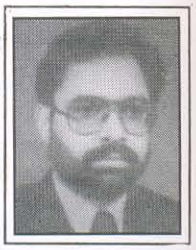
ORIGINAL ARTICLE



Role of Arthroscopy in Disorders of Knee Joint An Analysis of 30 Cases

R. K. Gupta, Ravi Mittal

Abstract

Thirty cases of various disorders of knee joint were subjected to an arthroscopic examination in order to confirm/alter the diagnosis and simultaneously correct the pathology detected. Torn menisci and ACL tear constitured the large percentage of cases. Partial menisectomy was the most commonly performed procedure accounting for 47% of cases. The superiority of arthroscopy in diagnosing and treating various disorders of knee joint was proved beyond doubt.

Keywords

Joints, Arthroscopy.

Introduction

Endoscopic surgery, often referred to as minimally invasive, keyhole surgery, surgery from within or even closed surgery, has changed the entire surgical scenario.

Arthroscopy (arthos-a joint, scopos-looking into), the endoscopy of joints, is today a well established procedure that has given the orthopaedic surgeon a better insight into joint function and pathomechanics.

Progress in arthroscopy surgery has been particularly rapid during the past several years.With arthroscopy, orthopaedic surgeons have pioneered the development of minimally invasive operative procedures, a trend that is growing in the entire field of surgery (1). The arthroscope has brought a dramatic change in approach to diagnosis and treatment of variety of joint ailments. The low morbidity and early rehabilitation associated with the procedure makes it justifiable in a variety of joint disorders as a possible adjunct to diagnosis, to determine prognosis and as a treatment.

Material and Methods

Thirty cases presenting with various disorders of knee joint were evaluated clinically and radiologically. The following points were noted in history :– age of the patient, sex, occupation, mode of trauma, joint involved, duration of symptoms, previous operative procedures etc. General physical examination and examination of the involved joint was done and a clinical diagnosis was made.Routine preoperative investigations and x-ray of the involved joints were done. MRI was done in only those cases, in whom diagnosis were not clear.

After the patient was anaesthetised (local, spinal, epidural or general), the tourinquet was applied for knee arthroscopy. During the procedure, the tourinquet was inflated whenever oozing caused bluring of vision. The part was scrubed and waterproof draping done in a conventional manner. The joint was then again examined under anaesthesia.

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The arthroscopy was performed using a 30° arthroscope with a field of view of 105° and 4mm in diameter. All arthroscopies were performed using a television monitor.

With a knee in about 20°-30° of flexion, the scope was inserted through the anterolateral portal and joint was distended with the help of irrigation. A proper systematic examination of the whole knee was then performed i.e., suprapatellar pouch, patellofemoral joint, medial femoral gutter and medial compartment (with the knee in slight flexion and valgus), intercondylar notch, lateral compartment and lateral gutter (with the knee in figure of 4 position). After complete viewing of the knee, once a pathology was identified, a 16 gauge spinal needle was introduced from the anteromedial area to reach the site of pathology. The anteromedial portal was then created for introduction of probe and other operative instrumentation.

Torn menisci were excised (partial / sub-total menisectomy). The aim was to excise the unstable segment of the meniscus and preserve the stable and well balanced rim. In patients with synovitis, synovial biopsy was taken to confirm the diagnosis. In patients with degenerative joint disease, hypertrophied synovium was shaved and impinging chondral flaps, synovial plicae or degenerate menisci were trimmed and impinging ostrophytes excised. Loose bodies were removed from two patients. Anterior cruciate ligament reconstruction was done arthroscopically in a patient with anterior cruciate ligament tear using quadrupled semitendiuous tendon.

Results

This study of arthroscopy was conducted on 30 patients with various disorders of knee joint with the following observations :

1. Age

The most common age group was 20-29 years (Table 1) i.e., younger age group, because young people are more commonly involved in sports and outdoor activities, so joint injuries are also more common.

Table-1

Age in years	No. of cases
10-19	3
20-29	10
30-39	8
40-49	3
50-59	4
60-69	2

2. Sex

The male to female ratio was 2 : 1 (Table-2) as men are more commonly involved in sports and outdoor activities.

Table-2

Male	Female
20	10

3. Occupation

The joint injuries were more common in players i.e., out of 30 cases, 9 were players by profession (Table-3).

Table-3

Occupation	No. of cases
Players	9
Housewives	7
Students	4
Farmers	3
Military Forces	2
Miscellaneous	5

4. Mode of Trauma

In 9 out of 30 cases, the mode of trauma was fall/ twist due to playing. In 8 cases, there was no history of any trauma (Table-4). Out of these 8 cases, 6 were of old age having osteoarthrosis and two adolescents were having synovitis of the knee joint.

Table-4

Mode of Trauma	No. of patients
Playing	9
Vehicular Trauma	5
Fall due to slip	4
No H/o any trauma	8
Miscellaneous	4

5. Duration of Symptoms

In 17 out of 30 cases, the duration of symptoms was 0 to 6 months (Table-5).

Table-5

Duration	No. of cases
0-6 months	17
7-12 months	9
2-4 years	2
5-7 years	2

6. Investigations

The X-rays were done in all the 30 cases. MRI was done in only 8 cases. Out of these 8 cases the MRI findings did not correlate with arthroscopic findings in 3 patients.

7. Arthroscopic Findings

The torn menisci and torn anterior cruciate ligament constituted the large percentage of cases (Table-6). In some joints there were more than one lessions.

Table-6

Lesion	No. of cases
Torn Medial Meniscus	
* Undisplaced longitudinal tear of body	4
* Torn anterior horn	3
* Torn posterior horn	5
* Bucket handle tear	4
Torn Lateral Meniscus	
* Longitudinal tear of body	1
* Radial tear of body	2
ACL tear	9
Chondral flaps (abrasions)	8
Synovitis	4
Medial patellar plicae	2
Loose bodies	2
PCL tear	1
Torn medial collateral Ligament (lax medial compartment)	2

8. Procedure Done (Table-7)

In some joint , more than one arthroscopic procedures were undertaken at the same sitting. In two cases, no procedures was undertaken, it was only a diagnostic arthroscopy.

Table-7

Procedure	No. of cases
Menisectomy	
Partial	14
Subtotal	4
Abrasionplasty	8
Biopsy	3
Excision of plica	2
Loose body removal	2
Debridement	2
Removal of osteophyte	2
ACL reconstruction	1

9. Anaesthesia

The majority of cases were done under spinal anaesthesia. One case was done under local anaesthesia. That patient was suffering from asthma (Table-8).

Table-8

Anaesthesia	No. of cases
Spinal	22
Epidural	2
Local	1
General Anaesthesia	5

10. Hospital Stay

Twenty-three cases were discharged on the same day. Six cases were kept for one day. One case with ACL reconstruction was kept for three days in the hospital.

Discussion

The knee is the joint in which arthroscopy has its greatest diagnostic and intraarticular surgical application. The increasing popularity of arthroscopic technique has permitted documentation of the usefulness of the techniques in diagnosis and in procedures such as partial

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menisectomy, meniscal repair and ACL reconstruction Johnson 1981 (2) compared clinical impression with post-operative diagnosis and found a significant number of additional diagnosis, including diagnosis completely different from the clinical impression, in a large percentage of patients. In 70% of all ACL tears, an accompanying tear of the meniscus was found. In this study in 55% of ACL tears, an accompanying menisceal tear was also found.

Partial menisectomy is the most commonly performed arthroscopic surgery accounting for 41% of knee joint arthroscopies (3). In our series partial menisectomy accounted for 47% of cases. The greater advantages of arthroscopic menisectomy are : it is an OPD procedure, quick rehabilitation with reduced loss of time, low morbidity, magnification, illumination and limited approach. Arthroscopic meniscal surgery was started in early 1960 in Japan but in mid 1970's, O'Connor (4) with his operating arthroscopy and specialised instruments, standarized the technique.

Radial tears are most common in lateral meniscus. Tears of both medial and lateral meniscus and complex tears are almost always associated with ACL tear. When the meniscal tear is associated with ACL tear in a young adult, ACL reconstruction must be done to prevent repeat tears due to instability. In this series, ACL reconstruction was done in one case for torn ACL, along with partial menisectomy for posterior horn tear of medial meniscus.

Simple arthroscopic shaving of frayed and fibrillated cartilage with debridement has been attempted to relieve pain and improve function. Performance of this procedure theoretically leaves a smoother articular surface without acceleration of joint deterioration. It is certainly not clear, however, that shaving a damaged articular cartilage relieves pain. In one experiment, shaving normal rabbit articular cartridge did not stimulate cartilage repair but did not, apparently, result in joint deterioration later (5). In this study abrasionplasty was done in 8 knees having chondral flaps with good results. The normal incidence of medial patellar plica in various studies has ranged from 18.5% to 55% (6,7). In our series, the incidence was 7%.

Arthoscopy should be considered a diagnostic aid used in conjunction with a good history, complete physical examination and appropriate roentenogram. It should serve as an adjunct to, not and a replacement for, a thorough clinical evaluation.

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