

Study of the Functional Outcome of Arthroscopic Management of the Meniscal Injury in Knee Joint at Tertiary Care Centre

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: Most common knee injury in sportsperson and athletes is meniscal injuries. Other than sports most common reason road traffic accident and person working in mines, mainly it is due to rotational injuries of knee joint. Such meniscal tears or injuries are repaired by surgical management which involves open surgery, arthroscopic surgery, meniscectomy etc, it is seen that of all the total surgical management done meniscectomy is done among 66 per 100,000 population per year.

Aim and Objective: To evaluate the effectiveness of arthroscopy in the diagnosis and management of meniscal injuries.

Material and Methods: This prospective study was carried out among patients with meniscal injuries of knee joint and getting admitted under orthopaedic department at tertiary care center. Study was carried out for a period of one and half year. Mainly all cases having meniscal injury and showing meniscal lesion on MRI findings were studied. Patients aged between 18-80 years with clinically suspected meniscal injuries and suggestive MRI findings of meniscal lesion were included

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in the study. All patients not willing to participate, having infection around knee, having lower leg fractures were not studied. Patients with both clinically suspected and MRI diagnosed meniscal injury were admitted. Data analysis was done with the help of appropriate software version. Quantitative data was presented with the help of mean, standard deviation, median and comparison among study group was done with the help of unpaired T test. Qualitative data was represented with frequency and percentage tables, association among study parameters was assessed with the help of chi-square test. P value less than 0.05 is taken as significant level.

Results: Mean age in years was 48.56±6.43, ranging from 51 to 73 years. Majority 53.33% were females. Common mode of injury was road traffic accident (56.6%). Medial meniscus was commonly involved (73.3%). Applying multiple regression to KOOS score r² value is 0.9 and p value was zero.

43.4% cases showed good functional outcome, 36.6% showed excellent and 20% showed fair outcome. Complications were seen among 17% cases.

Conclusion: present study concludes that as meniscal tear is very common injury among adults. This should be diagnosed and treated at earliest. Arthroscopy gives good post-operative results. The functional outcome is good in arthroscopy treated patients and complications noted were also very less. So, arthroscopic meniscal repair can be considered as a good operational tool for meniscal repair.

Keywords: Functional outcome; arthroscopic management; meniscal injury.

1. INTRODUCTION

Most common knee injury in sportsperson and athletes is meniscal injuries. Other than sports most common reason road traffic accident and person working in mines, mainly it is due to rotational injuries of knee joint. Such meniscal tears or injuries are repaired by surgical management which involves open surgery, arthroscopic surgery, meniscectomy etc, it is seen that of all the total surgical management done meniscectomy is done among 66 per 100,000 population per year [1-3].

The menisci is a filling between the knee joint, which acts as a cushion between the articular surfaces of bones of knee joint and even helps in lubricating the joint. Meniscus plays a very important role of shock absorption and load transfer on the knee joint. Meniscus even helps the joint from locking and getting impinged [4,5]. Meniscus injuries are produced most commonly by rotation as the flexed knee moves toward an extended position. The knee is a complex synovial joint allowing flexion, extension, anteroposterior gliding and internal-external rotation. The major articular surfaces are the medial and lateral condyles of the femur and patellar surface. Four bands of tissue, the anterior and posterior cruciate ligaments, and the medial and lateral collateral ligaments connect the femur and the tibia and provide joint stability [6,7].

Meniscal injuries are very frequent which further decreases the joint stability. There are various

methods to diagnose and manage meniscal injury, Arthroscopy is one of such. This study was carried out to see the effectiveness of arthroscopy in meniscal injury [8].

2. AIM AND OBJECTIVE

To evaluate the effectiveness of arthroscopy in the diagnosis and management of meniscal injuries

3. MATERIALS AND METHODS

This prospective study was carried out among patients with meniscal injuries of knee joint and getting admitted under orthopaedic department at tertiary care center. Study was carried out for a period of 18 months. Patients aged between 18-80 years with clinically suspected meniscal injuries and suggestive MRI findings of meniscal lesion were included in the study. All patients not willing to participate, having infection around knee, having lower leg fractures were not studied. Patients with both clinically suspected and MRI diagnosed meniscal injury were admitted. Patients having inclusion criteria were taken for operation and anaesthesia used was Spinal. Arthroscope was placed anterolateral portal for arthroscope and instrumentation on anteromedial portal. Outside-in technique was used for the repair. In Outside-in technique, under arthroscopic vision two 18 gauge spinal needles are passed from outside to inside of the joint. The meniscal fragments were sutured using

non absorbable material using spinal needle. After operation bandage was applied and physiotherapy was started from day 1. Dressing was checked on the 2nd and 5th post operative day. Suture removal was done after 12th post operative day. Patients was followed on 1st, 2nd, 3rd, and 6th months and there after yearly. Patients was allowed to bear full weight on second postoperative day onwards in arthroscopic partial meniscectomy group. Patient was advised not to bear Weight for at least 6 weeks in meniscal repair group. Data analysis was done with the help of appropriate software version. Data analysis was done with the help of appropriate software version. Quantitative data was presented with the help of mean, standard deviation, median and comparison among study group was done with the help of unpaired T test. Qualitative data was represented with frequency and percentage tables, association among study parameters was assessed with the help of chi-

square test. P value less than 0.05 is taken as significant level.

4. RESULTS

Mean age in years was 48.56±6.43, ranging from 51 to 73 years. Majority 53.33% were females. Common mode of injury was road traffic accident (56.6%). Medial meniscus was commonly involved (73.3%).

Table 1. Meniscus involved

Meniscus involved	Frequency	Percentage
Medial	22	73.3%
Lateral	8	26.6%
Total	30	100%

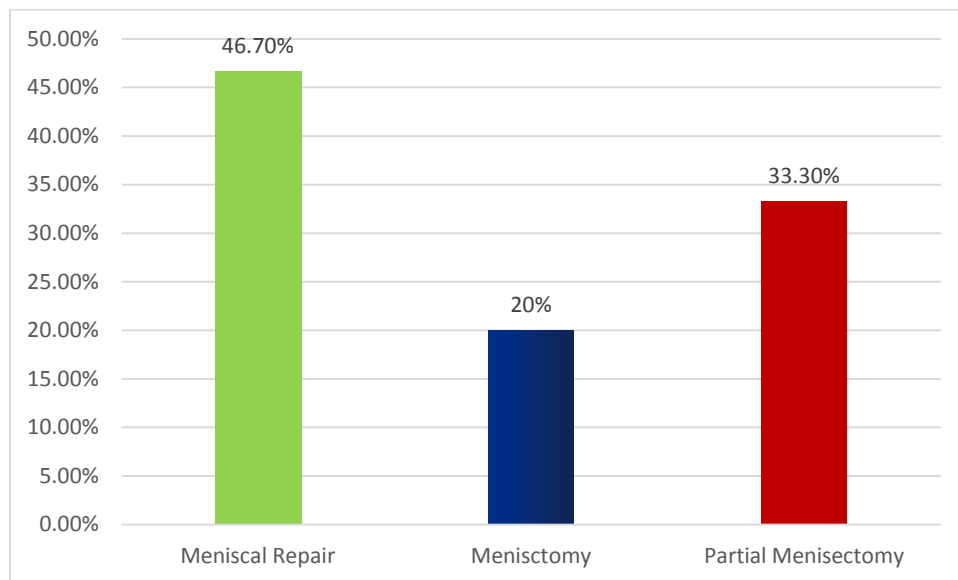


Fig. 1. Treatment

Table 2. KOOS score

KOOS score	Mean	SD	P value
Preoperative	65.96	6.8	<0.0001*
Day 2	69.4	7.5	
1 month	74.8	6.2	
3 month	77.93	6.7	
6 month	79.5	7	

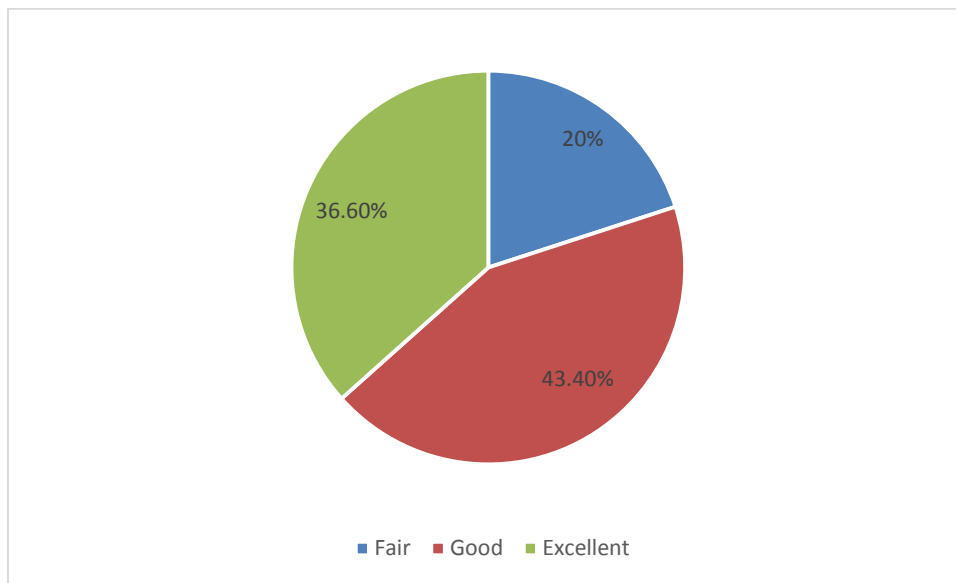


Fig. 2. Functional outcome

Table 3. Complications

Complications	Frequency	Percentage
No complication	25	83.3%
Anterior Knee Pain	3	10%
Knee Stiffness	2	6.7%
Total	30	100%

5. DISCUSSION

Mean age in years was 48.56±6.43, ranging from 51 to 73 years. Majority 53.33% were females. Common mode of injury was road traffic accident (56.6%). Medial meniscus was commonly involved (73.3%). 46.7% undergo meniscal repair, 33.3% partial menisctomy and 20% menisctomy. Applying multiple regression to KOOS score r2 value is 0.9 and p value was <0.0001, which shows statistical significance.

43.4% cases showed good functional outcome, 36.6% showed excellent and 20% showed fair outcome. Complications were seen among 17% cases.

Study by Johnson et al. [9] included 48 patients and found clinical success rate of 76%. Study by Stein et al (10) showed that majority 50% had good activity level post surgery. Rockbom and Gillquist [11] studied 31 patients for 13 years those had open meniscal repair and they found a 71% success rate post surgery. Similar results were seen in a follow-up study [12] which was

done for 6.6 years and noted 71.4% success rate. Even study Nepple et al. [13] showed success rate of 75 to 80% for all repair techniques. It was seen that only some modern repair techniques were included in the study and follow up of the study is still to conclude on weather which meniscal repair operation/ management is more effective. Some limitations or disadvantages of the repair technique are that it is very costly, the polymer used, injury to neighbouring anatomical part, and a high rate of anchor pullout during insertion.

6. CONCLUSION

Present study concludes that as meniscal tear is very common injury among adults. This should be diagnosed and treated at earliest. Arthroscopy gives good post-operative results. The functional outcome is good in arthroscopy treated patients and complications noted were also very less. So, arthroscopic meniscal repair can be considered as a good operational tool for meniscal repair.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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