6 to 8 weeks) (Table 4).

TABLE 4: TYPE OF SURGERY RELATED WITH RETURN TO WORK

Type of surgery	Original work	Original with limitation	Different work	No return	Total
arthroscopic partial meniscectomy	23	8	2	—	33
open partial meniscectomy	4	6	3	—	13
open repair	4	1	—	—	5
Total	31	15	5	—	51

Return to sport

This mean time of return to sport 5.6 weeks for arthroscopic partial meniscectomy (range 4 to 7 weeks) compared with 7.9 weeks after an open partial meniscectomy (range 6 to 10 weeks). In open repair of meniscus, the mean time of return to sport was 10.8 weeks (range 8 to 14 weeks) (Table 5).

DISCUSSION

The advantages for a patient who has an arthroscopic partial meniscectomy are both immediate and long term. The immediate advantages are: (9,2,10)

1. a shortened hospital stay
2. Rapid rehabilitation
3. Reduced cost

TABLE 5: RETURN TO SPORT RELATED WITH TYPE OF SURGERY

Type of surgery	Original sport	Original + limitation	Different sport	No return	Total
Arthroscopic partial meniscectomy	16	13	2	2	33
open partial meniscectomy	2	6	3	2	13
open repair meniscus	2	2	1	—	5
Total	20	21	6	4	51

Overall result

There were 19 patients with excellent results; 20 patients with good results, 10 patients with fair results and 2 patients with poor results.

Satisfactory results (excellent or good) were obtained in 39 patients (76.5%) and unsatisfactory results were obtained 12 patients (23.5%).

The overall results related to type of surgery are shown in table 6.

TABLE 6: RESULT OF TREATMENT RELATED TO TYPE OF SURGERY

type of surgery	Excellent	Good	Fair	Poor	Total
arthroscopic partial meniscectomy	14	13	5	1	33
open partial meniscectomy	3	4	5	1	13
open repaired	2	3	—	—	5
Total	19	20	10	2	51

The long term advantages are more difficult to assess but are believed to be: (9,2,10)

1. more normal function compared with total meniscectomy
2. long term decrease in degenerative arthritis of the knee.

Arthroscopy has introduced a new perspective on the treatment of meniscal lesion. The use of arthroscope results in improved diagnostic accuracy, as compared with previously used diagnostic methods (11). This has resulted in the detection of an increased number of meniscal tear (11). Arthroscopy also clarifies the differential diagnosis between meniscal lesion and patellar disorder, allowing a detailed classification of meniscal lesion, which may form the basis for selective treatment of these lesions (12). Avulsion of meniscus from the capsule may be treated by reattachment rather than by excision (Gilquist 1982) (3).

Our results confirm the overall economic and therapeutic advantages of arthroscopic partial meniscectomy over open operations. Other authors have reported shorter inpatient stay and earlier return to work and sport (Lysholm and Gilquist 1981, Northmore Ball and Dandy 1982) (4,3).

The mean time in hospital for those patients undergoing open partial meniscectomy was 4.1 days, for arthroscopic partial meniscectomy it was 2.6 days. The latter figure may be reduced to a single day and in some straight-forward cases, day care arthroscopic surgery may be used.

Earlier return to work was very clearly shown after arthroscopic partial meniscectomy 2.4 weeks are required, as against 4.5 weeks for open partial meniscectomy.

Return to sport was achieved by the end of the sixth week of the arthroscopic partial meniscectomy cases, but in open partial meniscectomy return to sport was achieved by the end of eight week.

The results of open repair of meniscus cannot be compared with arthroscopic partial meniscectomy and open partial meniscectomy because the numbers are too few to allow any comparison.

In our series, arthroscopic partial meniscectomy gives a promising result, in terms of the number of satisfactory results (excellent and good results).

Finally, the results of our review demonstrate that the advantages of arthroscopic partial meniscectomy extend to general use of the technique in a busy orthopaedic unit by surgeons.

SUMMARY

The functional results of 51 patients after arthroscopic partial meniscectomy, open partial meniscectomy and open repair of the meniscus have been reviewed.

The results of our review demonstrate that the arthroscopic partial meniscectomy has an economic and therapeutic advantages over open operation. Arthroscopic partial meniscectomy resulted in a shorter hospital stay and earlier return to work and

sport than open operation.

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