

Role of Arthroscopy in Early Management and Diagnosis of Knee Pain

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ABSTRACT

Aim: To determine the results of knee arthroscopy for painful knee conditions for early diagnosis and immediate intervention if required.

Study Design: Prospective study

Place and duration of study: Department of Orthopedics and traumatology Shalamar Teaching Hospital Lahore, from March 2009 to August 2015.

Methods: Two hundred (200) patients fulfilling the inclusion criteria were selected. One hundred and thirty (130) were male patients and seventy (70) were female. Average age of the patient in this study was 35 (ranging from 2 to 75 years). All these patients had thorough examination and basic investigations were done. A clinical diagnosis was established. MRI was done only in younger age group. Most of these patients were operated as a day case except for septic arthritis because they needed prolong I V antibiotics and some repeat wash out.

Results: Arthroscopy results in patients with undiagnosed knee pain were good in majority of cases. Most patients returned to their previous functions and mobility except those who had ACL injury with pivot shift test positive. These patients were treated with bone tendon bone arthroscopic assisted ACL reconstruction.

Conclusion: Knee Arthroscopy is found to be invaluable for early diagnosis and treatment in patients with undiagnosed knee pain.

Keywords: Knee arthroscopy, meniscectomy, loose body, recurrent effusion, septic arthritis, osteoarthritis,

INTRODUCTION

Arthroscopy is commonly performed method for investigating and treating internal derangements in patients with knee pain^{1,2,13}, provided that an experienced surgeon does this procedure.

Arthroscopy is considered to be the gold standard for treatment of pain in knee^{4,5,12}. High diagnostic accuracy and management of pain in knee allows it to be used as a benchmark^{3,6,7,11}. It has revolutionized the way that intraarticular pathology has been treated since its inception in 1912 and arthroscopy of the knee has now become the most commonly performed elective operation in orthopedicsurgery. A literature search revealed that available meta-analysis now focuses on the treatment of traumatic painful knee conditions [8, 9, 10]. Although the knee arthroscopy is the commonest Orthopedics procedure performed in the developed and developing countries, unfortunately, in our country the facility is available only in a few hospitals.

We in Shalamar Hospital have been doing the arthroscopy since 1995 and with the passage of time as a result of improvement in the arthroscopy equipment, the results are more encouraging. We want to present our study of 200 patients treated with arthroscopy from March 2009 to August 2015 as a role model to develop arthroscopy of knee in all teaching hospitals in Pakistan.

MATERIALS AND METHODS

A prospective study was conducted in the department of orthopedics and traumatology Shalamar Teaching Hospital Lahore from March 2009 to August 2015. Two hundred

(200) patients of knee pain were included in the study. One hundred thirty (130) patients were male and seventy (70) were female. Average age of patient was 35year (Range 2 to 75 years). All patients were examined preoperatively in an out patient's department. Patient's demographics (gender and age) and clinical examination findings were recorded. History, physical examination, and basic investigations of all these patients were done and clinical diagnosis was established. MRI was done only in younger age group. All these patients were seen and assessed by the consultants conducting the study. Most of these patients were operated as a day case except of septic arthritis. Patients with Osteoarthritis of the knee were only included if they had developed sudden severe pain or acute locking of the knee because of loose body or meniscal tear. Prophylactic antibiotics were given to all patients. Most of the cases were done under GA, EUA was done in sports injuries patients to check the instability and Pneumatic tourniquet was applied in all cases. Arthroscopy was done using standard Anterolateral and Anteromedial arthroscopic portals. Injection bupivacaine was given at the portal and also intra-articular for post-operative analgesia. Operation notes were documented on standard Performa shown below. Patients were allowed to walk in the afternoon. Robert Jones bandage was applied for three days and stitches were removed at 12th post-operative day.

Meniscal injury group: Meniscal injury group comprised of 98 Patients (Total 100 Meniscal Tears). Eight patients had associated ACL injury. Four patients had both medial and lateral meniscal tear, 71 meniscal tears out of 100 (71%) had medial meniscal tear and 29 meniscal tears out of 100 (29%) had lateral meniscal tear. We did meniscectomies using arthroscopic hand instruments. The bucket handle tears were dealt through standard AL and AM portals without making any additional portal using rotatory cutting

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scissors and final trimming was done with arthroscopy punches.

ACL injury group: We had 15 Patients with ACL injury, 4 Partial, 9 complete and 1 had both ACL & PCL tears. In 8 patients who had meniscal injuries along with ACL injury, partial meniscectomies were done. These patients went for physiotherapy and were again reassessed at three months. Patients having complete ACL tear underwent bone tendon bone Arthroscopic assisted ACL reconstruction.

Operation notes standard Performa

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OPERATION NOTES OF KNEE ARTHROSCOPY

Name: _____ Date: _____
 Age: _____ Time: _____
 Clinical Diagnosis: _____ Anaesthesia: _____
 MRI: _____ Anaesthetist: _____
 Operation: _____ Time of tourniquet: _____
 Surgeon: _____ Time of surgery: _____
 Assistant: _____

E.U.A: _____

1. Range of movement
2. Collateral ligament stability.
3. Lachman's test
4. Pivot shift or jerk test
5. Anterior and
6. Posterior drawer signs
7. Patellar stability

Portals:
 Knee Arthroscopic Findings & Surgical Procedure:

Other surgical procedure done:
 Inj. Depomedrol & Bupicain or Bupicain only
 Post. Operative plan:

The patients were placed in six groups. (1) Meniscal injury group, (2) ACL injury group, (3) Chondral lesion/ Osteoarthritis group, (4) Recurrent effusion group, (5) septic Arthritis group, (6) miscellaneous group.

The detail of each group is as follows:

Chondral/ Osteoarthritis lesion group: This group comprises of 13 patients. 7 patients had type III Osteoarthritis, 3 patient had type II Osteoarthritis and 3 patients had type IV Osteoarthritis with loose bodies. Patients with osteoarthritis were debrided and loose bodies were removed.

Recurrent effusion: Effusion group comprised of 30 patients. Arthroscopic Synovial Biopsy was taken to reach an accurate diagnosis. Four were diagnosed as having pigmented villonodular synovitis, 8 patients were diagnosed with tuberculous synovitis and 18 patients had nonspecific chronic synovitis. Patients with PVNS underwent open synovectomy. Antituberculous treatment was started in tuberculous patients and chronic nonspecific synovitis patient were treated with injection Depomedrol, if they had recurrent effusion.

Septic arthritis group: This group comprised of 14 Patients. All required arthroscopic washout along with I/V antibiotics. Repeat wash out was done twice in 2 patients.

Miscellaneous group: Miscellaneous group comprises of 30 patient, 4 had Medial Plica syndrome which were excised, 2 had Maltracking of Patella with lateral Subluxation which required lateral release, 5 patients with haemarthrosis required knee washout, 4 Rheumatoid patients underwent arthroscopic synovectomy, 2 patients

had Gouty arthritis, 2 patients had Synovial chondromatosis, 1 patient had foreign body in the medial femoral condyle which was arthroscopically removed and 10 patients had normal knee.

RESULTS

Most of the patients went back to their previous functions and mobility. They did not require prolong follow up, except those who had complete ACL injury with positive pivot shift (Jerk test). Eight of them underwent for bone tendon bone arthroscopic assisted ACL reconstruction. All meniscectomies patients were pain free and were without locking in their follow up visits. Patients with osteoarthritis and chondral lesions, who presented with lock knee or sudden severe pain because of significant degenerative meniscal tear were gone back to previous level after arthroscopic surgery. Patients who had septic arthritis, settled with arthroscopic wash out along with IV antibiotics except two who needed second wash out. They were treated with six weeks antibiotics according to the culture and sensitivity and treatment was monitored by doing CBC with ESR and CRP. They had full recovery with normal range of movements. Eighteen patients who had recurrent knee effusion were found to have chronic non-specific synovitis, twelve of them settled with arthroscopy and six had recurrent effusion which settled down by giving injection Depomedrol 80 mg intra articular. Eight tuberculous synovitis patients were treated with Anti tuberculous treatment for 18 months and TB was settled. Four PVNS patients were treated by open synovectomy and one of them who had massive disease, in a patient of age 2, had a recurrence after 5 years and did require redo open synovectomy.

DISCUSSION

This study has shown that the overall management of painful knee is by arthroscopy and we can treat lot of conditions Arthroscopically which we have been doing in the past as open surgery. Patients who have septic arthritis, if come earlier before a really thick pus has formed can be successfully treated by Arthroscopic wash out. In our study 14 patients who had septic Arthritis settled with one arthroscopy wash out along with IV antibiotics except two who needed a second wash out. The review shows that in patients with degenerative meniscal tear and osteoarthritis, arthroscopic debridement does improve pain and ability to function (Mosley et al) along with medical treatment and physiotherapy (Kinkley et al). According to Kiskly the arthroscopic surgery for osteoarthritis of knee provides no additional benefit than the optimized physical and medical therapy, an article published in New England Journal of medicine (11 September, 2008). Their studies did not focus on the severity of osteoarthritis. Our results compare favorably with previous studies reporting that overall accuracy of clinical diagnosis ranges from 56% to 80%. However, our study suggests that arthroscopy is approximately 95% accurate in diagnosis of knee pain.

This suggests that some clinical diagnosis may be incorrect especially when performed by inexperienced surgeons. In our study all pre-operative diagnosis were made by the consultant conducting the study. The

reliability of clinical findings were confirmed arthroscopically and this may account for the higher rates of accuracy for the relief of pain in knee by performing arthroscopy. A second possible reason, for the higher rates of pain relief in knee in this study is that operator's experience. However, in all our patients, arthroscopy was the only recommended procedure for the treatment and achieved the desired goal without any complication. The strong recommendation is to establish the state of art facility in all our teaching hospitals is invaluable.

CONCLUSION

Arthroscopic surgery has revolutionized the way we treat intraarticular pathologies within the knee. It has allowed orthopedic surgeons to perform sometimes extensive surgery with very little in the way of soft tissue damage and hence achieve better post-operative outcomes for the patient. Complications are uncommon and arthroscopy has a positive socioeconomic effect, with less time being taken for discharge from hospital and less hospital resources being used because it facilitates day case, instead of inpatient surgery. Arthroscopic techniques take time to master and there is an initial sharp learning curve, but as with other forms of surgery, skill and competence can be achieved with practice, honest reflection and observation of skillful experts.

In all our patients, arthroscopy was the only recommended way of early diagnosis and treatment of patients with knee pain. We achieved the desired goal without any complication. We strongly recommend to establish this facility at least in all our teaching hospitals. It provides a good and cheap alternative for the patients for knee pain who are unable to get MRI done due to its being expensive. Secondly, it also offers early treatment at the same time during the procedure.

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